



国家能源集团
CHN ENERGY

國電科技環保集團股份有限公司

GUODIAN TECHNOLOGY & ENVIRONMENT GROUP CORPORATION LIMITED*

(於中華人民共和國註冊成立的股份有限公司)
(a joint stock limited liability company incorporated in the People's Republic of China)

Stock Code 股份代號 : 01296
www.01296.hk



2019

ANNUAL REPORT
年度報告



* For identification purpose only
僅供識別



TOP 10 MILESTONES OF GUODIAN TECH 2019

國電科環2019年度十大新聞



01 On 30 July 2019, the 32nd Steering Group of the CPC Central Committee went to the Group to investigate the implementation of the education under the theme of "staying true to our founding mission".
2019年7月30日，中央第三十二指導組到本集團調研「不忘初心、牢記使命」主題教育開展情況。



07 On 29 October 2019, the first intelligent power generation operation control system of China, independently developed by Zhishen Company passed the technical appraisal.
2019年10月29日，智深公司自主研发的中国首套智能发电运行控制系统通过技术鉴定。



08 In 2019, Tianren Company launched the Intelligent Management System ("IMS") to help build Suqian Intelligent Power Plant.
2019年，天仁公司推出智慧管控平台 (IMS) 助力宿遷智慧電廠建設。



02 In 2019, the Group was selected into the SASAC Model Enterprise Support Plan for deepening the reform of the talent development system and mechanism.
2019年，本集團入選國資委深化人才發展體制機制改革示範企業支持計劃。



06 On 23 July 2019, Longyuan Engineering received the Grade I Qualification for general contracting of electric power works.
2019年7月23日，龍源工程喜獲電力工程施工總承包壹級資質。



09 In 2019, Lucency obtained seven qualifications in the field of environmental protection, including Grade A Qualification for physical pollution prevention and control (noise control).
2019年，朗新明共取得物理污染防治 (噪聲治理) 甲級資質等環保領域七項資質。



05 On 29-30 November 2019, United Power won the "Award of Machine Manufacturing Enterprise with Outstanding Contribution to China Wind Power 30th Anniversary".
2019年11月29-30日，聯合動力榮獲「中國風電三十週年整機製造企業突出貢獻獎」。



03 On 3-4 August 2019, Longyuan Environmental hired seven professional managers through open recruitment, to promote the reform of "Double-Hundred Plan".
2019年8月3-4日，龍源環保公開選聘7位職業經理人，全面助力「雙百行動改革」。



04 On 25 November 2019, Longyuan Technology signed the contract for the project of Zimbabwe Power Company with the contract amount up to \$19.33 million.
2019年11月25日，龍源技術簽訂津巴布韋電力公司項目，合同金額達1,933萬美元。



10 On 19 January 2019, Energy Conservation Company won the title of "2018 Energy Conservation Service Industry Brand Enterprise".
2019年1月19日，節能公司獲「2018節能服務產業品牌企業」獎項。



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CORPORATE INFORMATION⁽¹⁾

公司資料⁽¹⁾

DIRECTORS

Executive Directors

Mr. CHEN Dongqing (*Chairman*)
Mr. ZHANG Jun (*General Manager*)
Mr. TANG Chaoxiong

Non-executive Directors

Mr. WANG Zhongqu
Mr. ZHANG Wenjian
Mr. GU Yuchun
Mr. YAN Andrew Y.

Independent Non-executive Directors

Mr. SHEN Xiaoliu
Mr. QU Jiuhui
Mr. XIE Qiuye
Mr. YEUNG Chi Tat

SUPERVISORS

Mr. LUAN Baoxing (*Chairman*)
Mr. XU Xingzhou
Mr. YANG Xiangbin ⁽²⁾
Ms. HE Lili ⁽³⁾
Mr. LI Wei

LEGAL ADVISORS

International

Herbert Smith Freehills (as to Hong Kong law)
23/F, Gloucester Tower
15 Queen's Road Central
Central, Hong Kong

PRC

King & Wood Mallesons (as to PRC law)
20/F, East Tower, World Financial Center
1 Dongsanhuan Zhonglu
Chaoyang District, Beijing, PRC

AUDITORS

International

Ernst & Young
Certified Public Accountants
22/F, CITIC Tower
1 Tim Mei Avenue
Central, Hong Kong

董事

執行董事

陳冬青先生(*主席*)
張軍先生(*總經理*)
唐超雄先生

非執行董事

王忠渠先生
張文建先生
顧玉春先生
閻焱先生

獨立非執行董事

申曉留先生
曲久輝先生
謝秋野先生
楊志達先生

監事

樂寶興先生(*主席*)
許興洲先生
楊向斌先生⁽²⁾
何麗麗女士⁽³⁾
李偉先生

法律顧問

國際

史密夫斐爾律師事務所(有關香港法律)
香港中環
皇后大道中15號
告羅士打大廈23樓

中國

金杜律師事務所(有關中國法律)
中國北京市朝陽區東三環中路1號
環球金融中心辦公樓東樓20層

核數師

國際

安永會計師事務所
執業會計師
香港中環
添美道1號
中信大廈22樓



CORPORATE INFORMATION (CONTINUED)⁽¹⁾
公司資料(續)⁽¹⁾

PRC

ShineWing Certified Public Accountants
(Special General Partnership)
9/F, Block A Fu Hua Mansion
No.8 Chao Yang Men Bei Da Jie
Dong Cheng District, Beijing, PRC

JOINT COMPANY SECRETARIES

Mr. CAI Zhaowen
Mr. LEE Kwok Fai Kenneth

AUTHORIZED REPRESENTATIVES

Mr. CHEN Dongqing
Mr. LEE Kwok Fai Kenneth

LEGAL ADDRESS

Suite 1101, 11/F, Building 1
Yard 16, W.4th Ring Middle Road
Haidian District, Beijing, PRC

HEAD OFFICE IN PRC

Building 1
Yard 16, W.4th Ring Middle Road
Haidian District, Beijing, PRC

PRINCIPAL PLACE OF BUSINESS IN HONG KONG

Flat L, 15/F, Hong Kong Mansion
1 Yee Wo Street, Causeway Bay
Hong Kong

NOMINATION COMMITTEE

Mr. XIE Qiuye (*Chairman*)
Mr. QU Jiuhui
Mr. TANG Chaoxiong

AUDIT COMMITTEE

Mr. YEUNG Chi Tat (*Chairman*)
Mr. SHEN Xiaoliu
Mr. ZHANG Wenjian

REMUNERATION AND APPRAISAL COMMITTEE

Mr. QU Jiuhui (*Chairman*)
Mr. XIE Qiuye
Mr. WANG Zhongqu

中國

信永中和會計師事務所
(特殊普通合夥)
中國北京市東城區
朝陽門北大街8號富華大廈A座9層

聯席公司秘書

蔡兆文先生
李國輝先生

授權代表

陳冬青先生
李國輝先生

法定地址

中國北京市海澱區
西四環中路16號院
1號樓11層1101室

中國主要辦事處

中國北京市海澱區
西四環中路16號院
1號樓

香港主要營業地點

香港
銅鑼灣怡和街1號
香港大廈15樓L室

提名委員會

謝秋野先生(*主席*)
曲久輝先生
唐超雄先生

審計委員會

楊志達先生(*主席*)
申曉留先生
張文建先生

薪酬與考核委員會

曲久輝先生(*主席*)
謝秋野先生
王忠渠先生



CORPORATE INFORMATION (CONTINUED)⁽¹⁾ 公司資料(續)⁽¹⁾

STRATEGIC COMMITTEE

Mr. CHEN Dongqing (*Chairman*)
Mr. SHEN Xiaoliu
Mr. GU Yuchun
Mr. YAN Andrew Y.
Mr. ZHANG Jun

H SHARE REGISTRAR

Computershare Hong Kong Investor Services Limited

WEBSITE ADDRESS

www.01296.hk

PRINCIPAL BANKS

Industrial and Commercial Bank of China Limited
(Beijing Cuiwei Road Sub-branch)
Bank of Communications Corporation Limited (Hong Kong Branch)

Notes :

- (1) The information is updated to 31 December 2019.
- (2) Mr. YANG Xiangbin ceased to be the supervisor of the Company on 7 February 2020 due to the adjustment of work arrangement. For more details, please refer to the announcement of the Company dated 7 February 2020.
- (3) Due to the job transfer, Ms. HE Lili ceased to be a supervisor of the Company on 6 March 2020. On the same day, the Company held a joint meeting of employees and elected Ms. QIN Xiangling as the representative supervisor of employees, whose term of office expires at the end of the third session of the Board of Supervisors. Please refer to the announcement of the Company dated 6 March 2020 for details.

戰略委員會

陳冬青先生(*主席*)
申曉留先生
顧玉春先生
閻焱先生
張軍先生

H股證券登記處

香港中央證券登記有限公司

網址

www.01296.hk

主要往來銀行

中國工商銀行股份有限公司
(北京翠微路支行)
交通銀行股份有限公司(香港分行)

附註 :

- (1) 本部分資料更新至2019年12月31日。
- (2) 因工作安排調整，楊向斌先生於2020年2月7日起不再擔任本公司監事職務。有關詳情請參閱本公司日期為2020年2月7日的公告。
- (3) 因工作調動，何麗麗女士於2020年3月6日起不再擔任本公司監事職務。同日公司召開職工聯席會議，選舉秦湘靈女士為職工代表監事，任期至第三屆監事會任期屆滿為止。有關詳情請參閱本公司日期為2020年3月6日的公告。

The logo features a stylized green diamond shape containing icons of wind turbines, solar panels, and industrial buildings. The text 'CORPORATE PROFILE' is written in a light green, sans-serif font above the diamond, and '公司介紹' is written in a similar font inside the diamond.

CORPORATE PROFILE 公司介紹

Guodian Tech, formerly known as Guodian Technology & Environment Group Co., Ltd., was officially converted to a joint stock company on 16 May 2011, listed on the Main Board of the Stock Exchange of Hong Kong Ltd. (the “**Stock Exchange**”) on 30 December 2011. At the extraordinary general meeting held on 23 December 2019, the Company considered and adopted the proposal of the change of its name into CHN Energy Technology & Environment Group Corporation Limited, which is currently in the process of industrial and commercial change registration. The principal businesses of the Company, together with its subsidiaries, (the “**Group**”), are carried out under two businesses, namely, the business of environmental protection and energy conservation solutions, and the business of renewable energy equipment manufacturing and services. The Group, with its advanced technologies and diversified business models, is a leading market player in the PRC in these industries. In addition, the Group has successively been selected for Global TOP 500 New Energy Enterprises for eight consecutive years since 2012.

In its environmental protection and energy conservation solutions business, the Group is the largest supplier of technology and integrated systems solutions to coal-fired power plants in the PRC, providing innovative and advanced technology designed to reduce pollutant emissions and to maximize efficiency of resource utilization, with the overall objective of reducing the environmental impacts of coal-fired electricity generation while maximizing cost-efficiency and profitability for its customers. Leveraging on its comprehensive environmental protection and energy conservation technologies and solutions for all aspects of coal-fired power plants (with the core business as desulfidation, denitration, water treatment, plasma ignition and general contracting for power stations), the Group is capable of providing one-stop solutions for its customers that are tailored to meet their specific needs. The Group is also one of the leading manufacturers of wind power generation equipment in the PRC in its renewable energy equipment manufacturing and services business, with a well-established brand and is well-known for its product quality and high standards of performance. In line with its strategic focus on providing integrated solutions and services, the Group also provides renewable energy related services such as the maintenance and repair of wind turbine generators.

Focusing on technological innovation and industrial applications, the Group has gained a number of innovative achievements in relation to significant technology and product innovation through original creation, resource integration innovation and technological advancements. Among its leading technologies in the PRC and globally, the Group’s plasma ignition technology is ranked first in the world. In the domestic market, the Group possesses a leading position in many technologies, including wet flue gas desulfurization, seawater desulfurization, boiler low-nitrogen combustion and flue gas denitrification. Beijing Guodian Longyuan Environmental Engineering Co., Ltd. (“**Longyuan Environmental**”), Yantai Longyuan Power Technology Co., Ltd. (“**Longyuan Technology**”) (SZ.300105), Guodian United Power Technology Co., Ltd. (“**United Power**”), Beijing Huadian Tianren Power Controlling Technology Co., Ltd. (“**Tianren Company**”) and Beijing Guodian Zhishen Control Technology Co., Ltd. (“**Zhishen Company**”) have become well-known brand names in the PRC.

國電科環前身為國電科技環保集團有限公司，於2011年5月16日正式改制成為股份有限公司並於2011年12月30日在香港聯合交易所有限公司(「**聯交所**」)主板上市。本公司於2019年12月23日召開的臨時股東大會上審議通過有關公司更名事項，擬更名為國家能源科技環保集團股份有限公司，目前正在辦理工商變更登記中。本公司及附屬公司(「**本集團**」)之主營業務分為兩部分，即環保節能解決方案業務和可再生能源設備製造及服務業務。本集團憑藉其先進的技術和多元化的業務模式躋身於國內行業領先地位。從2012年至今，本集團連續八年入選全球新能源企業500強。

於環保節能解決方案業務方面，本集團為中國最大的燃煤電廠技術及集成系統解決方案供貨商，提供為減少污染物排放及提升資源利用效率而設計的創新和先進的技術，整體目標為減低燃煤發電相關的環境影響，以及提升其客戶的成本效益及盈利能力。憑藉其為燃煤電廠提供的全方面綜合環保節能技術及解決方案(核心業務為脫硫、脫硝、水處理、等離子體點火及電站建設總承包)，本集團能為其客戶提供「一站式」的解決方案，量身訂製滿足其客戶的特定需要。於可再生能源設備製造及服務業務方面，本集團亦為中國領先的風力發電設備製造商之一，已建立穩固的品牌，並以其產品質量及性能著稱。與其提供集成解決方案及服務的戰略重點一致，本集團亦致力於可再生能源相關服務，如風力發電機組保養及維修業務。

本集團專注於科技創新和產業化應用，通過原始創新、資源集成創新與技術引進並再創新，取得了一大批科技創新成果，有多項技術達到國際、國內領先水平，其中本集團的等離子體點火技術水準居世界第一位，本集團的煙氣濕法脫硫、海水脫硫、鍋爐燃燒降氮、煙氣脫硝技術始終保持國內領先地位，北京國電龍源環保工程有限公司(「**龍源環保**」)、烟台龍源電力技術股份有限公司(「**龍源技術**」)(SZ.300105)、國電聯合動力技術有限公司(「**聯合動力**」)、北京華電天仁電力控制技術有限公司(「**天仁公司**」)、北京國電智深控制技術有限公司(「**智深公司**」)已成為享譽中國的知名品牌。



CORPORATE PROFILE (CONTINUED) 公司介紹(續)

As of 31 December 2019, the Group has had 4 national scientific research platforms including “National Key Laboratory for Wind Power Equipment and System Technology”, 11 province-level scientific research platforms, 2 post-doctoral scientific research workstations and 1 academician and expert workstation. The Group has undertaken 52 sustainable scientific research and development (“**R&D**”) projects, amongst which 22 are ministerial, provincial and municipal technical projects outside China Energy. During the year, the Group has made remarkable achievements in aspects of new wind turbine generator (“**WTG**”) model research, thermal power plant ultra-clean discharge treatment, thermal power plant water saving, zero wastewater discharge, comprehensive energy conservation and technology R&D of thermal power plant, etc.. In 2019, the Group acquired 370 patents, including 42 invention patents, 14 provincial and ministerial awards, gaining an absolute advantage in benchmarking its position in the industry.

The Company believes that its strategic focus on investing in and promoting R&D as a core activity to support the development of its various businesses has yielded substantial returns, allowing the Company to maintain its established position at the forefront of technological advancements in the environmental protection, energy conservation and renewable energy industries, and to develop innovative, practical and cost-efficient solutions and technological applications and high-quality products in these industries. The Company also believes that these industries will play a key role in the sustainable growth and development of the energy and power sector in the PRC, which in turn is indispensable to the sustainable growth and development of the economy in the PRC. Going forward, the Company expects to leverage on its operations in the PRC to explore the international market, with the objective of becoming a leading supplier of integrated clean technology solutions and services.

截至2019年12月31日，本集團擁有「風電設備及系統技術國家重點實驗室」等4個國家級科研平台、11個省部級科研平台、2個博士後科研工作站及1個院士專家工作站。本集團承擔持續科研開發（「**研發**」）項目共計52項，其中國家部委、省市等立項在研科技項目共計22項。本年度在風機（「**風機**」）新機型研發、火電廠超淨排放治理、火電廠節水及廢水零排放及火電廠綜合節能技術研發等方面取得顯著成果。2019年全年，共計獲得專利授權370項，其中發明專利42項，獲得省部級獎勵14項，在行業對標中佔據絕對優勢。

本公司相信，以投資和促進技術研發作為核心活動來支持本公司多元化業務的重點戰略已經得到了重大回報；使其能夠保持在環保、節能和可再生能源行業中技術領先的主導地位；使其研發出在相關行業中具有創新性、實用性、節約成本的解決方案和技術應用以及高質量的產品。本公司也相信，這些行業將對中國能源及電力產業的可持續發展起到關鍵作用，而能源的可持續發展又是中國經濟可持續發展不可或缺的部份。展望未來，本公司將以成為世界領先的綜合清潔能源技術解決方案和服務提供商為目標，力爭充分利用其在中國的業務拓展國際市場。

FIVE YEARS FINANCIAL SUMMARY

五年財務概要

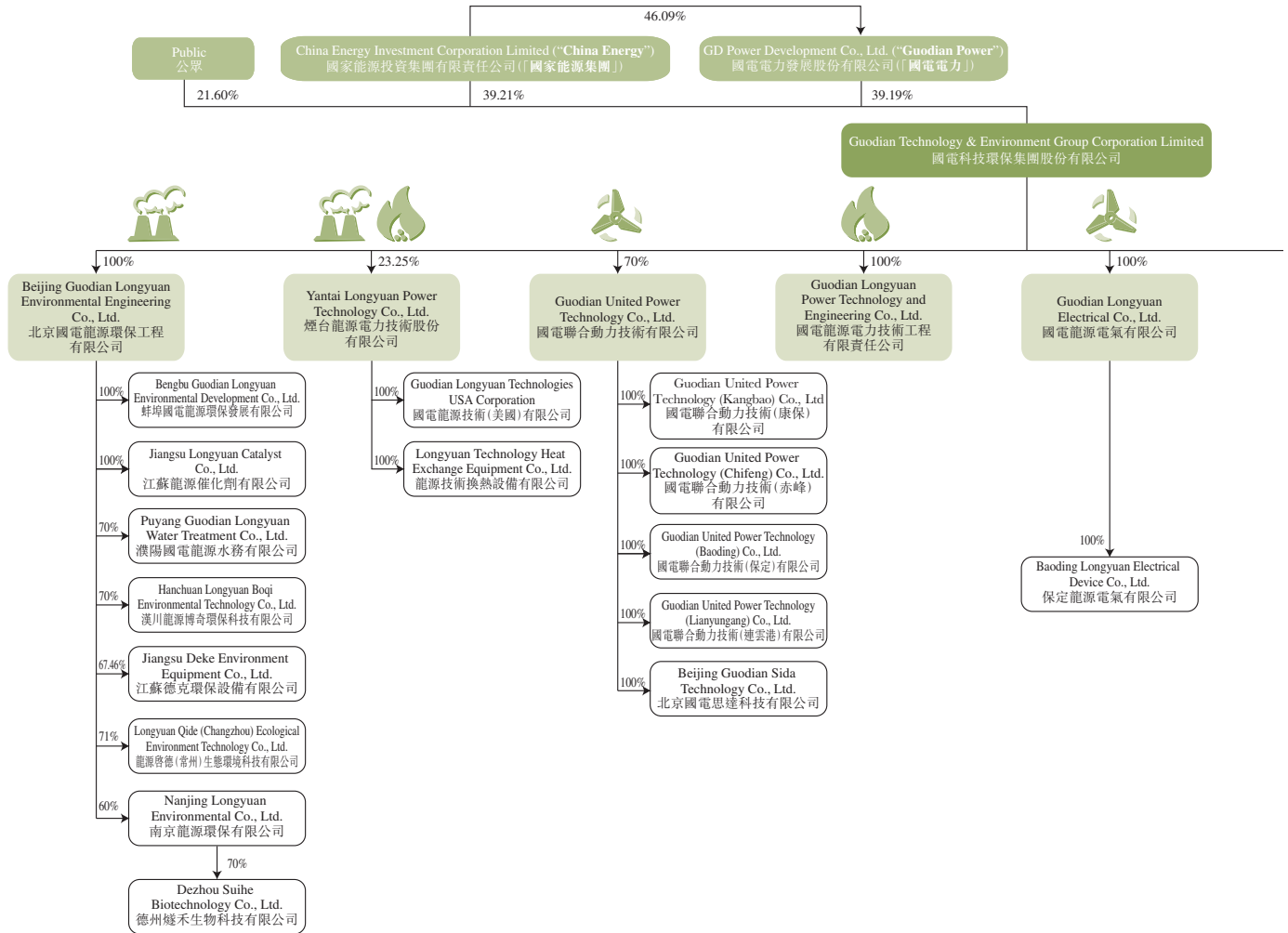
		2015	2016	2017	2018	2019
		<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
		(restated)	(restated)	(restated)		
		(重述)	(重述)	(重述)		
Continuing operations	持續經營業務					
Revenue	收益	19,993,540	15,893,049	11,703,002	11,411,780	11,691,038
Profit/(loss) before taxation from continuing operations	來自持續經營業務之稅前利潤/(虧損)	179,669	529,340	627,415	(59,661)	(149,515)
Income tax	所得稅	(139,549)	(123,500)	(180,936)	16,965	(297,537)
(Loss)/profit for the year from continuing operations	本年來自持續經營業務之(虧損)/利潤	40,120	405,840	446,479	(42,696)	(447,052)
Discontinued operation	已終止經營業務					
(Loss)/profit for the year from a discontinued operation	本年來自已終止經營業務(虧損)/利潤	(4,744,011)	(134,089)	(355,709)	155,059	-
(Loss)/profit for the year	本年(虧損)/收益	(4,703,891)	271,751	90,770	112,363	(447,052)
Attributable to:	歸屬於:					
Equity shareholders of the Company	本公司權益股東	(4,653,788)	320,672	43,703	114,087	(289,688)
Non-controlling interests	非控股權益	(50,103)	(48,921)	47,067	(1,724)	(157,364)
(Loss)/profit for the year	本年(虧損)/收益	(4,703,891)	271,751	90,770	112,363	(447,052)
Basic and diluted (loss)/earnings per share (RMB cent)	每股基本及攤薄(虧損)/盈利 (以人民幣分列示)					
- Continuing and discontinued operations	- 持續經營業務和已終止經營業務	(77.57)	5.29	0.72	1.88	(4.78)
- Continuing operations	- 持續經營業務	(1.67)	7.48	6.55	(0.68)	(4.78)
- Discontinued operation	- 已終止經營業務	(75.9)	(2.19)	(5.83)	2.56	-
Total non-current assets	非流動資產總額	17,616,846	11,885,088	10,851,227	11,534,104	11,930,118
Total current assets	流動資產總額	25,335,828	28,333,291	24,757,023	22,623,310	22,883,194
Total assets	資產總額	42,952,674	40,218,379	35,608,250	34,157,414	34,813,312
Total current liabilities	流動負債總額	28,686,925	25,489,235	21,964,491	21,156,406	20,277,171
Total non-current liabilities	非流動負債總額	6,362,796	6,660,589	5,710,494	5,257,836	6,974,423
Net assets	資產淨額	7,902,953	8,068,555	7,933,265	7,743,172	7,561,718
Total equity attributable to equity shareholders of the Company	歸屬於本公司權益股東的權益總額	4,606,464	4,992,176	4,864,544	4,769,484	4,766,114
Non-controlling interests	非控股權益	3,296,489	3,076,379	3,068,721	2,973,688	2,795,604
Total equity	權益總額	7,902,953	8,068,555	7,933,265	7,743,172	7,561,718



CORPORATE STRUCTURE

公司架構

* This chart is updated to 31 December 2019
 * 本圖更新至2019年12月31日



Environmental Protection
環保



Energy Conservation Solutions
節能解決方案



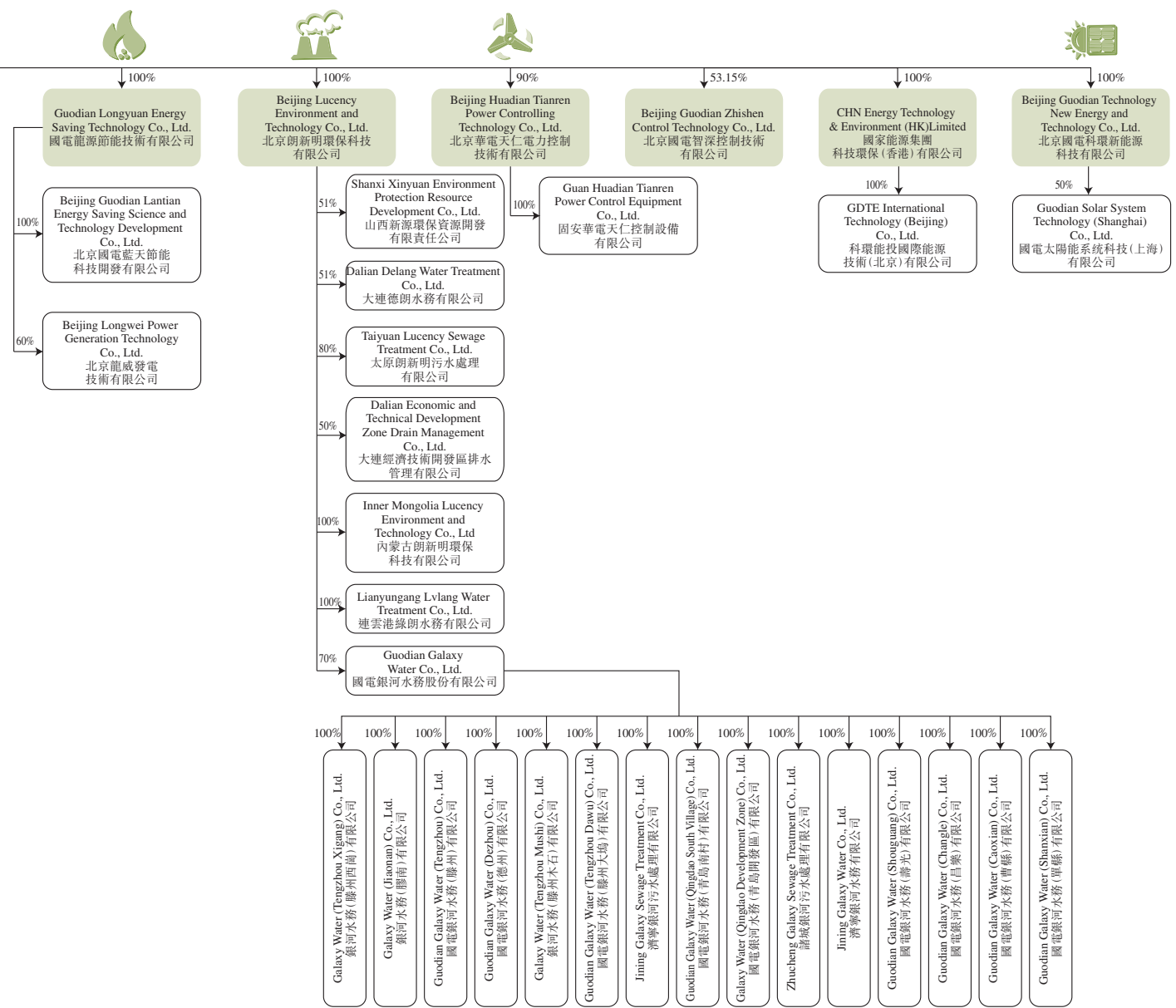
Wind Power Products and Services
風電產品及服務



Solar Power Products and Services (Discontinued)
太陽能產品及服務 (已終止經營)

CORPORATE STRUCTURE (CONTINUED)

公司架構(續)





CHAIRMAN'S STATEMENT 董事長致辭



Dear Shareholders:

On behalf of the board of directors (the "Board") of the Company, I am honored to present to you the 2019 annual report of the Group (the "Annual Report").

In 2019, the global economy was still in the deep adjustment period after the international financial crisis, and there was still uncertainty in the economic and trade friction between China and the United

States. China was in the key period of changing the mode of development, optimizing the economic structure and transforming the power of growth, and the downward pressure on the economy continued to increase. At the same time, supply-side structural reform, industrial upgrading, domestic demand release, "the Belt and Road" cooperation and other positive effects will continue to function, the basic trend of steady and good economic development, long-term good trend has not changed. In 2019, the Central Government put forward a firm fight against pollution in the same direction and with the same strength, a macro ecological environment supervision and control pattern covering water, atmosphere, soil and solid waste gradually formed. The energy-saving demand on architecture, transportation, heating and other industries grew rapidly. The grid parity policy drove the installed capacity of wind power; the offshore wind power market and the markets in Southeast Asia and other regions in the world had development potential. The traditional industrial technology upgrading, automation transformation, and information construction needed a large number of industrial automation control products, and the electronic-informatization-based power generation business embraced many market opportunities. Guodian Tech will follow the energy structure adjustment and technological enhancement of electric power, according to the target proposed at the 19th CPC National Congress to speed up the reformation of ecological civilization system, build a beautiful China, create a good production and living environment for the people, and contribute to global ecological security. We adhere to the industrial direction of using energy in a cleaner and more efficient manner and win the tough fight against pollution.

尊敬的股東：

我很榮幸代表本公司董事會(「董事會」)向各位股東公佈本集團2019年年度報告(「年報」)。

2019年，全球經濟仍處在國際金融危機後的深度調整期，中美經貿摩擦還有不確定性。我國處在轉變發展方式、優化經濟結構、轉換增長動力的攻關期，經濟下行壓力持續加大。同時供給側結構性改革、產業升級、內需釋放、「一帶一路」合作等積極效應將繼續顯現，經濟發展穩中向好、長期向好的基本趨勢沒有改變。2019年中央提出堅決打好污染防治攻堅戰，堅持方向不變、力度不減，涵蓋水、大氣、土壤、固廢的生態環境監管大格局逐步形成；建築、交通、供暖等行業的節能需求快速增長；平價上網政策驅動風電搶裝浪潮，海上風電市場及東南亞等地區的國際風電市場具備發展潛力；傳統工業技術升級、自動化改造、信息化建設需要大量的工業自動化控制產品，電力電子信息化業務面臨較大市場機遇。國電科環緊緊圍繞能源結構調整和電力技術變革，按照黨的十九大所提出的加快生態文明體制改革，建設美麗中國，為人民創造良好生產生活環境，為全球生態安全作出貢獻為目標，堅持讓能源利用更加清潔高效的產業發展方向，打好污染防治攻堅戰。

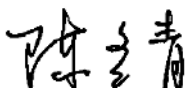


CHAIRMAN'S STATEMENT (CONTINUED) 董事長致辭(續)

Over the years, Guodian Tech has committed to developing and promoting environmental protection and energy conservation solutions and renewable energy technologies while focusing on the breakthrough of a batch of key core technologies, forming a strategic emerging industry cluster with comparative advantages, enhancing its capability to fulfill its corporate social responsibility and promoting clean electricity production. Guodian Tech is now a leading force in China's electric power industry. The Company will always be customer-oriented, focus on creating value for customers, achieving win-win development, implement China Energy's overall development strategy of "one goal, three-type and five-based, seven-leading" ("one goal" means constructing a world-class energy group with global competitiveness; "three-type and five-based" means creating an enterprise of innovative type, leading type and value-oriented type, and promoting clean, integrated, refined, intelligent and international development; and "seven-leading" means becoming an enterprise with leading safety, leading quality, leading benefit, leading technology, leading talents, leading brand and leading Party construction), enhance quality and efficiency, achieve high-quality development, make the Group a world-class professional scientific and technological environmental protection company, and provide scientific and technological support and service guarantee for China Energy to become a world-class energy group with global competitiveness. For this new journey in the new era, we will strive to achieve the highest peak of energy technology in the world.

Looking into the future, we will continue to use the platform and resources provided by China Energy to build a world-class professional science and technology environmental protection company, create a featured high-tech industry brand integrating application R&D, transformation of results and industrialization implementation, and return to shareholders and the community with outstanding business performance!

Finally, on behalf of the Board, I would hereby like to extend our sincere gratitude to all the Shareholders, clients and business partners for their trust and support, and to all the management and employees for their efforts and contributions.

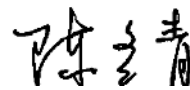


Mr. CHEN Dongqing
Chairman of the Board

多年來，國電科環致力於環保節能與可再生能源技術的開發和推廣，著眼於突破一批關鍵核心技術，形成了具有比較優勢的戰略性新興產業集群，提高了履行企業社會責任的能力和電力行業的清潔生產水平，成為中國電力行業中享有盛譽的先進企業。本公司將始終以客戶為中心，把為客戶創造價值、實現共贏發展作為根本，落實國家能源集團「一個目標、三型五化、七個一流」（「一個目標」指建設具有全球競爭力的世界一流能源集團；「三型五化」是指打造創新型、引領型、價值型企業，推進清潔化、一體化、精細化、智慧化、國際化發展；「七個一流」是指實現安全一流、質量一流、效益一流、技術一流、人才一流、品牌一流和黨建一流）的總體發展戰略，狠抓提質增效，實現高質量發展，把本集團建設成為世界一流水平的專業化科技環保公司，為國家能源集團建設具有全球競爭力的世界一流能源集團提供科技支撐和服務保障。在新時代起航的新征程中有新作為，勇攀全球能源科技最高峰。

展望未來，本公司將繼續利用國家能源集團所提供的平台和資源，建設世界一流水平的專業化科技環保公司，打造集應用研發、成果轉化和產業化落地一體化的特色高科技產業品牌，並以優異的經營業績回報股東，回報社會！

最後，我謹代表董事會，在此衷心感謝全體股東、客戶、業務合作夥伴的信任和支持，同時也感謝管理層及員工的努力和貢獻。



陳冬青先生
董事長



PRESIDENT'S STATEMENT

總經理致辭



Dear Shareholders:

The Group adhered to the guidance of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era, adhered to the Party's leadership, strengthened the Party's construction, deeply practiced and implemented the overall development strategy of China Energy, adhered to the general tone of steady and progressive work, earnestly implemented the work arrangement of

the Board of Directors, devoted all our efforts to fighting hard battles of streamlining organization and enhancing quality and efficiency, actively pushed forward the market-oriented reform, insisted on the drive of the scientific and technological innovation, and steadily promoted the Company's production and operation, maintaining a good situation of overall stable and safe production, continuously improving business development and harmonious and stable staff.

This year, the Company's work safety was basically stable; its operation and manufacturing construction was stable and orderly; its market development was steady, the governance system was constantly improving; the Company reduced its cost and increased its efficiency to create value; it solidly pushed forward its capital operation; its scientific and technological innovation achievements were remarkable and its Party construction was strengthened in an all-round way. Among them: The "ultra-low emission control technology of coal-fired power station" of Longyuan Environmental created the minimum emission index of similar units of ultra-high sulfur coal; the indicators of the "ultra-low NOx pulverized coal combustion technology" of Longyuan Technology reached the leading level at home; the first domestic intelligent power generation operation control system "iSol" independently researched and developed by Zhishen Company had the performance reach the international leading level; Longyuan Engineering obtained Grade I Qualification of general contracting of power engineering construction; Lucency obtained Grade A Qualification of noise control; Longyuan Electrical's coal mine safety monitoring system obtained the mine product safety mark certificate; Tianren Company acquired Grade IV Qualification for Capability Maturity Model Integration ("CMMI").

尊敬的股東：

本集團堅持以習近平新時代中國特色社會主義思想為指引，堅持黨的領導、加強黨的建設，深入貫徹落實國家能源集團的總體發展戰略，堅持穩中求進工作總基調，認真執行董事會工作部署，全力以赴打好瘦身健體和提質增效攻堅戰，積極開展市場化改革，堅持科技創新驅動，紮實推進公司各項生產經營工作，保持了安全生產總體平穩、經營發展持續向好、職工隊伍和諧穩定的良好態勢。

本年度，本公司安全生產基本穩定，運營製造建設平穩有序，市場開拓穩中有進，治理體系不斷健全，降本增效創造價值，資本運營紮實推進，科技創新成績顯著，黨的建設全面加強。其中：龍源環保「燃煤電站超低排放控制技術」創造了超高硫煤同類機組最低排放指標；龍源技術「超低NOx煤粉燃燒技術」指標達到國內領先水平；智深公司自主研發的國內首套智能發電運行控制系統「岸石」性能達到國際領先水平；龍源工程獲得電力工程施工總承包壹級資質；朗新明獲得噪音治理甲級資質；龍源電氣煤礦安全監控系統獲得礦用產品安全標誌證書；天仁公司獲得能力成熟度模型集成(Capability Maturity Model Integration，即「CMMI」)四級資質。



PRESIDENT'S STATEMENT (CONTINUED) 總經理致辭(續)

In addition, the Company's scientific and technological innovation achievements in this year were remarkable. A total of 26 scientific and technological achievements were transformed in 2019. Longyuan Environmental's ultra-low emission intelligent management platform completed its demonstration in Hanchuan Power Plant and were launched for 33 franchised operation and maintenance projects, reaching the international leading level. United Power's 3MW wind turbine was connected to the power grid smoothly for power generation at Chaganhua, Inner Mongolia, and United Power successfully held the 2019 Clean Energy High-end Forum on New and Renewable Energy; Tianren Company was approved to become a corporate technical center in Beijing; the national key R&D program inter-governmental scientific and technological innovation cooperation project Longyuan Technology participated in whose declaration was approved.

The year 2020 is the key year for the conclusion of the "13th Five-Year Plan" and the beginning of the "14th Five-Year Plan". It is also the year for the Company to push forward the market-oriented reform and create a world-class specialized technology and environmental protection company. The Group will adhere to the new concept of development, actively implement the energy security new strategy of "four revolutions, one cooperation", adhere to the overall keynote of pursuing steady progress, practice the overall development strategy of the China Energy, strive to achieve "Six-Pay-More-Attention" (i.e., pay more attention to the guidance of Party building, pay more attention to strategic orientation, pay more attention to scientific and technological innovation, pay more attention to value creation, pay more attention to deepening reform and pay more attention to risk prevention and control), enhance the service and safeguard capacity of the main industry of China Energy, and make a greater contribution to the construction of a world-class energy group with global competitiveness.



Mr. ZHANG Jun
General Manager

此外，本年度公司科技創新工作亮點紛呈。2019年共26個科技成果實現轉化。龍源環保超低排放智慧管理平台在漢川電廠完成示範，並在33個特許運維項目上線，達到國際領先水平。聯合動力3MW風機在內蒙古查干花順利併網發電，並成功舉辦2019年清潔能源高端論壇之新能源與可再生能源論壇；天仁公司獲批成為北京市企業技術中心；龍源技術參與申報的國家重點研發計劃政府間國際科技創新合作項目獲批。

2020年是「十三五」規劃收官、「十四五」規劃謀篇的關鍵之年，也是公司深入推進市場化改革、創建世界一流水平專業化科技環保公司的奮鬥之年。本集團將堅持新發展理念，積極貫徹「四個革命、一個合作」能源安全新戰略，堅持穩中求進工作總基調，踐行國家能源集團的總體發展戰略，努力做到「六個更加注重」（即，更加注意黨建引領，更加注重戰略導向，更加注重科技創新，更加注重價值創造，更加注重深化改革，更加注重風險防控），提升對國家能源集團主業的服務和保障能力，為國家能源集團建設具有全球競爭力的世界一流能源集團作出更大貢獻。



張軍先生
總經理



MANAGEMENT'S DISCUSSION AND ANALYSIS

管理層討論與分析

Certain statistical data and other information relating to the PRC and the industries in which the Group operates contained in, for instance, the section headed “Key Industry Developments” in this report, have been derived from various publicly available official publications. The Company believes that the sources of these data are appropriate and has taken reasonable care in extracting and reproducing such information. The Company has no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. The information has not been independently verified by the Company or any other relevant party. The Company makes no representation as to the accuracy of the information contained in such sources, which may not be consistent with other data compiled within or outside the PRC. Accordingly, these data may not be accurate and the information should not be unduly relied upon for your investment in the Company.

This report contains certain forward-looking statements and information relating to the Group or the Company that are based on the belief and assumptions of the management of the Company. The words “anticipate”, “believe”, “expect”, “going forward” and similar expressions, as they relate to the Company, the Group or the Company's management, are intended to be identified as forward-looking statements. Such statements reflect the current views of the Company's management with respect to future events and are subject to certain risks, uncertainties and assumptions. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, the Group's business, financial condition and operating results may be adversely affected and may vary materially from those described herein as anticipated, believed or expected.

INDUSTRY AND BUSINESS OVERVIEW IN 2019

Key Industry Developments

For purpose of this report, PRC refers to the People's Republic of China, excluding Taiwan, Macao Special Administration Region and Hong Kong Special Administration Region.

The following are the principal laws, regulations, policies and measures promulgated by Chinese Government and other relevant regulatory authorities, which are expected to have a substantial impact on the businesses, operations and financial position of the Group:

本報告中如「主要行業發展」部分所載有關中國及本集團所經營行業的若干統計數據及其他信息乃摘自不同的官方公開刊物。本公司相信有關數據源為恰當的數據源並已合理謹慎地摘錄及轉載有關資料。本公司並無理由相信有關資料屬虛假或誤導性的資料或遺漏任何事實致使該等資料屬虛假或誤導性的資料。有關資料並未經本公司或相關各方獨立核實。本公司並沒有就該等來源所載資料的準確性發表任何聲明，而該等數據可能與中國境內外編製的其他數據不一致。因此，該等數據未必準確，閣下投資於本公司時不應過度依賴上述資料。

本報告載有基於本公司管理層的信念及假設作出有關本集團或本公司的若干前瞻性陳述及資料。「預計」、「相信」、「預期」、「今後」及類似表述，當用於本公司、本集團或本公司的管理層時，即指前瞻性陳述。此類陳述反映出本公司管理層對未來事件的當前觀點，並受若干風險、不明朗因素及假設的影響。倘一項或多項該等風險或不明朗因素成真，或倘相關假設被證實為不正確，本集團的業務、財務狀況及經營業績或會受不利影響且可能與本報告所述的預計、相信或預期者大不相同。

2019年行業和業務回顧

主要行業發展

中國是指中華人民共和國，僅就本報告而言，不包括台灣、澳門特別行政區及香港特別行政區。

以下為中國政府及其他有關監管機構頒佈的主要法規及政策措施，預期該等法規及政策措施將對本集團的業務、經營和財務狀況產生實質性影響：



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

1. On 29 January 2019, China Electricity Council (“CEC”) issued the National Power Supply and Demand Situation Analysis and Forecast Report 2018–2019 (the “Report”).

The Report points out that power production of the PRC continued the trend of green and low-carbon development, gradually revealing the effect of high-quality development. As at the end of 2018, the installed capacity of the full-caliber power generation in the PRC had been 1.9 billion kW, of which, the installed capacity of non-fossil energy power generation was 770 million kW, accounting for 40.8% of the total installed capacity.

The Report points out that green transformation of power generation installations of the PRC continued to advance. The newly-added installed capacity of power generation of the PRC was 120 million kW, of which, the newly-added installed capacity of non-fossil energy power generation accounted for 73.0%, and the newly-added wind turbines in the east and central regions of the PRC accounted for 64.2% of the total newly-added installed wind capacity.

The Report points out that the problem of abandoning wind electricity and photovoltaic (“PV”) electricity continued to be improved. The governments at all levels, power enterprises and the other parties involved worked together to promote clean energy consumption. In 2018, throughout the PRC, the abandoned wind electricity was 27.7 billion kwh and the average abandoned wind electricity rate was 7%, with a year-on-year (“YOY”) decrease of 5 percentage points; the abandoned PV electricity was 5.49 billion kwh and the average abandoned PV electricity rate was 3%, with a YOY decrease of 2.8 percentage points. The utilization time of wind power generating equipment in North China, Northwest China and Northeast China increased YOY by 102 hours, 215 hours and 236 hours respectively, and the utilization time of solar power generating equipment in Northwest China and Northeast China increased YOY by 66 hours and 65 hours respectively.

The promulgation of the Report is conducive to the clean energy industry and will bring a good operating environment for the wind turbine manufacturing industry.

1. 2019年1月29日，中國電力企業聯合會（「中電聯」）發佈《2018–2019年度全國電力供需形勢分析預測報告》（「《報告》」）。

《報告》指出，電力生產延續綠色低碳發展趨勢，高品質發展成效初步顯現。截至2018年底，全國全口徑發電裝機容量19.0億千瓦，其中非化石能源發電裝機容量7.7億千瓦，佔總裝機容量的比重為40.8%。

《報告》指出，發電裝機綠色轉型持續推進。全國新增發電裝機容量1.2億千瓦，其中新增非化石能源發電裝機佔新增總裝機的73.0%，東、中部地區新增風電裝機佔比為64.2%。

《報告》指出，棄風棄光問題繼續得到改善。各級政府和電力企業等多方共同努力，多措並舉推進清潔能源消納。2018年，全國棄風電量277億千瓦時，平均棄風率7%，同比下降5個百分點；全國棄光電量54.9億千瓦時，平均棄光率3%，同比下降2.8個百分點。華北、西北、東北地區風電設備利用小時分別比上年提高102、215和236小時，西北、東北地區太陽能發電設備利用小時分別提高66和65小時。

《報告》的發佈向好清潔能源產業，將對風機製造產業帶來良好的經營環境。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

2. On 29 January 2019, the National Development and Reform Commission (“**NDRC**”) and National Energy Administration (“**NEA**”) promulgated the Notice on the Management of the Plan of Priority Power Generation and Priority Power Purchase (“**Notice I**”).

Notice I requires that the consumption of the planned wind and solar power generation shall be arranged in full according to the corresponding resource conditions in areas where the consumption is not restricted, and the priority power generation price shall be formed by the combination of “quantity and price guaranteed” and “quantity guaranteed and price limited”.

Notice I requires that the priority power generation plan shall focus on the utilization of resources, etc. In respect of guaranteeing the utilization of clean energy, the planned wind and solar power generation shall be arranged in full according to the corresponding resource conditions in areas where the consumption is not restricted; and in areas where the consumption is restricted according to the full guarantee acquisition requirements and in consideration of the local actual arrangement plan, reasonable solutions shall be studied and established to ensure that the hours of the priority power generation plan can increase to a reasonable level year by year.

Notice I emphasizes that the price of priority power generation shall be established by combining “quantity and price guaranteed” and “quantity guaranteed and price limited”. The power under the priority power generation plan of “quantity and price guaranteed” shall be acquired by power grid enterprises at the governmental price, while that under the priority power generation plan of “quantity guaranteed and price limited” shall be priced through the market. The proportion of the priority power generation plan with governmental price shall be decreased year by year. When most of the same type units establish the market-oriented price, the governmental price shall be canceled. The priority power generator units whose on-grid tariff is determined by competitive bidding, the price established by the bidding shall prevail. The priority power generation with market-oriented price shall actively determine the transaction price by participating in the local power market, and the average power purchase price of the same type units in the region with market-oriented price shall apply to the power not transacted.

The promulgation of Notice I is conducive to the continuous development of wind turbine manufacturing industry of the Group.

2. 2019年1月29日，國家發展和改革委員會（「**國家發改委**」）、國家能源局（「**國家能源局**」）印發《關於規範優先發電優先購電計劃管理的通知》（「**通知一**」）。

《通知一》要求，規劃內風能、太陽能發電在消納不受限地區按照資源條件對應的發電量全額安排計劃，優先發電價格以「保量保價」和「保量限價」相結合的方式形成。

《通知一》要求，編製優先發電計劃要重點做好資源利用保障等方面工作。清潔能源資源利用保障方面，納入規劃的風能、太陽能發電，在消納不受限地區按照資源條件對應的發電量全額安排計劃；在消納受限地區，按照全額保障性收購要求，結合當地實際安排計劃，研究制定合理的解決措施，確保優先發電計劃小時數逐年增加到合理水準。

《通知一》強調，優先發電價格按照「保量保價」和「保量限價」相結合的方式形成，實行「保量保價」的優先發電計劃電量由電網企業按照政府定價收購，實行「保量限價」的優先發電計劃電量通過市場化方式形成價格。政府定價部分的優先發電計劃比例應逐年遞減，當同類型機組大部分實現市場化方式形成價格後，取消政府定價。通過競價招標方式確定上網電價的優先發電機組，按照招標形成的價格執行。市場化形成價格的優先發電，應積極通過參與本地電力市場確定交易價格；未能成交的部分，執行本地區同類型機組市場化形成的平均購電價格。

《通知一》的發佈有利於本集團風機製造產業的持續發展。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

3. On 27 February 2019, the Ministry of Ecology and Environment promulgated the Key Points of National Air Pollution Prevention and Control 2019 (“Key Points”).

According to the atmospheric environment target proposed in the Key Points, the average annual concentration of fine particulate matter (PM_{2.5}) in substandard cities shall decrease by 2% YOY in 2019; the average ratio of good days of the cities at and above the prefecture level shall reach 79.4%; and the total emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) in the PRC shall reduce by 3% YOY.

The Key Points points out that it is necessary to stably push forward the adjustment of industry structure of the PRC, strengthen the elimination of backward production capacity and reduce excess production capacity. Each relevant enterprise shall actively cooperate with the competent authority to steadily promote the dissolution of excess production capacity of steel and coal, and actively and steadily dissolve the excess production capacity of coal power; the comprehensive renovation of “scattered, disordered and dirty” enterprises and clusters shall be completed in key regions. Further carry out the upgrading and reconstruction of industrial enterprises. It is necessary to promote the transformation of the coal-fired generating units of 300,000 kW and above for ultra-low emission in West China, and promote the transformation of steel enterprises for ultra-low emission. It is necessary to formulate and implement special action plans for industrial furnace and kiln administration, guide all localities to establish a management list and implement assorted administration.

The Key Points emphasizes that it is necessary to speed up the optimization of energy structure, and continue to implement total coal consumption control in key regions. It is necessary to actively cooperate with the NDRC to develop management measures for coal consumption reduction and replacement, as well as clean and efficient utilization in key regions. It is necessary to guide all localities to speed up the implementation of total coal consumption reduction, and focus on reducing the use of non-electric coal under the principle of centralized use and clean utilization of coal. Steadily promote clean heating in North China. Under the principle of determining reform by gas, determining demand with supply, first establishment and then breakthrough, it is necessary to strengthen the governance of scattered coal in Beijing, Tianjin, Hebei and surrounding areas and the Fen-Wei Plain, take warm winter and clean heating into account, and cooperate with the competent authority to strengthen the guarantee of gas and power supply in key regions. Carry out comprehensive improvement of boilers. It is necessary to step up the elimination of small coal-fired boilers, speed up the elimination of coal-fired boilers of less than 35 t/h in key regions, carry out ultra-low emission transformation of coal-fired boilers of 65 t/h and above, and promote the transformation of low nitrogen combustion of gas-fired boilers.

3. 2019年2月27日，生態環境部印發《2019年全國大氣污染防治工作要點》(《工作要點》)。

根據《工作要點》提出的大氣環境目標，2019年，全國未達標城市細顆粒物(PM_{2.5})年均濃度同比下降2%，地級及以上城市平均優良天數比率達到79.4%；全國二氧化硫(SO₂)、氮氧化物(NO_x)排放總量同比削減3%。

《工作要點》指出，穩步推進產業結構調整。加大落後產能淘汰和過剩產能壓減力度。積極配合有關部門，穩步推進化解鋼鐵、煤炭過剩產能，積極穩妥化解煤電過剩產能；重點區域完成「散亂污」企業及集群綜合整治。深入開展工業企業提標改造。推進西部地區30萬千瓦及以上燃煤發電機組實施超低排放改造；推進鋼鐵企業實施超低排放改造。制定實施工業爐窯治理專項行動方案，指導各地建立管理清單，實施分類治理。

《工作要點》強調，加快優化能源結構。重點地區繼續實施煤炭消費總量控制。積極配合發展改革委研究制定重點地區煤炭消費減量替代和清潔高效利用管理辦法。指導各地加快煤炭消費總量削減任務分解落實，按照煤炭集中使用、清潔利用的原則，重點削減非電力用煤。穩步推進北方地區清潔取暖。按照以氣定改、以供定需、先立後破的原則，加大京津冀及週邊地區和汾渭平原散煤治理力度，統籌兼顧溫暖過冬與清潔取暖，配合有關部門加強重點區域氣源電源供應保障。開展鍋爐綜合整治。加大燃煤小鍋爐淘汰力度，重點區域加快淘汰35蒸噸/小時以下燃煤鍋爐，推進65蒸噸/小時及以上燃煤鍋爐實施超低排放改造，推進燃氣鍋爐實施低氮燃燒改造。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

The promulgation of the Key Points brought opportunities for the sustainable and healthy development of the Group's environmental protection and energy conservation solutions businesses.

4. On 22 April 2019, the Ministry of Ecology and Environment, the NDRC, the Ministry of Industry and Information Technology, the Ministry of Finance and the Ministry of Transport issued the Opinion on Promoting the Implementation of Ultra-low Emission from the Steel Industry (the "**Opinion**").

The Opinion requires that new (including relocated) steel projects across the country shall, in principle, reach the ultra-low emission level. By the end of 2020, it is necessary to make significant progress in the transformation of steel enterprises for ultra-low emission and strive to complete the transformation of about 60% of the production capacity in key regions, and promote the transformation of steel enterprises for ultra-low emission in other regions in an orderly manner. By the end of 2025, it is necessary to basically complete the transformation of steel enterprises for ultra-low emission in key regions, and strive to complete the transformation of more than 80% of the production capacity all over the country.

The Opinion points out that the ultra-low emission of steel enterprises refers to the upgrading and transformation of all production processes (including raw material yard, sintering, pelletizing, coking, ironmaking, steelmaking, steel rolling, self-owned power plant, as well as the transportation of bulk materials and products). The organized emission, fugitive emission and transportation process of air pollutants shall meet the applicable regulations and requirements. It is a legal responsibility for steel enterprises to meet the emission standards, and ultra-low emission shall be incentive-oriented. The steel enterprises that complete the transformation for ultra-low emission shall be rewarded by strengthened policy supports.

The promulgation of the Opinion brought new opportunities for the sustainable development of the environmental protection and energy conservation businesses of the Group.

《工作要點》的頒佈將為本集團環保及節能解決方案業務的持續健康發展帶來機遇。

4. 2019年4月22日，生態環境部、國家發改委、工業和信息化部、財政部、交通運輸部印發《關於推進實施鋼鐵行業超低排放的意見》(「《意見》」)。

《意見》要求，全國新建(含搬遷)鋼鐵項目原則上要達到超低排放水準。到2020年底前，重點區域鋼鐵企業超低排放改造要取得明顯進展，力爭60%左右產能完成改造，有序推進其他地區鋼鐵企業超低排放改造工作；到2025年底前，重點區域鋼鐵企業超低排放改造基本完成，全國力爭80%以上產能完成改造。

《意見》指出，鋼鐵企業超低排放是指對所有生產環節(含原料場、燒結、球團、煉焦、煉鐵、煉鋼、軋鋼、自備電廠等，以及大宗物料產品運輸)實施升級改造，大氣污染物有組織排放、無組織排放以及運輸過程滿足相關規定和要求。鋼鐵企業達標排放是法定責任，超低排放是鼓勵導向，對於完成超低排放改造的鋼鐵企業應加大政策支援力度。

《意見》的頒佈，為本集團環保及節能產業持續發展帶來新的契機。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

5. On 15 May 2019, the NDRC and the NEA jointly issued the Notice on the Establishment and Improvement of the Renewable Energy Power Consumption Guarantee Mechanism (“**Notice II**”).

Based on the Renewable Energy Law, Notice II proposes the establishment and improvement of the renewable energy power consumption guarantee mechanism. The core of the mechanism is to determine the proportion of renewable energy power in power consumption in each provincial region, that is, the “weight of renewable energy power consumption responsibility”. The purpose of the mechanism is to promote the provincial regions to prioritize the consumption of renewable energy, to speed up the solution for the problem of abandoning hydropower, wind power and PV power, at the same time, to promote all market players to undertake fair responsibility for the consumption of renewable energy, and to form a long-term development mechanism led by renewable energy power consumption.

Notice II proposes that the competent energy authority under the State Council shall determine the weight of consumption responsibility by the provincial administrative area, including the weight of total consumption responsibility and the weight of non-hydropower consumption responsibility. For the above two weights, the weight of the minimum consumption responsibility and the weight of incentive consumption responsibility shall be set on a yearly basis. The calculation and determination of the weight of consumption responsibility shall be based on comprehensive factors such as renewable energy resources, total social power consumption, national energy planning and implementation, construction of national major renewable energy bases and resource allocation capacity of cross-provincial transmission channels.

Notice II clearly stipulates the responsibilities of the governmental authorities, power grid enterprises and all other market players. The competent energy authority at the provincial level shall take the lead in implementing the responsibility, organize and formulate the implementation plan for the consumption of renewable energy power in its respective region, and submit the plan to the people's government at the provincial level for approval before implementation. Power selling enterprises and power users shall jointly bear the responsibility of consumption. Power grid enterprises are responsible for organizing the implementation of the weight of consumption responsibility in their respective operating areas. Through the actual consumption of renewable energy power, the purchase of excess energy from other market players, the voluntary subscription of green power certificate and so on, each market player may accomplish the power consumption task.

5. 2019年5月15日，國家發改委、國家能源局聯合印發《關於建立健全可再生能源電力消納保障機制的通知》(《**通知二**》)。

《通知二》以《可再生能源法》為依據，提出建立健全可再生能源電力消納保障機制。核心是確定各省級區域的可再生能源電量在電力消費中的佔比目標，即「可再生能源電力消納責任權重」。目的是促使各省級區域優先消納可再生能源，加快解決棄水棄風棄光問題，同時促使各類市場主體公平承擔消納責任，形成可再生能源電力消費引領的長效發展機制。

《通知二》提出，國務院能源主管部門按省級行政區域確定消納責任權重，包括總量消納責任權重和非水電消納責任權重。對以上兩類權重，分別按年度設定最低消納責任權重和激勵性消納責任權重。消納責任權重的測算確定，綜合考慮各區域可再生能源資源、全社會用電量、國家能源規劃及實施情況、全國重大可再生能源基地建設情況和跨省跨區輸電通道資源配置能力等因素。

《通知二》明確規定了政府部門、電網企業、各類市場主體的責任。各省級能源主管部門牽頭承擔落實責任，組織制定本省級區域的可再生能源電力消納實施方案，並將方案報省級人民政府批准後實施。售電企業和電力用戶協同承擔消納責任。電網企業負責組織實施經營區內的消納責任權重落實工作。各市場主體通過實際消納可再生能源電量、購買其他市場主體超額消納量、自願認購綠色電力證書等方式，完成消納量。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Notice II proposes to monitor, evaluate and assess the accomplishment of the weight of consumption responsibility at two levels, and requires the competent energy authority at the provincial level to carry out self-verification against the weight of consumption responsibility in 2018, simulate the operation and conduct a trial assessment of market players in 2019. From 1 January 2020, comprehensive monitoring and evaluation and formal assessment will be carried out.

The promulgation of Notice II will be conducive to the wind turbine manufacturing industry of the Group.

6. On 24 May 2019, the Ministry of Finance issued the Notice on Issuing the Budget for Additional Subsidies for Renewable Energy Power Prices ("**Notice III**"), according to which, the Ministry of Finance provided subsidies of about RMB8.1 billion for renewable energy, RMB4.2 billion for wind power and RMB3.08 billion for PV projects.

According to Notice III, the subsidies for renewable energy power price involved the wind power, PV and biomass power generation projects in 11 provinces (autonomous regions and municipalities), including Inner Mongolia, Jilin, Zhejiang, Guangxi, Sichuan, Chongqing, Yunnan, Shaanxi, Gansu, Xinjiang and Qinghai. And the subsidies for wind power and PV projects only involved 7 provinces (autonomous regions and municipalities), including Inner Mongolia, Jilin, Zhejiang, Guangxi, Sichuan, Chongqing, Yunnan and Shaanxi.

The subsidies for wind power and PV projects were about RMB4.2 billion and RMB3.08 billion respectively, according to the Budget Summary of Additional Subsidies for Renewable Energy Power Prices attached to Notice III. Among them, the additional subsidies for PV poverty alleviation, natural person distribution and PV power plant and industrial and commercial distribution were RMB37 million, RMB48 million and RMB2,997 million respectively.

7. On 28 May 2019, the NEA issued the Notice on Matters Relating to the Construction of Wind and PV Power Generation Projects in 2019 ("**Notice IV**") and simultaneously issued the Wind Power Project Construction Work Plan 2019 ("**Plan**").

On 20 May 2019, the NDRC and the NEA announced the list of the first batch of wind and PV power generation grid parity projects in 2019, prioritizing the construction of this batch of grid parity projects, and then starting the competitive allocation of wind power projects requiring state subsidies by the provincial energy authorities.

《通知二》提出分兩個層次對消納責任權重完成情況進行監測評價和考核，要求各省級能源主管部門對照2018年消納責任權重開展自我核查，2019年模擬運行並對市場主體進行試考核。自2020年1月1日起，全面進行監測評價和正式考核。

《通知二》的發佈預計將對本集團風機製造產業形成利好。

6. 2019年5月24日，財政部發佈《關於下達可再生能源電價附加補助資金預算的通知》(「《通知三》」)，下發可再生能源補貼約人民幣81億元，風電、光伏項目補貼分別約為人民幣42億元、人民幣30.8億元。

《通知三》顯示，此次可再生能源電價補貼涉及內蒙古、吉林、浙江、廣西、四川、重慶、雲南、陝西、甘肅、新疆、青海等11個省(自治區、直轄市)的風電、光伏、生物質發電項目。而風電、光伏項目只涉及內蒙古、吉林、浙江、廣西、四川、重慶、雲南、陝西等7省(自治區、直轄市)。

根據《通知三》所附的《可再生能源電價附加補助資金預算匯總表》，風電、光伏項目補貼約為人民幣42億元以及人民幣30.8億元。其中，光伏扶貧、自然人分散式和光伏電站及工商業分散式分別為人民幣0.37億元、人民幣0.48億元和人民幣29.97億元。

7. 2019年5月28日，國家能源局下發了《關於2019年風電、光伏發電項目建設有關事項的通知》(「《通知四》」)並同步印發了《2019年風電項目建設工作方案》(「《方案》」)。

2019年5月20日，國家發改委與國家能源局公佈了2019年第一批風電、光伏發電平價上網項目的名單，優先建設該批平價上網項目，再由各省級能源主管部門啟動需國家補貼的風電項目的競爭配置工作。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Notice IV clearly calls for the active promotion of the construction of grid parity projects and the strict standardization of the competitive allocation of subsidized projects. The Plan generally encourages and supports prioritizing the construction of grid parity wind power projects under the same conditions:

First, the region without the total scale quota of competitive allocation of state-subsidized projects in 2019 could carry out the construction of the grid parity wind power projects compatible with its consumption capability on the premise of ensuring the sufficient consumption capability;

Second, as for the allocation of consumption capability in each region, the allocation of calculated and confirmed consumption capability prioritizes allocation on new grid parity projects on the basis of not affecting the consumption capability of grid-connected and approved effective projects;

Third, among the approved projects under construction within the effective period, if the consumption capability is limited, the projects willing to convert into grid parity are prioritized for power output and consumption.

It can be predicted that the future policy on the competitive allocation for wind power projects will become clearer, the market-oriented trading scope of wind power projects will gradually expand, the level of market-oriented transactions will continue to increase, and grid parity projects that do not need state subsidies will emerge as the times require and continue to increase.

8. On 13 June 2019, the Ministry of Finance and the Ministry of Housing and Urban-Rural Development issued the Measures for the Administration of Subsidies for Urban Pipelines and Sewage Treatment ("**Measures**") in order to implement the requirements of the State Council for strengthening urban infrastructure.

The Measures point out that subsidies are used to support the pilot construction of sponge cities, the pilot construction of underground pipe gallery, the demonstration of the treatment of black and odorous water in cities, and the improvement of quality and efficiency in the treatment of urban sewage in the central and western regions of the PRC. The time limit for the overall implementation of the subsidies shall not exceed five years, and each supported project shall be determined in accordance with the requirements for relevant arrangements of the CPC Central Committee and the State Council.

《通知四》中明確要求積極推進平價上網項目建設並嚴格規範補貼項目競爭配置。《方案》總體上鼓勵並支持在同等條件下優先建設平價上網風電項目：

一是對2019年度已無需國家補貼競爭配置項目總量規模指標的地區，在確保具備消納條件的前提下，可開展建設與消納能力相匹配的平價上網風電項目；

二是在各地區消納能力配置方面，在不影響已併網和核准有效項目的電力消納基礎上，測算確認的消納能力優先向新建平價上網項目配置；

三是對已核准且在有效期的在建項目，如果消納能力有限，優先落實自願轉為平價上網的項目的電力送出和消納。

可以預見，未來關於風電項目競爭配置的政策會愈加明晰，未來風電項目市場化交易範圍會逐步擴大，市場化交易程度會不斷提高，不需要國家補貼的平價上網項目會應運而生並不斷增多。

8. 2019年6月13日，為落實黨中央國務院關於加強城市基礎建設有關要求部署，財政部、住建部印發《城市管網及污水處理補助資金管理辦法》(《**辦法**》)。

《辦法》中指出，補助資金用於支持海綿城市建設試點、地下綜合管廊建設試點、城市黑臭水體治理示範、中西部地區城鎮污水處理提質增效。補助資金整體實施期限不超過5年，各支援事項根據黨中央國務院有關部署要求，相應確定實施期限。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

With regard to subsidies, the Measures propose different forms of allocation based on different supported projects. As for the pilot construction of sponge cities and underground pipe gallery, the pilot cities shall be given a fixed subsidy according to the established subsidy standards (pilot projects for sponge cities: RMB600 million per year for municipalities directly under the Central Government, RMB500 million per year for provincial capitals and RMB400 million per year for other cities; pilot projects for underground pipe gallery: RMB500 million per year for municipalities directly under the Central Government, RMB400 million per year for provincial capitals and RMB300 million per year for other cities). After the expiration of the pilot period, according to the evaluation results of the performance, the projects of each batch with top ranking of comprehensive evaluation and the outstanding results in the application of the PPP model will be awarded at 10% of the total subsidies.

The issuance of the Measures has made clear the policy driving the sewage treatment of the environmental protection industry, and the Group's water treatment business in the environmental protection industry will continue to maintain a good momentum of rapid development.

9. On 18 December 2019, under the principles of precise pollution control, scientific pollution control and pollution control according to law, the Ministry of Ecology and Environment issued the Notice on the Monitoring of Ultra-low Emission Assessment in Iron and Steel Enterprises (“**Notice V**”).

Notice V requires that iron and steel enterprises in key areas such as Beijing, Tianjin, Hebei and surrounding areas, the Yangtze River Delta, the Fen-Wei Plain, etc., shall take the lead in upgrading and monitoring ultra-low emissions in accordance with the requirements of the Opinion on Promoting the Implementation of Ultra-low Emission from the Iron and Steel Industry, and the iron and steel enterprises in other regions shall further implement this in an orderly manner. Enterprises shall focus on strengthening the standardization of flue gas continuous emission monitoring system and manual monitoring sampling point placement, upgrading the weak processes such as fugitive emission control, clean transportation of bulk materials products, and the establishment of the monitoring system and special ledger system.

對於補助資金，《辦法》提出根據不同支援事項採取不同方式進行分配。海綿城市、地下綜合管廊建設試點，按照既定補貼標準對試點城市給予定額補助(海綿城市試點：直轄市人民幣6億元／年、省會城市人民幣5億元／年、其他城市人民幣4億元／年；地下綜合管廊試點：直轄市5億元／年、省會城市人民幣4億元／年、其他城市人民幣3億元／年)。試點期滿後，根據績效評價結果，對每批次綜合評價排名靠前及應用PPP模式效果突出的，按照定額補助總額的10%給予獎勵。

《辦法》的印發明確了我國環保產業污水處理的政策拉動，本集團環保產業中水處理業務將繼續保持快速發展的良好態勢。

9. 2019年12月18日，按照精準治污、科學治污、依法治污的原則，環境部印發《關於做好鋼鐵企業超低排放評估監測工作的通知》(「**通知五**」)。

《通知五》要求京津冀及週邊地區、長三角地區和汾渭平原等重點區域的鋼鐵企業，應按照《關於推進實施鋼鐵行業超低排放的意見》要求率先開展超低排放改造和評估監測工作，其他區域有序推進。企業應重點加強煙氣排放連續監測系統和手工監測採樣點佈設的規範化，無組織排放控制、大宗物料產品清潔運輸等薄弱環節改造，以及建立監測監控和台賬體系。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Local (municipal) ecological and environmental authorities shall strengthen their services for enterprises, provide guidance for the monitoring of ultra-low emission assessment, report the assessment and monitoring situation to the provincial ecological and environmental authorities regularly, and include relevant matters in the emission permit. Provincial ecological and environmental authorities shall organize and guide the assessment and monitoring in accordance with the plan for the improvement of iron and steel enterprises for ultra-low emission within the jurisdiction, and report the assessment and monitoring situation to the Ministry of Ecology and Environment in a timely manner. Those enterprises that cannot achieve stable ultra-low emission shall be promptly eliminated from the list of dynamic management and with their entitlement to the corresponding preferential policy cancelled. Those enterprises that have committed acts of illegal discharge of pollutants shall be punished according to law. Those iron and steel enterprises and relevant assessment and monitoring institutions with acts of fraud shall be given a heavier joint punishment.

The promulgation of Notice V sets a clear target for the transformation of iron and steel enterprises for ultra-low emissions and is expected to be good for the Group's environmental protection and energy conservation business.

Key Business Development

In 2019, the Group kept stable and orderly operation construction, promoted stable and increasing market development, constantly strengthened the governance system, decreased cost and improved efficiency to create value, prompted solid capital operation and made significant achievement in technological innovation. The Group also maintained positive trend in stable production and operation, and favorable reform and development against the complicated and severe internal and external environment.

Environmental Protection Business

The Group actively developed new business growth points for environmental protection industry, and strived to realize the sustainable development of enterprises; actively deployed quality operating assets to strengthen the capability to address risks. In 2019, Dezhou Suihe large-scale biogas power generation project of Longyuan Environmental, a subsidiary of the Company, has been put into operation, and the intelligent management platform for ultra-low emission has completed demonstration operation in Guodian Hanchuan Power Plant, and was applied for 29 concession operation and maintenance projects, reaching an international leading level.

地(市)級生態環境部門應加強對企業的服務，為超低排放評估監測工作提供指導，定期將評估監測情況上報省級生態環境部門，並將有關事項載入排污許可證中。省級生態環境部門按照轄區內鋼鐵企業超低排放改造計劃方案，組織指導開展評估監測工作，及時將評估監測情況匯總上報生態環境部。對不能穩定達到超低排放的企業，及時調整出動態管理名單，取消相應優惠政策；對存在違法排污行為的企業，依法予以處罰；對存在弄虛作假行為的鋼鐵企業和相關評估監測機構，加大聯合懲戒力度。

《通知五》的發佈設定了鋼鐵企業超低排放改造的明確目標，預計將對本集團環保節能產業形成利好。

主要業務發展

2019年，本集團運營建設平穩有序，市場開拓穩中有進，治理體系不斷健全，降本提效創造價值，資本運營紮實推進，科技創新成績顯著。在複雜嚴峻的內外部環境下，本集團亦保持了生產運營平穩、改革發展向好的良好態勢。

環保業務

本集團積極培育環保產業新的業務增長點，着力實現企業可持續發展。積極佈局優質運營類資產，提升抵禦風險能力。2019年，附屬公司龍源環保德州燧禾大型沼氣發電項目投運；超低排放智慧管理平台在國電漢川電廠完成示範運行，並在29個特許運維項目上線，達到國際領先水平。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

As of 31 December 2019, the Group's desulphurisation and denitrification projects under construction were set out as follows:

截至2019年12月31日止，本集團在建脫硫脫硝項目情況如下表所示：

Projects 項目		Number 數量 (個)	Installed capacity 裝機容量 (MW) (兆瓦)
Desulphurisation projects under construction	在建脫硫項目	11	6,185
Including: Desulphurisation renovation projects	其中：脫硫改造項目	7	3,665
Desulphurisation renovation EPC projects	脫硫改造EPC項目	7	3,665
Newly built desulphurisation projects	脫硫新建項目	4	2,520
Newly built desulphurisation EPC projects	脫硫新建EPC項目	4	2,520
Denitrification projects under construction	在建脫硝項目	12	14,030
Including: Denitrification renovation projects	其中：脫硝改造項目	11	12,030
Denitrification renovation EPC projects	脫硝改造EPC項目	10	8,710
Denitrification concession reconstruction projects	脫硝改造特許項目	1	3,320
Newly built denitrification projects	脫硝新建項目	1	2,000
Newly built denitrification EPC projects	脫硝新建EPC項目	1	2,000

The models of concession operations of the Group's environmental protection business are categorized into three types: general concession model, the operation and maintenance model of general contracting for tariff (generating income from tariff on desulphurisation, and assuming the responsibility for the supply of materials and the disposal of desulphurisation by-products in addition to general operation and maintenance) and the operation and maintenance model (generating income from general operation and maintenance). As of 31 December 2019, the operating units of desulphurisation concession operation of the Group had an aggregate installed capacity of 17,210 MW, and the operating units of denitrification concession operation had an aggregate installed capacity of 12,540 MW; the desulphurisation generating units under the operation and maintenance model of general contracting for tariff had an installed capacity of 4,040 MW; the desulphurisation generating units under the operation and maintenance model had an installed capacity of 15,170 MW.

本集團環保業務特許經營模式分為三種：一般特許經營模式、電價總包運維模式(獲得脫硫電價收益，除負責一般性運維外還負責物耗供應及脫硫副產物的處置)、運維模式(獲得一般性運維收益)。截至2019年12月31日止，本集團脫硫特許經營在運機組裝機總容量為17,210兆瓦，脫硝特許經營在運機組裝機總容量為12,540兆瓦；電價總包運維模式脫硫機組為4,040兆瓦；運維模式脫硫機組為15,170兆瓦。

As of 31 December 2019, the annual production capacity of denitrification catalysts, the key material for denitrification service of the Group was 19,000 m³, the output of this year is 17,199 m³.

截至2019年12月31日止，本集團脫硝服務的關鍵材料—脫硝催化劑的年產能為19,000立方米，本年產量為17,199立方米。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

In terms of water treatment, Beijing Lucency Environment and Technology Co., Ltd. ("**Lucency**"), a subsidiary of the Company, fully promoted whole plant water conservation renovation and waste water "zero emission" technology. As of 31 December 2019, the Group processed approximately 192,483,100 tons of sewage (including reclaimed water) and reduced the cumulative chemical oxygen demand ("**COD**") emissions by approximately 59,900 tons.

In addition, Lucency has obtained the level A qualification of noise treatment for the year and became one of the three enterprises who had level A qualification of noise design as well as class one qualification of construction.

Energy Conservation Solutions Business

This year, the Group has achieved significant breakthrough in qualification establishment with respect to energy conservation business. Guodian Longyuan Power Technology and Engineering Co., Ltd. ("**Longyuan Engineering**"), a subsidiary of the Company, has successfully been granted additional items of professional level B qualification in power industry design (new energy power generation and coal-fired power generation(including conventional island design for nuclear power plant)) and level one qualification for power engineering EPC, which reflected its industry advantages of EPC general contracting business in power construction segment and addressed the qualification problems for the Company in undertaking large-scale power source construction general contracting projects. The coal mine safety monitoring system of Guodian Longyuan Electrical Co., Ltd., a subsidiary of the Company, has obtained the mine product safety certificate, laying a solid foundation for coping with market competitiveness and expanding business fields.

The international strategy has been further enhanced. Longyuan Technology has entered into the EPC contract for the Plasma-assisted coal ignition renovation project with Zimbabwe Power Company with a contract amount of USD19.33 million. Despite of the complicated Sino-US relationship, Beijing Long Wei Power Generation Technology Co., Ltd., a subsidiary of the Company, and GE (China) Co., Ltd., explored deeper cooperation in comprehensive renovation technology of small steam turbines and steam turbines, and successively completed the flow passage renovation and capacity improvement for four power units of Guodian Ningxia Shizuishan Power Generation Co., Ltd. and Guodian Shizuishan No. 1 Power Generation Co., Ltd. and two power units in Guodian Changzhou Power Co., Ltd..

In respect of power plant EPC business, several projects of the Group have achieved great results and have been recognised. Chaqianhua experimental wind power project in Inner Mongolia contracted by Longyuan Engineering has obtained the power generation permit and launched business operation, Phase II of Kangbao project for the construction of a 50MW power generation unit has been granted approval and Dayuying PV power station has been rated as 4A power station.

水處理方面，附屬公司北京朗新明環保科技有限公司(「**朗新明**」)重點推廣全廠節水改造和廢水「零排放」技術應用，截至2019年12月31日止，本集團的污水處理(含中水)量約為19,248.31萬噸，COD(化學需氧量)累計減排量約為5.99萬噸。

此外，朗新明本年度獲得噪音治理甲級資質，成為國內既有噪聲設計甲級又有施工壹級資質的三家企業之一。

節能解決方案業務

本年度，本集團在節能業務方面，實現了資質建設的重大突破。附屬公司國電龍源電力技術工程有限責任公司(「**龍源工程**」)成功獲得電力行業設計(新能源發電、火力發電(含核電站常規島設計))專業乙級資質增項、電力工程施工總承包壹級資質，體現了EPC總承包業務在電力建設領域的行業優勢，解決了公司承攬大型電源建設總承包項目的資質問題；附屬公司國電龍源電氣有限公司煤礦安全監控系統獲得礦用產品安全標誌證書，為適應市場競爭、拓展業務領域打下了堅實基礎。

國際化戰略進一步強化。龍源技術簽約津巴布韋電力公司等離子體點火改造項目EPC合同，合同金額達1,933萬美元。在中美形勢錯綜複雜的局面下，附屬公司北京龍威發電技術有限公司和通用電氣(中國)有限公司圍繞小汽輪機和汽輪機綜合改造技術開展深入合作，先後完成國電寧夏石嘴山發電有限責任公司、國電石嘴山第一發電有限公司的四台機組和國電常州發電有限公司兩台機組通流改造，性能優異。

電站總承包業務方面，本集團多個項目收穫成果、贏得認可。龍源工程承建的內蒙古查乾花試驗風電項目取得發電許可轉商業運行，康保項目二期50兆瓦發電機組建設獲得核准，大於營光伏電站獲評4A級電站。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Wind Power Products and Services Business

風電產品及服務業務

The Group's Wind Turbine Generator sales volumes by product type for the years ended 31 December 2019 and 2018 are set forth below:

本集團於2019年及2018年12月31日止年度按產品類型劃分的風機銷量如下：

		Completed Sales (units)		Orders (units)	
		完成銷售(套)	2018	在手訂單(套)	
		2019		As at 31 December 2019	
				2019年12月31日止	
				Confirmed	
				Orders	Successful bid
				已確認訂單	成功競標
1.5MW	1.5兆瓦	1	–	586	–
1.65MW	1.65兆瓦	–	–	30	–
2.0MW	2.0兆瓦	622	490	810	58
3.0MW	3.0兆瓦	19	–	119	68
Total	總數	642	490	1,545	126

The Group took various measures through strengthening the overall linkage of production, supply and sales to overcome effects of the rush for installation tide of the industry. The related policies promulgated by NEA requiring wind power to withdraw progressively from government subsidies by categories, fields and regions from 2020 has brought about a rush for installation tide between wind power development enterprises. To cope with the tight supply of such upstream key parts as gearbox, bearing, casting, finished blade and blade core and the sharp price increase, the Group has enhanced its production resources planning by adjusting the supply strategy of blades in a timely manner and increasing the self-production proportion of blade models to relieve blade supply risks. In 2019, the Group continued to promote intelligent manufacturing and realized full application of intelligent control system in the blade production process by manufacturing its self-developed blade intelligent grinding robot and applying the integrated intelligent assembly line of wind turbine generators.

本集團強化產供銷整體聯動，多措並舉克服行業搶裝潮影響。由於國家能源局相關政策要求風電從2020年起分類型、分領域、分區域逐步退出補貼，平價上網，致使風電開發企業開始「搶裝」。為應對上游關鍵部件如齒輪箱、軸承、鑄件、成品葉片、葉片芯材等供應緊張，價格大幅上漲的情況，加強生產資源規劃。及時調整葉片供貨策略，增加葉片模具自產比例，緩解葉片供貨風險。持續推進智能製造，2019年本集團自主研發的葉片智能打磨機器人下線，風機輪轂整體智能裝配線投產，葉片生產過程全面使用智能控制系統。

The unit failure rate of the Group during the year of 2019 was 0.008 times/unit/day, recording a continuing decrease for 7 consecutive years.

本集團2019年全年機組故障率為0.008次/台/天，實現連續7年持續降低。

In 2019, the intelligent business of the Group has reached basic scale. The iSol intelligent control system of Zhishen Company, a subsidiary of the Company, has been fully applied in Dongsheng Power Plant of Guodian Power, and has been jointly utilized in Suqian Power Plant with the IMS product of the subsidiary Tianren Company and the Dayuying Wind Plant conducting intelligent construction has been included in the intelligent demonstration wind plant of China Energy.

2019年，本集團智能業務初現規模。附屬公司智深公司的岸石智能控制系統在國電電力東勝電廠得到了完整應用，並和附屬公司天仁公司IMS產品共同應用於宿遷電廠；實施智能化建設的大於營風場列入國家能源集團的智能示範風場。

In respect of self-developed Renewable Energy Power Generation project, the Group has a total of 1.85 million kW of wind power and PV resources in Inner Mongolia and the three provinces in Northeast China.

自建新能源發電項目方面，本集團在內蒙古、東北三省等地現有儲備風電、光伏資源共計185萬千瓦。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Great efforts in developing the domestic market

In 2019, based on the full staff marketing system with value marketing as the core, the Group overfulfilled the annual target of new contracts with a substantial YOY increase of 78.1%; the market situation of the Group achieved a steep turn upward and its transformation and development made a breakthrough. Throughout the year, the amount of the orders newly entered into by the Group was up to RMB18.901 billion, including:

- The amount of the orders newly entered into by Longyuan Engineering, was up to RMB7.788 billion with a YOY increase of 433%. Among them, the new EPC project of Shuangwei Shanghai Miao Power Plant of GD Power Development Co., Ltd. whose tender was awarded to Longyuan Engineering amounted to approximately RMB5.493 billion. The project is the first large EPC project with unit capacity of million kWh unit awarded to Longyuan Engineering, and also the first project Longyuan Engineering obtained after obtaining level one EPC qualification for power engineering, indicating the further improvement of Longyuan Engineering in the power construction industry. In addition, Longyuan Engineering entered into six new supervision service contracts throughout the year, achieving the zero breakthrough of its supervision business and opening a new direction for its later business diversification.
- The amount of the orders newly entered into by United Power, was up to about RMB4.251 billion. United Power cooperated again with Shenzhen Energy Corporation and, with its new model UP3400-141, successfully won the 244,800 kW project in Inner Mongolia with the actual contract amount of about RMB751 million. The project is also the first launch of the new model in a large scale in the PRC.
- The amount of the orders newly entered into by Longyuan Environmental, a subsidiary of the Company, was up to RMB3.051 billion with a YOY increase of 73.06%. Longyuan Environmental's thermal power business accelerated from desulfurization and denitrification to ultra-clean emission environmental protection island and other directions. The total amount of super-clean emission projects entered into during the year was up to about RMB342 million; the total amount of the solid waste treatment EPC contracts and BOT exclusive franchise contracts entered into were about RMB148 million; the contracts entered into in the coal chemical industry was about RMB55 million.

全力開拓國內市場

2019年，本集團立足以價值營銷為核心的全員營銷體系，超額完成年度新簽合同指標，同比大幅提升78.1%，市場形勢實現拐點上揚，轉型發展取得突破。全年本集團新簽訂單約人民幣189.01億元。其中：

- 龍源工程新簽訂單金額約人民幣77.88億元，同比增長433%。其中，中標國電電力發展股份有限公司雙維上海廟電廠新建工程EPC總承包項目，金額約人民幣54.93億元，該項目是龍源工程獲得的首個百萬機組大型EPC總承包業績，也是其在取得電力工程施工總承包壹級資質後獲得的第一個項目，標誌著龍源工程在電力建設領域行業優勢進一步提升；此外，龍源工程全年新簽監理服務合同6個，實現了其監理業務零的突破，為後期業務多樣化開啟新方向。
- 聯合動力新簽訂單金額約人民幣42.51億元。聯合動力與深圳能源集團股份有限公司再次合作，以新機型UP3400-141成功獲得內蒙古共計24.48萬千瓦項目，實際簽約金額約人民幣7.51億元，該項目也是該新機型在國內項目的首次大批量使用。
- 龍源環保新簽訂單金額約人民幣30.51億元，同比增長73.06%。龍源環保火電業務加速從脫硫脫硝向超淨排放環保島等方向進軍，全年簽約超淨排放項目總金額約人民幣3.42億元；簽訂固廢處理領域的EPC總承包合同以及特許經營BOT合同金額共約人民幣1.48億元；在煤化工領域簽約金額共約人民幣5,500萬元。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

- Lucency, was awarded with large-scale water treatment projects in the coal and coal chemical industries successively, with total contract amount of approximately RMB28.9 million and total amount of tenders obtained that has yet to enter into contracts of approximately RMB158 million. Lucency also made a major breakthrough in the market outside the system (which refers to "outside China Energy", the same below), successfully obtaining first waste water zero discharge project in Luguang, Shanxi outside the system, with the contract amount of RMB34.2 million.

In 2019, the amount of orders newly entered into outside the system was about RMB2.428 billion, with a certain YOY growth. Among them, the amount of the orders newly entered into outside the system by United Power was up to RMB959 million with a YOY increase of 206%; the variable pitch wind turbine business of Tianren Company made a breakthrough in the markets outside the system such as Zhejiang Windey Co., Ltd., Mingyang Smart Energy Group Co., Ltd., Sany Heavy Energy Machinery Co., Ltd., etc., with the amount of the orders up to RMB260 million and a YOY increase of 20%; the sales outside the system took up 61% and reached a historical high. Zhishen Company's DCS products were successfully applied to China Huaneng Group Co., Ltd., and Zhishen Company entered into a contract for Huaneng Ruijin Power Generation Co., Ltd.'s DCS project, with the contract amount up to RMB26.1 million.

Actively Expanding Overseas Markets

In 2019, the Company strengthened the research and exploration of the international project business model, and the subsidiaries tried to use EPC and EPC+F consortium bidding models to participate in international projects, and achieved a fruitful contract amount of RMB247 million. The subsidiaries of the Company extensively explored the markets in the key regions and made preliminary achievements:

- Longyuan Environmental cooperated with the strong peers in the Indian market to bid for the wet desulfurization EPC project of a power plant in India;
- Longyuan Technology by virtue of its own technical advantages, made a major breakthrough in the African market and signed a contract for the plasma transformation EPC project of Zimbabwe Power Company;
- United Power continued to carry out the follow-up operation and maintenance services of De Aar Project of China Longyuan Power Group Corporation Limited ("Longyuan Power") in South Africa, with normal operation quality and safe and controllable progress, making an outstanding contribution to the power consumption of the local people;

- 朗新明大力開拓非電市場，先後中標煤炭和煤化工領域的大型水處理項目，簽約金額共約人民幣2,890萬元，已中標未簽約金額共約人民幣1.58億元。系統外(均指「國家能源集團之外」，下同)市場也有重大突破，成功獲得山西潞光首個系統外廢水零排放項目，簽約金額人民幣3,420萬元。

2019年，本集團系統外新簽訂單約人民幣24.28億元，較去年有所提升。其中，聯合動力全年實現系統外新簽訂單人民幣9.59億元，同比提升206%；天仁公司變漿業務在浙江運達風電股份有限公司、明陽智慧能源集團股份有限公司、三一重能有限公司等系統外市場上取得突破性業績，訂單金額約人民幣2.6億元，同比提升20%，系統外銷售佔比61%，創歷史新高；智深公司DCS產品成功應用於中國華能集團有限公司，簽約華能瑞金DCS項目，合同金額人民幣2,610萬元。

積極拓展海外市場

2019年，本公司加強國際項目商業模式的研究探索，附屬公司嘗試利用聯合體投標EPC及EPC+F模式參與國際項目，取得了合同金額人民幣2.47億元的豐碩成果。附屬公司在重點區域市場深耕細作、初顯成效：

- 龍源環保在印度市場與央企強強聯合，共同投標印度某電廠濕法脫硫EPC項目；
- 龍源技術依託自身技術優勢在非洲市場取得重大突破，簽署津巴布韋電力公司等離子改造EPC項目；
- 聯合動力繼續執行龍源電力集團股份有限公司(「龍源電力」)南非德阿項目後續運維服務，運行品質正常，進度安全可控，為解決當地人民用電做出傑出貢獻；



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

- Zhishen Company entered into a contract for the DCS project of a power plant in Pakistan while carrying out the DCS project of Shenhua Guohua Indonesia Java No. 7 Unit;
- After obtaining the overseas project in 2018, Lucency entered into a contract for the project of supplying desalination equipment for a power plant in Pakistan this year.
- 智深公司在執行神華國華印尼爪哇7號機組DCS項目的同時，簽署巴基斯坦某電廠DCS項目；
- 朗新明繼2018年取得海外項目開門紅後，本年度又簽署了巴基斯坦某電廠海水淡化設備供貨項目。

Committed to technological innovation and research and development

The Group dedicated to technological innovation and research and development to enhance core competitiveness. The dedication of the Group led to a number of technological achievements in the following respects:

- Setting up a complete scientific and technological R&D system. Until now, the Group currently operates 4 national scientific R&D platforms including “National Key Laboratory for Wind Power Equipment and System Technology”, 11 provincial scientific R&D platforms, 2 post-doctoral scientific research workstations, and 1 academician and expert workstation, with incomparable scientific advantages in this regard domestically.
- Actively participating in the formulation and revision of national and industrial standards. As of the end of December 2019, the Group had led the preparation of 1 national standard and the revision of 1 national standard, and participated in the preparation and revision of 52 national standards. It had led the preparation of 5 industry standards, participated in the preparation of 34 industry standards and led the preparation of 1 local standard. In 2019, the Group obtained a total of 370 patents, including 42 invention patents.
- In terms of environmental protection, the Low-cost Desulfurization Zero Liquid Waste Discharge Technology Demonstration Project of Longyuan Environmental was successfully implemented with technical level reaching the international leading level. In terms of new energy, the 300kW Marine Tidal Current Turbine Generator System independently-developed by United Power, of which the 270° electric pitch variable technology and underwater video technology were successfully deployed into the sea and connected to the grid for power generation. In terms of power electronics and information technology, the intelligent DCS system with open-end platform of Zhishen Company was put into operation at Dongsheng Thermal Power Plant, Inner Mongolia.
- 搭建完備的科技研發體系。本集團目前擁有「風電設備及系統技術國家重點實驗室」等4個國家級科研平台、11個省級科研平台，2個博士後科研工作站，1個院士專家工作站，科研實力居國內行業領軍地位。
- 積極參與國家及行業標準的制訂和修訂工作。截止2019年12月底，共計主持編製國家標準1項、主持修訂國家標準1項、參與編製及修訂國家標準52項。主持編製行業標準5項、參與編製行業標準34項、主持編製地方標準1項。2019年，本集團共計獲得專利370件，其中發明專利42件。
- 環保方面，龍源環保低成本脫硫廢水零排放技術示範工程順利實施，技術水準達到國際領先水準；新能源方面，聯合動力自主研發的應用270°電動變槳技術和 underwater 視頻技術的300千瓦海洋潮流能發電機組成功下海，並順利併網發電運行；電力電子及信息化方面，智深公司基於平台開放型的智慧DCS系統在內蒙古東勝熱電廠投入運行。

致力於技術革新和研發

本集團為增強核心競爭力，在科技創新及研發方面努力不懈，在本集團業務多個領域取得了豐碩成果：



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

As a result of the remarkable achievements in technological innovation and R&D, in 2019, the Group has established a strong foothold in this field while winning a number of awards:

- Longyuan Environmental's "Double-cycle-based Low-Cost Enhanced Dust Desulfurization Technology" won the second prize of the "Environmental Technology Progress Award" of China Association of Environmental Protection Industry;
- Longyuan Environmental's "Efficient and Intelligent Coal-fired Gas Purification Technology and Application" won the second prize of "China Environmental Protection Science and Technology Award" of Chinese Society for Environmental Sciences;
- Longyuan Environmental's "Ammonia and Eddy Current Mixing Device and Method for Flue Gas Denitrification System" won the excellence prize of "China Patent Award" of the National Intellectual Property Administration;
- United Power's "Wind Turbine Compartment" won the excellence prize of "China Patent Award-Appearance Design" of the National Intellectual Property Administration;
- Tianren Company was recognised as one of the 22nd batch of Beijing Corporate Technical Centers by Beijing Municipal Bureau of Economy and Information Technology;
- Lucency's "Research and Application of Zero Discharge Technology of Waste Water in Thermal Power Plant Based on Membrane Method" won the second prize of "Beijing Science and Technology Progress Award".
- 龍源環保「基於雙迴圈的低成本強化除塵脫硫技術」獲得了中國環保產業協會環境技術進步獎二等獎；
- 龍源環保「高效智慧化燃煤煙氣淨化技術及應用」獲得了中國環境科學學會中國環境保護科學技術獎二等獎；
- 龍源環保「煙氣脫硝系統的噴氨與渦流混合裝置及方法」獲得了國家知識產權局中國專利獎優秀獎；
- 聯合動力「風力發電機機艙」獲得了國家知識產權局中國專利獎外觀設計優秀獎；
- 天仁公司被北京市經濟和信息化局認定為第22批北京市企業技術中心；
- 朗新明「基於膜法的火電廠廢水零排放技術研究及應用」獲得了北京市科學技術進步二等獎。

本集團的技術革新和研發在2019年也獲得多項行業肯定及獲頒多項獎項，亮點頗多：

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

ANALYSIS OF 2019 FINANCIAL RESULTS

Please read this section in conjunction with the consolidated financial statements of the Group for the year ended 31 December 2019.

Analysis on consolidated results

Revenue

Consolidated revenue of the Group in 2019 was approximately RMB11,691.0 million, representing an increase of approximately 2.4% as compared with approximately RMB11,411.8 million in 2018. As compared with 2018, revenues from wind power products and services increased by RMB953.8 million, or 24.7%, which was mainly due to the significant increase in the sales volume of wind turbine generators in 2019 arising from the arrival of the rush for installation tide of wind turbine generators. Revenues from environmental protection and energy conservation solutions decreased by approximately RMB707.0 million and RMB108.4 million, respectively, representing decreases of 13.6% and 5.4%. The decrease in revenue generated from the environmental protection business was mainly due to the decrease in EPC projects for desulfurization and denitrification. The decrease in revenue generated from energy conservation solution was mainly due to the decrease of the additional energy conservation EPC projects arising from the downward trend in the overall market.

The following table sets out the Group's revenues by segment and as a percentage of the total revenue of the Group for the years ended 31 December 2019 and 2018, respectively:

2019年財務業績分析

閱讀本節時請一併閱讀截至2019年12月31日止年度本集團的合併財務報表。

合併業績分析

收入

2019年，本集團合併收入約為人民幣11,691.0百萬元，與2018年的約人民幣11,411.8百萬元相比，約增加2.4%。與2018年相比，風電產品及服務業務收入增加人民幣953.8百萬元，增長約24.7%，主要由於風機搶裝潮的到來，2019年風機銷售數量大幅增長；環保和節能解決方案收入分別減少約人民幣707.0百萬元及人民幣108.4百萬元，減少分別13.6%及5.4%，環保業務收入減少主要是由於脫硫及脫硝EPC項目減少，節能解決方案收入減少主要是由於市場整體呈現下行狀態導致新增節能EPC項目減少所致。

下表分別載列截至2019年及2018年12月31日止年度按分部劃分的本集團收入及其佔本集團合併收入的百分比：

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Environmental protection and energy conservation solutions:	環保及節能解決方案：				
Environmental protection	環保	4,505.8	38.5	5,212.8	45.7
Energy conservation solutions	節能解決方案	1,892.8	16.2	2,001.2	17.5
Total	合計	6,398.6	54.7	7,214.0	63.2
Renewable energy equipment manufacturing and services:	可再生能源設備製造及服務：				
Wind power products and services	風電產品及服務	4,822.7	41.3	3,868.9	33.9
Total	合計	4,822.7	41.3	3,868.9	33.9
All others	所有其他	469.7	4.0	328.9	2.9
Total	總計	11,691.0	100.0	11,411.8	100.0



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Cost of sales

In 2019, consolidated cost of sales for the Group amounted to approximately RMB9,102.8 million, representing an increase of approximately RMB346.3 million or 4.0%, as compared to that in 2018 of approximately RMB8,756.5 million. This increase was primarily due to the significant increase in cost of sales resulting from the increase in procurement cost of raw materials and certain key components for wind power products and services business; and the decreases in costs of sales for environmental protection and energy conservation solutions were consistent with the changes in revenues from such businesses.

The following table sets out the Group's cost of sales by segment and as a percentage of total cost of sales of the Group for the years ended 31 December 2019 and 2018, respectively:

銷售成本

2019年，本集團合併銷售成本約為人民幣9,102.8百萬元，較2018年的約人民幣8,756.5百萬元增加約為人民幣346.3百萬元或4.0%。增加的主要原因是由於風電產品及服務業務的原材料及部分關鍵部件採購成本上升，導致銷售成本大幅增加；環保、節能解決方案銷售成本減少，與該等業務收入變化趨勢相一致。

下表分別載列截至2019年及2018年12月31日止年度按分部劃分的本集團銷售成本及其佔本集團合併銷售成本的百分比：

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Environmental protection and Energy conservation solutions: 環保及節能解決方案：					
Environmental protection 環保		3,564.5	39.2	4,134.7	47.2
Energy conservation solutions 節能解決方案		1,602.5	17.6	1,728.4	19.8
Total 合計		5,167.0	56.8	5,863.1	67.0
Renewable energy equipment manufacturing and services: 可再生能源設備製造及服務：					
Wind power products and services 風電產品及服務		3,626.2	39.8	2,678.3	30.6
Solar power products and services 太陽能產品及服務		—	—	12.7	0.1
Total 合計		3,626.2	39.8	2,691.0	30.7
All others 所有其他		309.6	3.4	202.4	2.3
Total 總計		9,102.8	100.0	8,756.5	100.0

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Gross profit and gross profit margin

For the foregoing reasons, gross profit of the Group in 2019 amounted to approximately RMB2,588.2 million, representing a decrease of approximately RMB67.1 million, or 2.5%, as compared to that in 2018 of approximately RMB2,655.3 million. The decrease in gross profit was mainly due to the decrease in gross profit for wind power products and services business. Due to the lag in revenue recognition, the Group's orders of the wind power products and services business, the income of which were recognised for the year, were mainly entered into in 2018 and prior years, when the industry was competitive and the selling price was generally lower; the annual average selling price in 2019 was RMB3,539/kW, representing a decrease of RMB393/kW from RMB3,932/kW for the same period last year. On the other hand, as the cost of raw materials increased significantly as a result of the arrival of the rush for installation, the gross profit margin for the year decreased significantly, resulting that the average gross profit margin of the Group decreased from 23.3% in 2018 to 22.1% in 2019.

The following table sets out the Group's gross profit and gross profit margin by segment for the years ended 31 December 2019 and 2018, respectively:

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Environmental protection and Energy conservation solutions: 環保及節能解決方案：					
Environmental protection	環保	941.3	20.9	1,078.1	20.7
Energy conservation solutions	節能解決方案	290.3	15.3	272.8	13.6
Renewable energy equipment manufacturing and services: 可再生能源設備製造及服務：					
Wind power products and services	風電產品及服務	1,196.5	24.8	1,190.6	30.8
Solar power products and services	太陽能產品及服務	—	—	(12.7)	N/A
All others	所有其他	160.1	34.1	126.5	38.5
Total	總計	2,588.2	22.1	2,655.3	23.3

Other revenue

Other revenue of the Group's continuing operations decreased by approximately RMB8.6 million, or 2.6%, from approximately RMB331.7 million for 2018 to approximately RMB323.1 million for 2019, which was primarily due to the decrease in rental income and the increase in interest income during the year.

毛利及毛利率

鑒於上述原因，本集團2019年的毛利約為人民幣2,588.2百萬元，與2018年的約人民幣2,655.3百萬元相比減少約人民幣67.1百萬元或2.5%，主要源於風電產品及服務業務毛利減少。由於收入確認存在滯後性，本集團本年度風電產品及服務業務確認收入的訂單主要為2018年及之前年度所簽訂，當時行業競爭激烈，售價普遍較低，故2019年全年平均售價為人民幣3,539元/千瓦，較上年同期的人民幣3,932元/千瓦降低了人民幣393元/千瓦。另一方面由於搶裝潮的到來，原材料成本大幅增加，故本年度毛利率大幅下降，並導致本集團平均毛利率從2018年的23.3%減少至2019年同期的22.1%。

下表分別載列截至2019年及2018年12月31日止年度按分部劃分的本集團毛利和毛利率：

其他收入

2019年，本集團持續經營業務的其他收入約人民幣323.1百萬元，較2018年的約人民幣331.7百萬元減少約人民幣8.6百萬元或2.6%，主要原因是本年房租收入減少，而利息收入增加。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Other net income

Other net income from continuing operations of the Group for 2019 was approximately RMB155.9 million, while other net income for 2018 was approximately RMB42.3 million, representing an increase of approximately RMB113.6 million, or 268.6%, which was primarily due to the recognition of a government grant due to the early termination of the concession agreement of Taiyuan Lucency sewage Treatment Co., Ltd., a subsidiary of the Company.

Selling and distribution expenses

Selling and distribution expenses of the Group's continuing operations increased by approximately RMB530.8 million or 81.2%, from approximately RMB653.8 million for 2018 to approximately RMB1,184.6 million for 2019, which was primarily due to the increase in the transportation and sales services expenses in the wind power products and services segment.

Administrative expenses

Administrative expenses of the Group's continuing operations decreased by approximately RMB444.1 million or 23.0%, from approximately RMB1,929.2 million for 2018 to approximately RMB1,485.1 million for 2019, which was mainly due to the decrease of impairment loss of trade receivables and property, plant and equipment.

Operating profit

As a result of the foregoing factors, the operating profit of the Group's continuing operations decreased by approximately RMB61.4 million, or 13.4%, from approximately RMB459.0 million for 2018 to approximately RMB397.6 million for 2019.

Finance costs

Finance costs of the Group's continuing operations increased by approximately RMB12.8 million, or 2.2%, from approximately RMB580.1 million for 2018 to approximately RMB592.9 million for 2019, which was mainly due to the increase of interests on lease liabilities.

Loss before taxation

As a result of foregoing factors, loss before taxation of the Group's continuing operations increased by approximately RMB89.8 million or 150.4%, from approximately RMB59.7 million for 2018 to approximately RMB149.5 million for 2019.

其他收益淨額

2019年，本集團持續經營業務其他收益淨額約人民幣155.9百萬元，較2018年其他收益淨額約人民幣42.3百萬元增加約人民幣113.6百萬元或268.6%，主要由於本公司附屬公司太原朗新明污水處理有限公司因提前終止特許經營協議而確認的一筆政府補償款。

銷售及分銷開支

2019年，本集團持續經營業務銷售及分銷開支約人民幣1,184.6百萬元，較2018年的約人民幣653.8百萬元增加約人民幣530.8百萬元或81.2%，主要是由於風電產品及服務分部的運輸費及銷售服務費的增加。

行政開支

2019年，本集團持續經營業務行政開支約人民幣1,485.1百萬元，較2018年的約人民幣1,929.2百萬元減少約人民幣444.1百萬元或23.0%，主要是本年應收賬款及物業、廠房及設備減值損失的減少。

經營利潤

鑒於上述原因，本集團持續經營業務的經營利潤從2018年的約人民幣459.0百萬元減少至2019年的約人民幣397.6百萬元，減少約人民幣61.4百萬元或13.4%。

財務成本

2019年，本集團持續經營業務的財務成本約人民幣592.9百萬元，較2018年的約人民幣580.1百萬元增加約人民幣12.8百萬元或2.2%，主要是由於租賃負債利息的增加。

稅前虧損

鑒於上述原因，本集團持續經營業務的稅前虧損從2018年的約人民幣59.7百萬元增加至2019年約人民幣149.5百萬元，增虧約人民幣89.8百萬元或150.4%。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)



Income tax

The Group's income tax charges for continuing operations increased by approximately RMB314.5 million, or 1,850.0%, which was primarily due to the increase in deductible losses for deferred income tax assets not recognised this year and reversal of deferred income tax assets. As a result of the foregoing factors, the effective tax rate for the Group's continuing operations decreased from 28.4% for 2018 to -199.0% for 2019 due to the above reasons.

Profit/(loss) for the year

As a result of the foregoing factors, the Group recorded loss for the year of approximately RMB447.1 million in 2019, and recorded profit of approximately RMB112.4 million in 2018.

Loss attributable to non-controlling interests

Loss attributable to non-controlling interests of the Group increased by approximately RMB155.7 million, from approximately RMB1.7 million for 2018 to approximately RMB157.4 million for 2019, which was mainly due to the increase of the loss of the subsidiary that has material non-controlling interests.

Profit/(loss) attributable to equity shareholders of the Company

As a result of the foregoing factors, loss attributable to equity shareholders of the Company was approximately RMB289.7 million for 2019, and the profit attributable to equity shareholders of the Company was approximately RMB114.1 million for 2018.

Analysis of each business

The following table sets out the Group's revenues, gross profit and operating profit of each business as a percentage of the total revenue, gross profit and operating profit of the Group for the years ended 31 December 2019 and 2018, respectively:

	2019		2018	
	2019年	%	2018年	%
	(RMB million)	(RMB million)	(RMB million)	(RMB million)
	(人民幣百萬元)	(人民幣百萬元)	(人民幣百萬元)	(人民幣百萬元)
Environmental protection and energy conservation solutions	環保及節能解決方案			
Environmental protection:	環保：			
Revenue	4,505.8	38.5	5,212.8	45.7
Gross profit	941.3	36.4	1,078.1	40.6
Operating profit	614.8	154.6	372.8	60.3

所得稅

本集團持續經營業務的當期所得稅費用增加約人民幣314.5百萬元或1,850.0%，主要由於本年未確認遞延所得稅資產的可抵扣虧損額增加和轉回遞延所得稅資產。鑒於上述原因，本集團持續經營業務的實際稅率從2018年的28.4%降至2019年的-199.0%。

本年利潤／(虧損)

鑒於上述原因，2019年本集團錄得本年虧損為約人民幣447.1百萬元，而2018年錄得利潤約人民幣112.4百萬元。

非控股權益應佔虧損

本集團非控股權益應佔虧損由2018年的約人民幣1.7百萬元增加至2019年的約人民幣157.4百萬元，增加約人民幣155.7百萬元，主要由於擁有重大非控股權益的附屬公司的虧損增加所致。

本公司權益股東應佔利潤／(虧損)

鑒於上述原因，本公司2019年的權益股東應佔虧損為約人民幣289.7百萬元，而2018年的權益股東應佔利潤為約人民幣114.1百萬元。

各業務分析

下表分別載列截至2019年及2018年12月31日止年度本集團的分部收入、毛利和經營利潤以及各自佔相關期間本集團收入、毛利和經營利潤總額的百分比：



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Energy conservation solutions:	節能解決方案：				
Revenue	收入	1,892.8	16.2	2,001.2	17.5
Gross profit	毛利	290.3	11.2	272.8	10.3
Operating profit	經營利潤	84.1	21.1	107.1	17.3
Renewable energy equipment manufacturing and services	可再生能源設備				
Wind power products and services:	風電產品及服務：				
Revenue	收入	4,822.7	41.3	3,868.9	33.9
Gross profit	毛利	1,196.5	46.2	1,190.6	44.8
Operating (loss)/profit	經營(虧損)/利潤	(265.3)	(66.7)	36.7	5.9

Environmental protection and energy conservation solutions

環保及節能解決方案

Environmental protection

環保

Revenue

收入

The following table sets out the revenues from each business line of the Group's environmental protection business, each as a percentage of the revenue from this business, for the years ended 31 December 2019 and 2018, respectively:

下表分別載列截至2019年及2018年12月31日止年度本集團環保業務中各業務線的收入，以及各自佔該業務收入的百分比：

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Desulphurisation	脫硫	1,955.6	43.4	2,478.7	47.5
Denitrification	脫硝	730.7	16.2	811.4	15.6
Low NOx combustion equipment	低氮燃燒設備	48.4	1.1	122.0	2.3
Water treatment	水處理	1,013.2	22.5	832.9	16.0
Ash removal	除塵	626.0	13.9	337.7	6.5
Coal closure renovation and plume treatment	煤場改造及煙羽治理	131.9	2.9	630.1	12.1
Total	總計	4,505.8	100.0	5,212.8	100.0

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)



Revenue from the environmental protection business decreased by approximately RMB707.0 million or 13.6%, from approximately RMB5,212.8 million for 2018 to approximately RMB4,505.8 million for 2019. The decrease was mainly attributable to the strict national control over the new operation scale of coal-fired power, as well as the unchanged environmental protection policies in coal-fired power field, caused the decrease in new and renewal coal-fired power plants compared with the same period of the previous year and the corresponding decrease in EPC projects for desulphurisation and denitrification. The revenue from water treatment business increased, due to the recognition of additional production value of part of EPC projects.

Cost of sales

Cost of sales for the environmental protection business of the Group decreased by approximately RMB570.2 million or 13.8%, from approximately RMB4,134.7 million for 2018 to approximately RMB3,564.5 million for 2019, which was consistent with the decrease in revenues from such business line.

Gross profit and gross profit margin

The following table sets out the changes of the gross profit margin for the business lines comprising the Group's environmental protection business for the year ended 31 December 2019 compared with that for the year ended 31 December 2018:

		2019 2019年 (%)	2018 2018年 (%)
Desulphurisation	脫硫	22.3	17.3
Denitrification	脫硝	31.5	41.6
Low NOx combustion equipment	低氮燃燒設備	0.7	8.1
Water treatment	水處理	16.4	25.1
Ash removal	除塵	16.4	14.9
Coal closure renovation and plume treatment	煤場改造及煙羽治理	14.6	11.6

Gross profit attributable to the environmental protection business decreased by approximately RMB136.8 million, or 12.7%, from approximately RMB1,078.1 million for 2018 to approximately RMB941.3 million for 2019. Average gross profit margin for this business remained relatively the same as that of the previous year, while the gross profit margin for denitrification and water treatment businesses recorded significant YOY decrease. The decrease in market demand for denitrification business and the serious competitiveness arising thereof have rendered the YOY decrease in winning price of bid project and the costs remained at a high level, contributing to the decrease in gross profit margin. The further increase in catalysts and overhaul expenses for water treatment business caused by the tightening of environmental protection policies has rendered further decrease in gross profit.

環保業務收入從2018年的約人民幣5,212.8百萬元減少至2019年的約人民幣4,505.8百萬元，減少約人民幣707.0百萬元或13.6%。主要由於國家嚴格控制煤電新開工規模，且火電環保政策沒有新變化，需要新建和改造的火電廠較上期減少，脫硫及脫硝EPC項目相應減少；水處理業務收入增加，由於部分EPC項目追加確認了項目產值。

銷售成本

本集團環保業務的銷售成本從2018年的約人民幣4,134.7百萬元減少至2019年的約人民幣3,564.5百萬元，相比減少了人民幣570.2百萬元或13.8%。這與該業務線的收入減少一致。

毛利及毛利率

下表載列截至2019年12月31日止年度構成本集團環保業務的業務線毛利率與截至2018年12月31日止年度相比的變化：

環保業務毛利從2018年的約人民幣1,078.1百萬元減少至2019年的約人民幣941.3百萬元，減少約人民幣136.8百萬元或12.7%。此業務平均毛利率與上年基本持平，但脫硝及水處理業務的毛利率同比大幅下降。脫硝業務市場需求減少，競爭加劇，導致項目中標價格同比降低，成本居高不下，致使毛利率下降；水處理業務由於環保政策收緊造成藥劑費及大修理費進一步增加，致使毛利進一步下降。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Energy conservation solutions

Revenue

The following table sets out the revenues from the business lines of the Group's energy conservation business, each as a percentage of revenue from this business, for the years ended 31 December 2019 and 2018, respectively:

		2019 2019年		2018 2018年	
		(RMB million) (人民幣百萬元)	%	(RMB million) (人民幣百萬元)	%
Plasma-assisted coal ignition and combustion stabilization	等離子體點火及穩燃	214.3	11.3	242.9	12.1
Steam turbine flow passage retrofitting and maintenance	汽輪機流通改造及維修	—	—	12.9	0.6
Waste heat recovery	餘熱回收	—	—	0.4	0.1
Energy conservation service	節能服務	313.7	16.6	407.1	20.3
General contracting for power stations	電站建設總承包	1,333.1	70.5	1,333.8	66.7
Comprehensive utilization and renovation of boiler	鍋爐綜合利用改造	31.7	1.6	4.1	0.2
Total	總計	1,892.8	100.0	2,001.2	100.0

Revenue attributable to the energy conservation solutions business decreased by approximately RMB108.4 million or 5.4%, from approximately RMB2,001.2 million for 2018 to approximately RMB1,892.8 million for 2019, mainly due to market downturn, leading to YOY decrease in EPC projects in the energy conservation service business.

Cost of sales

Cost of sales for the energy conservation solutions business decreased by approximately RMB125.9 million or 7.3%, from approximately RMB1,728.4 million for 2018 to approximately RMB1,602.5 million for 2019, which was consistent with the decrease in revenue from this business line.

Gross profit and gross profit margin

Gross profit attributable to the energy conservation solutions business increased by approximately RMB17.5 million or 6.4%, from approximately RMB272.8 million for 2018 to approximately RMB290.3 million for 2019. Gross profit margin for this business increased from approximately 13.6% for 2018 to approximately 15.3% for 2019, mainly attributable to the increased gross profit margin of general contracting business for construction of power stations, which accounted for a large proportion of the total revenue.

節能解決方案

收入

下表分別載列截至2019年及2018年12月31日止年度包括在本集團節能解決方案各業務線的收入，以及各自佔該業務收入的百分比：

節能解決方案業務收入從2018年的約人民幣2,001.2百萬元減少至2019年的人民幣約1,892.8百萬元，減少約人民幣108.4百萬元或5.4%。收入減少主要是因為市場下行，節能服務業務中的EPC項目同比減少。

銷售成本

節能解決方案業務銷售成本從2018年的約人民幣1,728.4百萬元減少至2019年的約人民幣1,602.5百萬元，減少約人民幣125.9百萬元或7.3%，這與該業務線的收入減少趨勢一致。

毛利及毛利率

節能解決方案業務毛利從2018年的約人民幣272.8百萬元增加至2019年的約人民幣290.3百萬元，增加約人民幣17.5百萬元或6.4%。此業務的毛利率從2018年的約13.6%上升至2019年的約15.3%。增加的主要原因是因為收入所佔比例較大的電站建設總承包業務毛利率有所上升。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Renewable energy equipment manufacturing and services

Wind power products and services

Revenue

Revenue attributable to the wind power products and services business increased by approximately RMB953.8 million, or 24.7%, from approximately RMB3,868.9 million for 2018 to approximately RMB4,822.7 million for 2019. The increase in the revenue was mainly attributable to the increase in number of wind turbines sold by the Group with the arrival of the rush for installation tide of the wind power industry.

Cost of sales

Cost of sales attributable to the wind power products and services business increased by approximately RMB947.9 million or 35.4%, from approximately RMB2,678.3 million for 2018 to approximately RMB3,626.2 million for 2019, which was consistent with the increase in revenue from such business with relatively significant increase. The increase was mainly due to the sharp increase in price of certain components and the corresponding raw materials for wind turbines arising from the short supply of such key components as blades, castings, bearings and gearboxes in the domestic upstream supply chain of wind power with the arrival of the rush for installation tide of wind power industry.

Gross profit and gross profit margin

As a result of the foregoing reasons, gross profit attributable to the wind power products and services business increased by approximately RMB5.9 million or 0.5%, from approximately RMB1,190.6 million for 2018 to approximately RMB1,196.5 million for 2019. Gross profit margin for this business decreased significantly from 30.8% for 2018 to 24.8% for 2019. Due to the lower average selling price of orders from the income recognised during the year and significant increase in the cost of raw materials, the gross profit margin for the year recorded significant decrease.

Liquidity and source of capital

In 2019, the Group's cash is mainly used in business operations and the repayment of bank borrowings due.

可再生能源設備製造及服務

風電產品及服務

收入

風電產品及服務業務的收入從2018年的約人民幣3,868.9百萬元增加至2019年的約人民幣4,822.7百萬元，增加約人民幣953.8百萬元或24.7%。增加的主要原因是本年度風電行業搶裝潮到來，本集團風機銷售數量大幅增加。

銷售成本

風電產品及服務業務的銷售成本從2018年的約人民幣2,678.3百萬元增加至2019年的約人民幣3,626.2百萬元，增加約人民幣947.9百萬元或35.4%，這與該等業務的收入增加趨勢一致，且增長幅度較大。這是由於風電搶裝潮導致國內風電上游供應鏈的葉片、鑄件、軸承、齒輪箱等關鍵部件供不應求，部分部件大幅漲價，使風機原材料成本增加。

毛利及毛利率

鑒於上述原因，風電產品及服務業務的毛利從2018年的約人民幣1,190.6百萬元上升至2019年的約人民幣1,196.5百萬元，增加約人民幣5.9百萬元或0.5%。此業務2019年的毛利率為24.8%，比2018年的30.8%大幅下降。由於本年度確認收入的訂單平均售價較低，而原材料成本大幅增加，故本年度毛利率大幅下降。

流動資金和資本來源

2019年，本集團的現金主要供業務經營及償還到期銀行借款之用。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

The following table sets out the net cash flows of the Group for the years ended 31 December 2019 and 2018, and the cash and cash equivalents as at 31 December 2019 and 2018, respectively:

下表分別載列截至2019年及2018年12月31日止年度本集團的現金流量淨額及於2019年及2018年12月31日本集團的現金及現金等價物：

		2019 (RMB million) (人民幣百萬元)	2018 (RMB million) (人民幣百萬元)
Net cash generated from operating activities	經營活動產生之現金淨額	1,674.6	530.5
Net cash used in investing activities	投資活動使用之現金淨額	(966.9)	(318.8)
Net cash used in financing activities	融資活動使用之現金淨額	(1,000.5)	(776.1)
Cash and cash equivalents as at 31 December	於12月31日的現金及現金等價物	3,145.4	3,436.5

Net cash generated from operating activities

Net cash generated from the Group's operating activities for 2019 was approximately RMB1,674.6 million, as compared to the net cash generated from the Group's operating activities of approximately RMB530.5 million for 2018, which was mainly due to the recovery of trade receivables.

經營活動產生之現金淨額

本集團2019年經營活動產生的現金淨額約為人民幣1,674.6百萬元，而2018年本集團經營活動產生的現金淨額約為人民幣530.5百萬元，主要是因為本年度本集團收回了較多應收賬款。

Net cash used in investing activities

Net cash used in the Group's investing activities for 2019 was approximately RMB966.9 million, as compared to the net cash used in the Group's investing activities of approximately RMB318.8 million for 2018. The increase of the net cash used in the Group's investing activities was mainly attributable to the purchase of structural deposits by its subsidiaries.

投資活動使用之現金淨額

本集團2019年投資活動使用的現金淨額約為人民幣966.9百萬元，而2018年的投資活動使用的現金淨額約為人民幣318.8百萬元。投資活動使用之現金淨額增加主要由於附屬公司購入結構性存款導致。

Net cash used in financing activities

Net cash used in the Group's financing activities for 2019 was approximately RMB1,000.5 million, as compared to the net cash used in the Group's financing activities of approximately RMB776.1 million for 2018. The increase of the net cash used in the Group's financing activities was mainly due to the increase of restricted deposits for issuing the bills payable by the Group during the year.

融資活動使用之現金淨額

本集團2019年融資活動使用的現金淨額約為人民幣1,000.5百萬元，而2018年融資活動使用的現金淨額約為人民幣776.1百萬元，主要因為本年度本集團開具應付票據保證金增加而導致。

Working capital

As at 31 December 2019, the Group's cash and cash equivalents were approximately RMB3,145.4 million in total, representing a decrease of approximately RMB291.1 million, as compared to approximately RMB3,436.5 million for 2018. As at 31 December 2019, the Group had total unutilized bank facilities of approximately RMB17,483.3 million.

運營資金

於2019年12月31日，本集團的現金以及現金等價物總計約為人民幣3,145.4百萬元，與2018年的約人民幣3,436.5百萬元相比，減少約人民幣291.1百萬元。於2019年12月31日，本集團尚未使用的銀行信貸總計約為人民幣17,483.3百萬元。

The Group's liability-to-asset, which is calculated as total liabilities divided by total assets, increased from 77.3% as at 31 December 2018 to 78.3% as at 31 December 2019.

本集團的資產負債率，由總債務除以本集團的總資產的比例核算，該比率由2018年12月31日的77.3%增加至2019年12月31日的78.3%。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

The Group's net liability-to-asset (including the cash and cash equivalent deducted in the other interest-bearing payables, interest-bearing borrowings, and lease liabilities), which is calculated as total net liabilities divided by total equity and total net liabilities, was 50.3% as at 31 December 2019.

Based on the existing cash resources and unutilized bank credit facilities, the Directors are of the view that the Group will have sufficient working capital to support current demand and daily operations for the coming 12 months.

Inventory analysis

The inventories were approximately RMB4,147.9 million as at 31 December 2019, which increased by approximately RMB1,130.5 million, or 37.5%, from approximately RMB3,017.4 million as at 31 December 2018. The increase was primarily attributed to the sufficient provision of wind power products and services segment and the corresponding increase in inventory of wind turbine generators with the arrival of the rush for installation tide of wind turbine generators.

Trade and bills receivables

Trade and bills receivables decreased by approximately RMB2,106.1 million or 17.7% from approximately RMB11,915.4 million as at 31 December 2018 to approximately RMB9,809.3 million as at 31 December 2019. The decrease was primarily attributed to the more efforts the Group made to collect the receivables, and the decrease in the business volume of some segments.

Deposits, prepayments and other receivables

The Group's deposits, prepayments and other receivables decreased by approximately RMB83.1 million or 4.9%, from approximately RMB1,700.8 million as at 31 December 2018 to approximately RMB1,617.7 million as at 31 December 2019. The decrease was primarily attributable to the decrease in receivables from third parties of the Group.

Trade and bills payables

Trade and bills payables increased by approximately RMB170.3 million or 1.7% from approximately RMB9,770.7 million as at 31 December 2018 to approximately RMB9,941.0 million as at 31 December 2019, which was primarily attributable to the increase of trade payables to the sub-contractors and equipment suppliers.

本集團的淨債務負債率，由淨債務(包括減去有息其他應付款項、有息借款和租賃負債的現金和現金等價物)除以本集團的權益總額及淨債務總和計算，該比率於2019年12月31日為50.3%。

基於現有資金來源以及尚未使用的銀行信貸額度，董事認為本集團的運營資金足以支撐當前的需求以及未來12個月的日常運作。

存貨分析

存貨從2018年12月31日的約人民幣3,017.4百萬元增加約人民幣1,130.5百萬元或37.5%至2019年12月31日的約人民幣4,147.9百萬元。主要是由於風機搶裝潮到來，風電產品及服務分部大量備產，風機產品存貨增加所致。

應收賬款及票據

應收賬款及票據從2018年12月31日的約人民幣11,915.4百萬元減少約人民幣2,106.1百萬元或17.7%至2019年12月31日的約人民幣9,809.3百萬元，主要由於本集團加大催款力度，本年度收回較多應收賬款，同時部分分部業務量減少所致。

按金、預付款項及其他應收款項

本集團的按金、預付款及其他應收款項從2018年12月31日的約人民幣1,700.8百萬元減少約人民幣83.1百萬元或4.9%至2019年12月31日的約人民幣1,617.7百萬元。此減少主要是本集團應收第三方款項減少。

應付賬款及票據

應付賬款及票據從2018年12月31日的約人民幣9,770.7百萬元增加約人民幣170.3百萬元或1.7%至2019年12月31日的約人民幣9,941.0百萬元，主要是由於支付分包商及設備供應商的應付賬款增加。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Indebtedness

The following table sets forth the Group's borrowings as at 31 December 2019 and 2018:

債項

下表載列於2019及2018年12月31日本集團的借款情況：

		As at 31 December 2019	As at 31 December 2018
		於2019年12月31日	於2018年12月31日
		(RMB million)	(RMB million)
		(人民幣百萬元)	(人民幣百萬元)
Long-term interest-bearing borrowings	長期帶息借款		
Bank loans:	銀行貸款：		
Secured	有抵押	155.6	279.5
Unsecured	無抵押	–	59.2
Other loans	其他貸款	929.9	791.5
Private placement notes (unsecured)	私人配售債務融資工具 (無抵押)	2,011.4	2,453.7
Corporate bonds	公司債券	2,942.4	2,035.8
Sub-total	小計	6,039.3	5,619.7
Less: Current portion of long-term borrowings	減：長期借款的即期部份	(638.2)	(1,926.4)
Total	合計	5,401.1	3,693.3
Short-term interest-bearing borrowings	短期帶息借款		
Bank loans:	銀行貸款：		
Secured	有抵押	190.0	925.0
Unsecured	無抵押	5,030.0	4,534.0
Other loans:	其他貸款：		
China Energy (unsecured)	國家能源集團(無抵押)	–	500.0
Related parties under China Energy (unsecured)	國家能源集團附屬(無抵押)	460.0	150.0
Current portion of long-term borrowings	長期借款的即期部份	638.2	1,926.4
Total	合計	6,318.2	8,035.4
Lease liabilities	租賃負債	128.9	–
Total indebtedness	債項總額	11,848.2	11,728.7

As at 31 December 2019, the Group's indebtedness increased by approximately 1.0% from approximately RMB11,728.7 million as at 31 December 2018 to approximately RMB11,848.2 million. The proportion of short-term indebtedness to overall indebtedness decreased from approximately 68.5% as at 31 December 2018 to approximately 53.3% as at 31 December 2019, which was mainly due to changes in the structure of long-term borrowings and short-term borrowings as the corporate bonds in long-term borrowings increased.

於2019年12月31日，本集團債項約為人民幣11,848.2百萬元，比於2018年12月31日的債項約人民幣11,728.7百萬元增加約1.0%。其中短期債項佔總債項的比例從於2018年12月31日的約68.5%減少至2019年12月31日的約53.3%，主要是由於本年長期借款中公司債券部分增加，改變了長短期借款的比例結構。

MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)



All of the Group's borrowings are denominated in RMB. The following table sets out the maturity status of the Group's long-term borrowings (including current portion) as at 31 December 2019 and 31 December 2018 respectively:

本集團期內所有的借款都以人民幣計算。下表載列本集團分別於2019年12月31日及2018年12月31日的長期借款(包括即期部分)到期情況：

		As at 31 December 2019	As at 31 December 2018
		於2019年12月31日	於2018年12月31日
		<i>(RMB million)</i>	<i>(RMB million)</i>
		(人民幣百萬元)	(人民幣百萬元)
Within 1 year or on demand	1年內或按要求償還	638.2	1,926.4
After 1 year but within 2 years	1年以上但2年以內	1,609.9	709.3
After 2 years but within 5 years	2年以上但5年以內	3,774.4	2,976.3
After 5 years	5年以上	16.7	7.7
Total	合計	6,039.2	5,619.7

The effective interest rate of the Group (determined by dividing total interest expenses for the current year by the average of the sums of outstanding opening and closing borrowings) increased from approximately 5.00% for 2018 to approximately 5.03% for 2019. The increase in the Group's effective interest rate was primarily due to the increase in the proportion of long-term borrowings during the year.

本集團的實際利率(以當年總利息開支除以期初及期末的未償還借款的平均值釐定)從2018年的約5.00%上升至2019年的約5.03%，主要是由於本年長期借款佔比增加。

Contingent liabilities

The Group's contingent liabilities as at 31 December 2019 primarily consisted of bid, performance guarantee provided by the Group and the litigation contingencies.

或有負債

本集團於2019年12月31日的或有負債主要包括本集團提供的投標、履約保函及訴訟或有事項。

An arbitration initiated by Lucency, a subsidiary of the Company, was duly accepted on 25 March 2020. Since the arbitration is quite complicated, the management considered that the outcomes and the financial effect are not clear at present, and tentatively disclosed it as contingent liabilities.

本公司附屬公司朗新明提起的一項仲裁於2020年3月25日正式受理。由於該仲裁案情較複雜，管理層認為目前仲裁結果及財務影響尚不明確，暫計為或有負債。

Asset securities

Details of asset securities of the Company were set out in notes 18, 23, 26 and 30 of the financial statements.

資產抵押

本公司資產抵押的詳情載於財務報表附註18、附註23、附註26及30。

Major investment

In 2019, the Group fulfilled a total investment of RMB895.62 million, of which the infrastructural investment was RMB404.84 million, which was used to construct Jiangsu Suqian Phase II Desulfurization and Denitrification Concession Project and Inner Mongolia Chifeng Chaghanhua 49.5MW Experimental Wind Power Project; the amount of technological upgrading investment was RMB490.78 million, which was mainly used for the technological upgrading and transformation of desulfurization and denitrification concession projects, sewage treatment plants, and blade plants.

重大投資

本集團2019年完成投資共計人民幣895.62百萬元，其中，基建投資人民幣404.84百萬元，用於建設江蘇宿遷二期脫硫脫硝特許經營項目、內蒙古赤峰查干花49.5兆瓦實驗風力發電項目等；技改投資人民幣490.78百萬元，主要用於脫硫脫硝特許經營項目技術升級改造、水處理廠技術升級改造、葉片廠房技術升級改造。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED)

管理層討論與分析(續)

Material Acquisition and Disposal

The Group did not have any material acquisition or disposal during the year ended 31 December 2019.

Market risk

The Group is exposed to various risks associated with its business operations, including credit risk, interest rate risk, liquidity risk and exchange rate risk.

Credit risk

The Group's credit risk is primarily attributable to cash at bank and in hand, trade and bills receivables, deposits, prepayments and other receivables and other non-current assets. The Group has an internal credit policy in place and the exposure to these credit risks are monitored on an ongoing basis.

Substantially all of the Group's cash at bank and in hand are deposited in the stated owned/controlled PRC banking financial institutions which the Directors of the Company are of the view that the credit risk to be insignificant.

The Group performs credit evaluations on all of its customers, and monitors material outstanding receivables due from such customers on an ongoing basis. The Group's credit evaluation focuses on a customer's payment history and its ability to pay and takes into account industry and customer-specific considerations, as well as the general macroeconomic climate. The Group generally requires its customers to settle progress billings and other debts in accordance with agreed contract terms.

Interest rate risk

The Group's interest rate risk arises primarily from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk.

The Group regularly reviews and monitors the mix of fixed and variable rate borrowings in order to manage its interest rate risks. During the year, however, management of the Group did not consider it is necessary to use interest rate swaps to hedge their exposure to interest rate risk.

Liquidity risk

The nature of the Group's business gives rise to significant irregularity in its cash flow. Through regular collection of receivables and while ensuring sound operations, thereby the Group was able to significantly increase the Company's operating cash. Meanwhile, the Group proposed to improve its financing structure and increase the proportion of long-term borrowings by issuing mid-term and long-term bonds and introducing financial leasing. The Group is committed to ensuring sufficient working capital to meet its operating needs or having access to adequate bank credit to maintain uninterrupted operations. The Group's cash flow position is essential for its continuous development and expansion.

重大收購或出售

於截至2019年12月31日止年度內，本集團無任何重大收購或出售。

市場風險

本集團面臨著與其業務經營有關的多種風險，包括信貸風險、利率風險、流動資金風險和匯率風險。

信貸風險

本集團信貸風險主要歸因於銀行存款及庫存現金、應收賬款及票據、按金、預付款項和其他應收款項，以及其他非流動資產。本集團定有內部信貸政策，並以持續的方式對其交易對方信貸風險進行監控。

本集團絕大部分現金都存於中國國有或國有控股的銀行業金融機構中。因此，本公司董事認為該等風險並不重大。

本集團對其所有客戶進行信用評估，並持續監控客戶的重大應收款項。本集團的信用評估注重客戶的付款記錄及付款能力，並考慮行業和客戶的具體因素，以及宏觀經濟環境。本集團一般要求其客戶按照合約協議條款支付進度付款和其他債務。

利率風險

本集團的利率風險主要來自於長期借款。浮動利率借款使本集團暴露於現金流利率風險之下。

本集團定期審查並監控固定利率及浮動利率借款的組合。然而，本集團管理層認為在本年度無需通過利率掉期，對沖本集團的利率風險。

流動資金風險

鑒於其所經營的業務性質，本集團的現金流量具有顯著的不規則性。本集團在保證經營狀況良好的前提下，通過常態化應收賬款清收，大幅改善了公司經營現金。同時，本集團擬通過發行中長期債券、開展融資租賃等業務，改善融資結構，提高長期借款比例，本集團旨在確保其有足夠營運資金以達到其經營需求，或者能夠獲得充足的銀行信貸以不中斷地持續運營。本集團的現金流量狀況對於其持續發展和擴張不可或缺。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Exchange rate risk

The continuing development and expansion of the Group's international operations is expected to result in increased exposure to exchange rate risk, arising primarily through export sales which would typically be denominated in foreign currencies. The Group expects that its future export sales will principally be denominated in either United States dollars or Hong Kong dollars. In 2019, the Group recorded an exchange gain of RMB3.8 million, mainly because the Hong Kong dollars deposits of the Company and other receivables due from CHN Energy Technology & Environment (HK) Limited, a subsidiary, were priced in Hong Kong dollars and there had been an appreciation in the Hong Kong dollars. The Directors of the Company consider that the Group's exchange rate risk is insignificant. The Group does not currently hedge against its exchange rate risk.

RMB currently is not a freely convertible currency and the PRC government may at its discretion restrict access to foreign currency exchange for current account transactions in the future. Changes in such foreign exchange controls may adversely affect the Group's international operations and sales, and may limit the Group's ability to satisfy its foreign exchange denominated obligations. In addition, the Group may be restricted from paying dividends on its listed H-shares to Shareholders by any such policy changes.

Subsequent events

As of the date of this report, subsequent events of the Company are mainly an arbitration and the impact of the epidemic of novel coronavirus disease (COVID-19, the "**Epidemic**") on the business operations of the Group. The details of the arbitration are set out in the section "Contingent liabilities" above.

Since the outbreak of the Epidemic across Mainland China in January 2020, the Group temporarily suspended operations for approximately two weeks in early February 2020 to mid-February to protect the Groups employees. The Group believes that the Epidemic may have a material impact on its results of operations in the first quarter of 2020, considering that the Group suspended production temporarily and delayed the projects due to the delay of work resumption of its suppliers or customers. However, it is difficult to estimate the full impact at present, given the dynamic nature of these circumstances. The Group will keep continuous attention on the situation of the Epidemic, assess and react actively to its impacts. The related impact will be reflected in 2020 interim and annual consolidated financial statements of the Group.

匯率風險

本集團國際業務的持續發展和擴張預計將導致其面臨的匯率風險增加。這種增加主要來自於通常以外幣計價的出口銷售。本集團預計其未來的出口銷售將主要以美元或港元計價。本集團於2019年發生匯兌收益約為人民幣3.8百萬元，主要是由於本公司持有的外幣資產主要為港幣存款及以港幣計價的應收附屬公司國家能源集團科技環保(香港)有限公司的款項，而港幣升值造成。本公司董事認為匯率風險不重大。本集團目前未對沖其匯率風險。

目前人民幣並不是自由兌換的貨幣，未來中國政府可能會酌情決定限制經常賬戶交易的外匯匯入。對外幣兌換管控的變化可能會對本集團的國際業務和銷售帶來負面影響，也可能會限制本集團滿足其外匯計價義務。此外，由於政策變化，本集團向其股東支付上市的H股的股息可能會被限制。

期後事項

截至本報告日，本公司期後事項主要為一項仲裁及新型冠狀病毒疫情(COVID-19,「**疫情**」)對本集團經濟運行的影響。有關仲裁詳情載於上文「或有負債」一節。

自2020年1月疫情在中國大陸爆發以來，為保護本集團員工，本集團於2020年2月初至2月中旬暫停運營約兩周。本集團認為，考慮到因供應商或客戶延期復工，本集團暫時停產並推遲項目，疫情可能對公司2020年第一季度經營成果產生重大影響。然而，鑒於這些情況是動態變化的，目前很難估計其全面影響。本集團將持續關注疫情的情況，積極評估及應對其影響。相關影響將反映在本集團2020年中期和年度合併財務報表中。



MANAGEMENT'S DISCUSSION AND ANALYSIS (CONTINUED) 管理層討論與分析(續)

Saved as disclosed above, as of the date of this report, the Company did not have any material subsequent events.

BUSINESS OUTLOOK FOR 2020

Highlight the Drive of the Scientific and Technological Innovation

The Group will grasp the initiative of innovation and seize the commanding point of market competition in the future. Speed up the improvement of the scientific and technological innovation system and promote the transformation of scientific and technological achievements into the actual productive forces. Strengthen the construction of scientific research platforms, establish a high-efficiency operating mechanism for scientific research platforms and strive for a national scientific research platform for each business segment. We should speed up the cultivation of key core technologies and promote the iterative improvement of core technologies and key products. Accelerate the enhancement of collaborative innovation capabilities, speed up the process of research and development, demonstration and application of new technologies, and promote technological innovation and industrial development in the field.

Enlarge the Expansion Efforts for Market

The Group will strengthen the marketability, strengthen the regional market service center's marketing coordination, provide such solutions as "Full-mode Energy Conservation and Environmental Protection System Integrated Service", "Internet + New Energy" and "Intelligent Enterprise Construction and Service", etc. for users. Strengthen international business exploration, deepen the existing markets, properly explore the markets in Southeast Asia, South Asia, Africa and other regions and actively study the market opportunities in the countries and key regions along the "Belt and Road". We should strengthen brand publicity and promotion, and continuously enhance the brand image and market influence of the Group.

Adhere to Corporate Compliance Construction

The Group will promote the management of enterprises according to law in an all-round way, insist on the coordinated promotion of legal governance, compliant operation and standardized management, adhere to the construction of a system of rule of law, the ability of the rule of law and the culture of rule of law, and realize the goal of rule of law of ensuring safety, standardizing operation, preventing risks and serving reform. Establish and improve a work system of internal control, monitor major risks in real time, focus on work safety risk control. Consolidate the basis of work safety and build an essentially safe enterprise, and firmly build a safe line of defense without dead corners and blind areas.

除上文披露外，截至本報告日，本公司並無任何重大期後事項。

2020年業務展望

突出科技創新驅動

本集團要把握創新主動權，搶佔未來市場競爭制高點。加快完善科技創新體系，加快推動科技成果向現實生產力轉化；加強科研平台建設，建立科研平台高效運營機制，力爭各業務分部都擁有國家級科研平台；加快培育關鍵核心技術，推動核心技術和關鍵產品迭代完善；加快提升協同創新能力，加快新技術研發和示範應用進程，推動領域的技術創新和產業開拓。

加大市場開拓力度

本集團強化市場營銷能力，加大區域市場服務中心協同營銷力度，向用戶提供「全模式節能環保系統集成服務」、「互聯網+新能源」、「智慧企業建設與服務」等系列解決方案；強化國際業務開拓，深耕已有市場，做好東南亞、南亞、非洲等地區的市場開拓工作，積極研究「一帶一路」沿線支點國家及重點區域市場機會；強化品牌宣傳和推廣，不斷提升本集團品牌形象和市場影響力。

堅持企業合規建設

本集團全面推進依法治企，堅持依法治理、合規經營、規範管理協同推進，堅持法治體系、法治能力、法治文化一體建設，實現保障安全、規範經營、防範風險、服務改革的法治工作目標；建立健全內控工作體系，對重大風險實時監測，着重開展安全生產風險管控；夯實安全生產基礎，打造本質安全型企業，堅決築牢沒有死角、沒有盲區的安全防線。

DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

董事、監事及高級管理人員

BOARD OF DIRECTORS

The Board of Directors consists of eleven Directors, including three executive Directors, four non-executive Directors and four independent non-executive Directors. The functions and responsibilities of the Board of Directors include: convening general meetings, reporting its work in general meetings, implementing resolutions approved in general meetings, ascertaining the Company's business plans and investment plans, preparing the Company's annual budget and final accounts, preparing the Company's profit distribution plans and proposals for the increase in or reduction of registered capital and exercising other powers, functions and responsibilities as set out in the Articles of Association of the Company (the "AOA"). The Company has entered into a service contract or appointment letter with each Director.

The following table sets out certain information relating to the Directors of the Company. The members of the third session of the Board were re-elected and appointed at the first extraordinary general meeting of the Company held on 8 August 2017. The current term for all the Directors will expire on 7 August 2020.

董事會

董事會由11名董事組成：3名執行董事、4名非執行董事及4名獨立非執行董事。董事會的職能及職責包括：召集股東大會；於股東大會上報告董事會的工作；執行股東大會通過的決議；確定本公司業務計劃及投資計劃；制訂本公司年度預算及決算；制訂本公司利潤分配方案及關於註冊資本增減的議案；以及行使本公司《公司章程》(《公司章》)所賦予的其他權力、職能及職責。本公司與各董事訂立了服務合約或任命書。

下表載述有關本公司董事的若干資料。本公司於2017年8月8日舉行的2017年第一次臨時股東大會上進行第三屆董事會成員的重選及委任。本屆所有董事的任期將於2020年8月7日屆滿。

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment / Re-appointment 委任/重選日期
Mr. CHEN Dongqing 陳冬青先生	54	Executive Director and Chairman of the Board 執行董事兼董事長	4 February 2016 2016年2月4日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. ZHANG Jun 張軍先生	56	Executive Director 執行董事	September 2004 2004年9月	Appointed on 8 August 2017 2017年8月8日獲委任
Mr. TANG Chaoxiong 唐超雄先生	52	Executive Director 執行董事	12 October 2015 2015年10月12日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. WANG Zhongqu 王忠渠先生	58	Non-executive Director 非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. ZHANG Wenjian 張文建先生	56	Non-executive Director 非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. GU Yuchun 顧玉春先生	56	Non-executive Director 非執行董事	8 August 2017 2017年8月8日	Appointed on 8 August 2017 2017年8月8日獲委任
Mr. YAN Andrew Y. 閻焱先生	62	Non-executive Director 非執行董事	8 June 2012 2012年6月8日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. SHEN Xiaoliu 申曉留先生	69	Independent Non-executive Director 獨立非執行董事	29 March 2016 2016年3月29日	Re-appointed on 8 August 2017 2017年8月8日獲重選



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

董事、監事及高級管理人員(續)

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment / Re-appointment 委任/重選日期
Mr. QU Jiuwei 曲久輝先生	62	Independent Non-executive Director 獨立非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. XIE Qiuye 謝秋野先生	60	Independent Non-executive Director 獨立非執行董事	16 May 2014 2014年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. YEUNG Chi Tat 楊志達先生	50	Independent Non-executive Director 獨立非執行董事	8 August 2017 2017年8月8日	Appointed on 8 August 2017 2017年8月8日獲委任

Mr. CHEN Dongqing is the Secretary of the Party Committee, an executive Director and the Chairman of the Board of the Company. Mr. CHEN joined the Group on 4 February 2016. Mr. CHEN served successively as the deputy director of the Quality and Technology Office of the Thermal Power Construction Department and the New Energy Development Office of the Power Construction Department of State Power Corporation; the director of the General Office of the Engineering & Construction Department and the deputy head of the Engineering & Construction Department of Guodian Group; the vice general manager of the Southern Branch of Guodian Group; the vice general manager of Guodian Guangdong Power Co., Ltd.; and the secretary of the leading Party members' group and the vice general manager of Guodian Fujian Power Co. Ltd., the deputy secretary of the Party Committee, executive director and general manager of the Company. Mr. CHEN obtained a master's degree in Power Plant Engineering from Northeast China Institute of Electric Power. Mr. CHEN is a senior engineer.

陳冬青先生，為本公司黨委書記、執行董事兼董事長。陳先生於2016年2月4日加入本集團。陳先生歷任國家電力公司火電建設部質量技術處副處長、電源建設部新能源發展處副處長，國電集團工程建設部綜合處處長、工程建設部副主任，國電南方分公司副總經理，國電廣東電力有限公司副總經理，國電福建電力有限公司黨組書記、副總經理，本公司黨委副書記、執行董事及總經理等職務。陳先生畢業於東北電力學院發電廠工程專業並獲得碩士學位。陳先生是高級工程師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Mr. ZHANG Jun is the deputy Secretary of the Party Committee of the Company, an executive Director and the general manager. Mr. ZHANG joined the Group in September 2004. Mr. ZHANG served successively as the engineer, deputy superintendent, superintendent of North China Electric Power Bureau-Beijing Power Equipment Factory First Branch; the engineer of the Foreign Investment Introduction Office and economist of the Multi- economy Office of Beijing Power Equipment Factory; the manager of the Manufacture Department and the general manager of Longwei Company of Longyuan Electric Power Group Corporation; the manager of the Hi- tech Industry Department of Longyuan Electric Power Group Corporation Limited; the Party Group member, the assistant to general manager and vice general manager of Guodian Technology & Environment Group Corporation Limited (the predecessor of the Company); the general manager of Longwei Power Generation Technology Co., Ltd (later renamed as “Guodian United Power Technology Company Limited”); the vice director of the Technology and Comprehensive Industry Department of Guodian Group; the vice General Manager and Party Group member of Guodian New Energy Technology Research Institute; the secretary of the Party Committee of Guodian Science and Technology Research Institute (Environmental Protection Research Institute) and the vice General Manager of Guodian Science and Technology Research Institute. Mr. ZHANG graduated from Chongqing University and obtained the bachelor's degree in casting, and then graduated from Tsinghua University and obtained the degree of MBA. Mr. ZHANG is a senior engineer.

Mr. TANG Chaoxiang is a member of the Party Committee, an executive Director, the vice general manager and the chief accountant of the Company. Mr. TANG joined the Group on 12 October 2015. Mr. TANG served successively as the deputy director of the financial department of Sichuan Electric Power Corporation; the deputy director of the financial department of State Power Corporation; director of the financing and accounting division of the financial property department of Guodian Group; the vice general manager and a member of the Party Committee of Guodian Finance Co., Ltd.; the vice general manager and a member of the Party Committee of China Guodian Capital Holdings Ltd.; and the vice chairman of Bank of Shizuishan Co. Ltd., the chairman of Longyuan Technology. Mr. TANG obtained a bachelor's degree in finance and accounting from Changsha Normal College of Water Resources and Electric Engineering (currently known as Changsha University of Science & Technology) and a master's degree in accounting from Hunan University of Finance and Economics (currently known as Hunan University). Mr. TANG is a senior accountant.

張軍先生，為本公司黨委副書記、執行董事及總經理。張先生於2004年9月加入本集團。張先生歷任華北電力局北京電力設備總廠一分廠工程師、車間副主任、主任，北京電力設備總廠外資引進辦公室工程師、多經處經濟師，龍源電力集團公司龍威公司製造部經理、總經理，國電電力股份有限公司高科技產業部經理，國電科技環保集團有限公司(本公司前身)黨組成員、總經理助理、副總經理，龍威發電技術服務有限公司(後更名為「國電聯合動力技術有限公司」)總經理，國電集團科技與綜合產業部副主任，國電新能源技術研究院副院長、黨組成員，國電科學技術研究院(環境保護研究院)黨委書記、副院長。張先生畢業於重慶大學鑄造專業並取得學士學位，亦畢業於清華大學工商管理專業並取得工商管理碩士學位。張先生是高級工程師。

唐超雄先生，為本公司黨委委員、執行董事、副總經理及總會計師。唐先生於2015年10月12日加入本集團。唐先生歷任四川省電力公司財務部副處長，國家電力公司財務部副處長，國電集團財務產權部財會處處長，國電財務有限公司副總經理、黨組成員，國電資本控股有限公司副總經理、黨組成員，石嘴山銀行股份有限公司副董事長、龍源技術董事長。唐先生畢業於長沙水利電力師範學院(現為長沙理工大學)，獲得財務與會計專業學士學位，亦於湖南財經大學(現為湖南大學)獲得會計專業碩士學位。唐先生是高級會計師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

董事、監事及高級管理人員(續)

Mr. WANG Zhongqu is a non-executive Director of the Company. Mr. WANG also serves as the chief supervisor of the Work Safety of China Energy. Mr. WANG joined the Group on 16 May 2014. Mr. WANG served successively as the boiler engineer at Electric Power Research Institute in Hebei Province; the engineer and the manager of production planning of Electric Power Industry Bureau of Hebei Province; the assistant to the manager of Electric Power plant of Xibaipo branch of Hebei Power Grid; the deputy manager of Hengshui Power Plant of Hebei Province; the manager and the deputy head of the Power Plant Preparatory Office of Hanfeng Power Plant of Hebei Power Plant; and the deputy head of the Work Safety Office of Guodian Group; the chief supervisor of the Work Safety and the head of the Work Safety Office of Guodian Group. Mr. WANG obtained a bachelor's degree in thermal energy and power from Shandong Industry Institution and a master's degree in power engineering from North China Electric Power University. Mr. WANG is a professor-level senior engineer.

Mr. ZHANG Wenjian is a non-executive Director of the Company. Mr. ZHANG also serves as the director and Party secretary of the Science and Technology Department (the Office of the Science and Technology Committee and Major Special Office) of China Energy. Mr. ZHANG joined the Group on 16 May 2014. Mr. ZHANG served successively as the deputy head of the Electric Usage Office; the head of the Electric Dispatch Office; the manager of the Production Planning; the assistant of the director and the deputy director of Hengshui Electric Power Bureau; the secretary of the Party Committee of Hanfeng Power plant; the director of Xingtai Power plant; the deputy head and head of the marketing department of Guodian Group; and the head of the Technology and General Industry Office of Guodian Group. Mr. ZHANG obtained a bachelor's degree in power plant and electric power system from North China Electric Power Institute (currently known as North China Electric Power University), and a master's degree from North China Electric Power University in technology economy and management. Mr. ZHANG is a senior engineer.

王忠渠先生，為本公司非執行董事。王先生同時擔任國家能源集團安全生產總監。王先生於2014年5月16日加入本集團。王先生歷任河北省電力研究所鍋爐室工程師，河北省電力工業局生計處工程師、科長，河北省電力公司西柏坡發電廠廠長助理，河北省電力公司衡水發電廠生產副廠長，河北省電力公司邯峰發電廠籌建處副主任、發電廠廠長，國電集團安全生產部副主任，國電集團安全生產總監、安全生產部主任。王先生畢業於山東工業大學熱能動力專業，獲得學士學位；亦畢業於華北電力大學動力工程專業，獲得碩士學位。王先生是正高級工程師。

張文建先生，為本公司非執行董事。張先生同時擔任國家能源集團科技部(科技委辦公室、重大專項辦公室)主任、書記。張先生於2014年5月16日加入本集團。張先生歷任衡水電業局用電所副所長、調度所所長、生技科科長、局長助理、副局長，邯峰電業局黨委書記，邢台電業局局長，國電集團市場營銷部副主任、市場營銷部主任，國電集團科技與綜合產業部主任。張先生畢業於華北電力學院(現華北電力大學)發電廠及電力系統專業，獲得學士學位；亦畢業於華北電力大學技術經濟與管理專業，獲得碩士學位。張先生是高級工程師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Mr. GU Yuchun is a non-executive Director of the Company. Mr. GU is concurrently a member of the Party Committee and the vice general manager of Guodian Power Development Co., Ltd.. Mr. GU joined the Group on 8 August 2017. Mr. GU served successively as the vice chief engineer of Electric Power Planning & Engineering Institute; the project manager of ABB ALSTOM Beijing Engineering Consulting Company; the department director of the US-funded Puqi Saide Power Generation Co., Ltd; the project manager and the vice chief engineer of Beijing Boqi Technology Co., Ltd; the vice director and the director of the Electric Power Development Department of Guodian Group North China Branch; the general manager of Guodian Inner Mongolia Dongsheng Co-Generation Power Co., Ltd.; the vice chief engineer of Guodian Power Development Co., Ltd. and concurrently the general manager and the vice secretary of the Party Committee of Guodian Construction Investment Inner Mongolia Energy Co., Ltd; the assistant to general manager of Guodian Power Development Co., Ltd. and the general manager and the vice secretary of the Party Committee of Guodian Construction Investment Inner Mongolia Energy Co., Ltd. Mr. GU graduated from Zhejiang University and obtained the degree of bachelor of thermal power; then graduated from Huazhong University of Science and Technology and obtained the degree of master of power engineering; and finally graduated from Nankai University and obtained the degree of EMBA. Mr. GU is a professor-level senior engineer.

Mr. YAN Andrew Y. is a non-executive Director of the Company and serves concurrently as the founding managing partner of SAIF Partners. Mr. YAN joined the Group on 8 June 2012. Mr. YAN served successively as the lead engineer at Jianghuai Aviation Instrument Factory; the economist of Washington headquarter of the World Bank; a researcher of Hudson Institute in the United States; the director of strategic planning and business development for the Asia Pacific region of Sprint International Corporation successively; the managing director of Emerging Markets Partnership, the management company of AIG Asia Infrastructure Fund; and the head of Hong Kong office of AIG Asia Infrastructure Fund. Mr. YAN majored in airplane design and obtained his bachelor's degree in engineering from Nanjing Aeronautic Institute (currently known as Nanjing University of Aeronautics and Astronautics). Mr. YAN studied for a master's degree in sociology from Peking University and obtained a master's degree in international political economy from Princeton University.

顧玉春先生，為本公司非執行董事。顧先生同時擔任國電電力發展股份有限公司黨委委員、副總經理。顧先生於2017年8月8日加入本集團。顧先生歷任電力規劃設計總院副總工程師，ABB ALSTOM北京工程諮詢公司項目經理，美資蒲圻賽德發電有限公司部門主任，北京博奇科技有限公司項目經理、副總工程師，國電集團華北分公司電源發展部副主任、主任，國電內蒙古東勝熱電有限公司總經理，國電電力發展股份有限公司副總工程師兼國電建投內蒙古能源有限公司總經理、黨委副書記，國電電力發展股份有限公司總經理助理兼國電建投內蒙古能源有限公司總經理、黨委副書記。顧先生畢業於浙江大學熱能動力專業取得學士學位，並於華中科技大學動力工程專業取得工程碩士學位，亦於南開大學高級工商管理專業取得高級工商管理碩士學位。顧先生是教授級高級工程師。

閻焱先生，為本公司非執行董事，並為賽富亞洲投資基金的創始管理合夥人。閻先生於2012年6月8日加入本集團。閻先生歷任江淮航空儀表廠主管工程師，華盛頓世界銀行總部經濟學家，美國哈德遜研究所研究員，Sprint International Corporation亞太區戰略規劃及業務發展董事，AIG亞洲基礎設施投資基金的管理公司Emerging Markets Partnership之董事總經理及香港辦公室主任。閻先生畢業於南京航空學院(現南京航空航大天大學)飛機設計專業，並獲得工程學學士學位。閻先生曾於北京大學攻讀社會學碩士學位，並獲得普林斯頓大學國際政治經濟碩士學位。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Mr. SHEN Xiaoliu is an independent non-executive Director of the Company. Mr. SHEN joined the Group on 29 March 2016. Mr. SHEN is a professor of the School of Control and Computer Engineering of North China Electric Power University, and an expert of the State Key Laboratory of Alternate Electric Power System with Renewable Energy Resources and the Key Laboratory of the Institution of the energy internet and power big data of North China Electric Power University. Mr. SHEN served successively as a technician in Shanxi Linfen Electric Power Bureau; an engineer at the dispatching center of the Electric Power Bureau of Shanxi Province; a teacher in the thermal power engineering teaching and research section of the Beijing Graduate School of North China Electric Power University; the director of the information center of the Electric Power Bureau of Shanxi Province; and the deputy division director of the education division of Shanxi Electric Power Company. Mr. SHEN obtained a bachelor's degree in Industrial Automation from the Department of Electrical Engineering of Taiyuan University of Technology, and a master's degree in Electric Power System and Automation engineering from the Beijing Graduate School of North China Electric Power University.

Mr. QU Jiuhi is an independent non-executive director of the Company. Mr. QU joined the Group on 16 May 2014. Mr. QU currently serves as a researcher and the director of academic degree evaluation committee of Research Center for Eco-environmental Sciences, Chinese Academy of Sciences. Mr. QU serves concurrently as the vice chairman in All-China Environment Federation; the vice chairman of Chinese Society for Environmental Sciences; the vice chairman of Chinese Society for Sustainable Development; the vice director of the National Advisory Council on Eco-environment, etc. Mr. QU served successively as the deputy director and the director of the Research Center for Eco-environmental Sciences, Chinese Academy of Sciences. Mr. QU's research field focused on the science and technology on water quality as well as water pollution control, etc. Mr. QU has been nominated as an independent non-executive director of Dongjiang Environmental Company Limited (HK.0895; SZ.002672). Mr. QU Jiuhi obtained a PhD degree from Harbin University of Civil Engineering and Architecture. Mr. QU was elected as an academician of Chinese Academy of Engineering in 2009.

Mr. XIE Qiuye is an independent non-executive director of the Company. Mr. XIE joined the Group on 16 May 2014. Mr. XIE served successively as the vice president of Northwest Electric Power Design Institute, the deputy general manager and the chief engineer of China Power Construction Engineering Consulting Corporation; the manager of power generation branch of China Power Engineering Consulting (Group) Corporation; the president of Central Southern China Electric Power Design Institute, the secretary of the Party Committee and president of Electric Power Planning and Engineering Institute, and the secretary of the Party Committee and chairman (executive director) of Electric Power Planning and Engineering Institute Co., Ltd. Mr. XIE obtained a bachelor's degree in thermal energy from Chongqing University. Mr. XIE is a professor-level senior engineer, an expert entitled to Government Special Allowance (GSA) of the State Council and a national engineering survey and design master.

申曉留先生，為本公司獨立非執行董事。申先生於2016年3月29日加入本集團。申先生現任華北電力大學控制與計算機工程學院教授，國家新能源電力系統重點實驗室、華北電力大學能源互聯網與電力大數據研究所專家。歷任山西臨汾電業局技術員，山西省電業局調度中心工程師，華北電力大學北京研究生部動力系熱自教研室教師，山西省電業局信息中心主任，山西省電力公司教育處副處長。申先生畢業於太原理工大學電機系工業自動化專業並獲得學士學位，亦畢業於華北電力大學北京研究生部，獲得電力系統及其自動化專業工學碩士學位。

曲久輝先生，為本公司獨立非執行董事。曲先生於2014年5月16日加入本集團。曲先生現任中國科學院生態環境研究中心研究員及學位委員會主任。兼任中華環保聯合會副主席、中國環境科學學會副理事長、中國可持續發展研究會副理事長、國家生態環境諮詢委員會副主任等職務。曲先生曾任中國科學院生態環境研究中心副主任及主任。其研究領域為水質科學與技術，水污染治理等。曲先生同時也是東江環保股份有限公司(HK.0895; SZ.002672)的獨立非執行董事。曲久輝先生獲得哈爾濱建築大學博士學位，並於2009年當選中國工程院院士。

謝秋野先生，為本公司獨立非執行董事。謝先生於2014年5月16日加入本集團。謝先生歷任西北電力設計院副院長，中國電力建設工程諮詢公司副總經理兼總工程師，中國電力工程顧問集團公司發電工程分公司經理，中南電力設計院院長，電力規劃設計總院黨委書記、院長，電力規劃總院有限公司黨委書記、董事長(執行董事)。謝先生獲得重慶大學熱能專業學士學位。謝先生是教授級高級工程師，獲國務院政府特殊津貼專家及全國工程勘察設計大師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Mr. YEUNG Chi Tat is an independent non-executive director of the Company. Mr. YEUNG joined the Group on 8 August 2017. Currently, he is the Deputy President Executive Council Member of the Hong Kong Independent Non-Executive Director Association and a certified public accountant practicing in Hong Kong. He is also an independent director of New Hope Dairy Co., Ltd. (SZ.002946) and an independent non-executive director of Boer Power Holdings Limited (HK.1685), Sitoy Group Holdings Limited (HK.1023) and Birmingham Sports Holdings Limited (HK.2309). He was an independent non-executive director of Ta Yang Group Holdings Limited (HK.1991) from May 2007 to September 2017; and an independent non-executive director of ANTA Sports Products Limited (HK.2020) from February 2007 to June 2018. Mr. Yeung received a bachelor's degree in Business Administration from the University of Hong Kong and a master's degree (Grade A) in Professional Accounting with distinction from the Hong Kong Polytechnic University. He is a fellow member of the Institute of Chartered Accountants in England and Wales, the Hong Kong Institute of Certified Public Accountants and the Association of Chartered Certified Accountants and a senior international finance manager of the International Financial Management Association. Mr. YEUNG worked at a major international accounting firm for over a decade and then worked for various Hong Kong listed companies as the financial controller and company secretary. He possesses extensive experience in auditing, corporate restructuring, investment, financial management and corporate finance.

BOARD OF SUPERVISORS

The Board of Supervisors of the Company (the “**Board of Supervisors**”) currently consists of five members. Save for the employee representative Supervisors that are elected by employees, Supervisors are elected by the Shareholders of the Company (“**Shareholders**”). Supervisors serve a term of three years after which they may be re-elected or re-appointed. The responsibilities of the board of Supervisors include, amongst others, reviewing and verifying the financial report, business report and profit distribution plan prepared by the Board of Directors, and (upon doubt, if any) appointing certified public accountants and certified public auditors to re-examine the financial information of the Company; supervising the financial activities of the Company; supervising the performance of Directors, General Manager and other senior management and safeguarding against any breach of the law, administrative regulations and provisions of the AOA in the course of discharging their duties; requiring Directors, General Manager and senior management to correct actions that may harm the interests of the Company and exercising other rights granted to them by the AOA.

楊志達先生，為本公司獨立非執行董事。楊先生於2017年8月8日加入本集團。楊先生現為香港獨立非執行董事協會的常務副會長及常務理事、香港執業會計師。彼亦為新希望乳業股份有限公司(SZ.002946)的獨立董事、博耳電力控股有限公司(HK.1685)、時代集團控股有限公司(HK.1023)及伯明翰體育控股有限公司(HK.2309)的獨立非執行董事。彼自2007年5月至2017年9月擔任大洋集團控股有限公司(HK.1991)的獨立非執行董事，及自2007年2月至2018年6月擔任安踏體育用品有限公司(HK.2020)的獨立非執行董事。楊先生獲香港大學工商管理學士學位以及獲香港理工大學專業會計碩士學位(甲級)。彼為英格蘭及韋爾斯特許會計師公會、香港會計師公會及英國特許公認會計師公會資深會員及國際財務管理協會的高級國際財務管理師。楊先生於一間主要國際會計師行任職超逾十年，其後曾任多間香港上市公司的財務總監兼公司秘書。彼具備核數、企業重組、投資、財務管理及企業融資服務方面的豐富經驗。

監事會

本公司的監事會(「**監事會**」)現時由5名成員組成。除職工代表監事由僱員選出外，監事均由本公司股東(「**股東**」)選出，任期三年，如獲重選或重新委任可予連任。監事會的職責包括：審閱及核實董事會編製的財務報告、業務報告及利潤分配方案；並(如有疑問)委任執業會計師及執業核數師重新審查本公司的財務資料；監察本公司的財務活動；監察董事、總經理及其他高級管理人員的表現，及監察他們於執行職務時的行為有否違反法律、行政規定及公司章程；要求董事、總經理及高級管理人員糾正有損本公司利益的行動；以及行使《公司章程》賦予他們的其他權力。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

SUPERVISORS

監事

The following table sets out certain information relating to the Supervisors of the Company. The members of the third session of the board of Supervisors were re-elected and appointed at the first extraordinary general meeting of the Company held on 8 August 2017. The current term for all the Supervisors will expire on 7 August 2020.

下表列示有關本公司監事的若干信息。本公司於2017年8月8日召開的2017年第一次臨時股東大會上重選及委任了第三屆監事會成員。本公司本屆所有監事的任期將於2020年8月7日屆滿。

Name 姓名	Age 年齡	Position 職位	Date of Joining the Group 加入日期	Date of Appointment/ Election/Re-appointment 委任/獲選/重選日期
Mr. LUAN Baoxing 樂寶興先生	53	Chairman of the Board of Supervisors 監事會主席	9 September 2016 2016年9月9日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. XU Xingzhou 許興洲先生	58	Supervisors 監事	16 May 2011 2011年5月16日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. YANG Xiangbin ⁽¹⁾ 楊向斌先生 ⁽¹⁾	54	Supervisors 監事	9 September 2016 2016年9月9日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Ms. HE Lili ⁽²⁾ 何麗麗女士 ⁽²⁾	44	Employee Representative Supervisor 職工代表監事	18 March 2014 2014年3月18日	Re-appointed on 8 August 2017 2017年8月8日獲重選
Mr. LI Wei 李偉先生	46	Employee Representative Supervisor 職工代表監事	10 March 2008 2008年3月10日	Re-appointed on 8 August 2017 2017年8月8日獲重選

Notes:

附註：

⁽¹⁾ Mr. YANG Xiangbin ceased to be the supervisor of the Company on 7 February 2020 due to the adjustment of work arrangement. For more details, please refer to the announcement of the Company dated 7 February 2020.

⁽¹⁾ 因工作安排調整，楊向斌先生於2020年2月7日起不再擔任本公司監事職務。有關詳情請參閱本公司日期為2020年2月7日的公告。

⁽²⁾ Due to the job transfer, Ms. HE Lili ceased to be a supervisor of the Company on 6 March 2020. On the same day, the Company held a joint meeting of employees and elected Ms. QIN Xiangling as the representative supervisor of employees, whose term of office expires at the end of the third session of the Board of Supervisors. Please refer to the announcement of the Company dated 6 March 2020 for details.

⁽²⁾ 因工作調動，何麗麗女士於2020年3月6日起不再擔任本公司監事職務。同日公司召開職工聯席會議，選舉秦湘靈女士為職工代表監事，任期至第三屆監事會任期屆滿為止。有關詳情請參閱本公司日期為2020年3月6日的公告。

DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

董事、監事及高級管理人員(續)

Mr. LUAN Baoxing is the chairman of the Board of Supervisors. Mr. LUAN joined the Group on 9 September 2016. Mr. LUAN concurrently serves as the director and secretary of the Financial Department of China Energy, and as the director of China Guodian Capital Holdings Ltd., the director of China Longyuan Power (HK.0916), the director of Guodian Fuels Co., Ltd and the supervisor of Guodian Shandong Power Co., Ltd concurrently. Mr. LUAN served successively as the deputy chief of the Property and Capital Division and the chief of the Accounting Cost Division of the Financial Department of Heilongjiang Electric Power Company; the deputy chief and the chief of the Accounting Cost Division of Northeast Electric Power Group; the deputy director general of the Financial Department of State Power Corporation Northeast Branch; the associate chief accountant and the director of the Financial Department of Chongqing Electric Power; the deputy director of the Finance and Property Department, the deputy director and the director of the Capital Operation and Property Management Department of Guodian Group; the general manager and the deputy secretary of the Leading Party Group of Guodian Capital Holdings; the board chairman, the general manager and the deputy secretary of the Leading Party Group of Guodian Finance Co., Ltd.; and the director of the Financial Management Department of Guodian Group. Mr. LUAN obtained a bachelor's degree in accounting from Heilongjiang University, and a degree of MBA from Harbin Institute of Technology. Mr. LUAN is a professor-level senior accountant and Certified Public Accountant.

Mr. XU Xingzhou is a supervisor of the Company. Mr. XU joined the Group on 16 May 2011. Mr. XU concurrently serves as the senior business director of China Energy. Mr. XU served successively as the deputy director of the Labor and Salary Division, the deputy director and the director of the Salary and Insurance Division of the Human Resources Department of State Power Corporation; the deputy head of the Human Resources Department of Guodian Group; the head of the Social Insurance Center, and the head of the Human Resources Department of Guodian Group; and the leader of the inspection team of the Leading Party Group of China Energy. Mr. XU obtained a bachelor's degree in management engineering from Jilin University of Technology. Mr. XU is a senior economist.

Mr. YANG Xiangbin is a supervisor of the Company. Mr. YANG joined the group on 9 September 2016. Mr. YANG concurrently serves as the director of the Capital Operation Department of China Energy and the director of China Longyuan Power concurrently. Mr. YANG served successively as the chief of the Budget Division of the Financial Department of Heilongjiang Electric Power Co., Ltd.; the deputy chief, the chief general of the Budget Division, the chief and the deputy director general of the Finance and Property Department, and the deputy director general of the Financial Management Department of Guodian Group; the secretary of the Party Committee, the director and the deputy general manager of Inner Mongolia Pingzhuang Coal Industry (Group) Co., Ltd.; the deputy chairman of Inner Mongolia Pingzhuang Energy Co., Ltd.(SZ.000780); and the director of the Capital and Asset Management Department of Guodian Group. Mr. YANG graduated from Harbin Electric Power College majoring in financial accounting of electric power industry and then graduated from Northeast Electric Power College majoring in management engineering. He also obtained a master's degree in business administration from the Open University of Hong Kong. Mr. YANG is a professor-level senior accountant and Certified Public Accountant.

樂寶興先生，為本公司監事會主席。樂先生於2016年9月9日加入本集團。樂先生同時擔任國家能源集團財務部主任、書記，兼任國電資本控股有限公司董事、龍源電力(HK.0916)董事、國電燃料有限公司董事、國電山東電力有限公司監事。樂先生歷任黑龍江省電力公司財產資金處副處長、財務部會計成本處處長，中國東北電力集團公司財務部會計成本處副處長、處長，國家電力公司東北公司財務部副主任，重慶電力公司副總會計師兼財務部主任，國電集團財務產權部副主任、資本運營與產權管理部副主任、資本運營與產權管理部主任，國電資本控股有限公司總經理、黨組副書記，國電財務有限公司董事長、總經理、黨組副書記，國電集團財務管理部主任。樂先生畢業於黑龍江大學會計學專業，獲得學士學位；亦畢業於哈爾濱工業大學MBA專業，獲得碩士學位。樂先生是正高級會計師、註冊會計師(CPA)。

許興洲先生，為本公司的監事。許先生於2011年5月16日加入本集團。許先生同時擔任國家能源集團高級業務總監。許先生歷任國家電力公司人力資源部勞動工資處副處長、工資保險處副處長及處長，國電集團人力資源部副主任、社會保險中心主任、人力資源部主任，國家能源集團黨組巡視組組長。許先生畢業於吉林工業大學管理工程學專業，獲得學士學位。許先生是高級經濟師。

楊向斌先生，為本公司的監事。楊先生於2016年9月9日加入本集團。楊先生同時擔任國家能源集團資本運營部主任，兼任龍源電力董事。楊先生歷任黑龍江省電力有限公司財務部預算處處長，國電集團財務產權部預算處副處長、財務產權部預算處處長、財務產權部副主任，財務管理部副主任，內蒙古平莊煤業(集團)有限責任公司黨委書記、董事、副總經理，內蒙古平莊能源股份有限公司(SZ.000780)副董事長，國電集團資本與資產管理部主任。楊先生畢業於哈爾濱電力學院電力工業財務會計專業，後畢業於東北電力學院管理工程專業，亦於香港公開大學工商管理專業取得工商管理碩士學位。楊先生是正高級會計師、註冊會計師(CPA)。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED)

董事、監事及高級管理人員(續)

Ms. HE Lili is an employee representative Supervisor of the Company. Ms. HE joined the Group on 18 March 2014. Ms. HE concurrently serves Deputy leader of inspection team of China Energy. Ms. HE has ever served as a technician of rubber plant production division of Sinopec Beijing Yanshan Company; the deputy director of general affairs office of the Department of Political Work and the director of general affairs office of the Human Resources Department of Guodian Group; the member of the Party group, team leader of the Discipline Inspection Commission and chairman of the labor union of the Company, and the member of the Party Committee, Secretary of the Discipline Inspection Commission of the Company. Ms. HE obtained a degree of MBA from Beijing University of Aeronautics and Astronautics. Ms. HE is a senior administration engineer and a senior economist.

Mr. LI Wei is an employee representative Supervisor of the Company. Mr. LI joined the Group on 10 March 2008. Mr. LI serves concurrently as the deputy general economic manager and the director of the audit department of the Company. Mr. LI served successively as the deputy director of the audit department and the deputy director of the financial department of China National Electronic Materials Corporation; the deputy chief accountant of United Power; and the deputy director of the supervision and audit department and the director of supervision department (disciplinary inspection office) of the Company. Mr. LI obtained a bachelor's degree in economics from Hangzhou Dianzi University and a degree of MBA from Beijing University of Aeronautics and Astronautics. Mr. LI is a senior accountant.

SENIOR MANAGEMENT

The following table sets out certain information relating to the senior management of the Company.

何麗麗女士，為本公司的職工代表監事。何女士於2014年3月18日加入本集團。何女士同時擔任國家能源集團黨組巡視組副組長。何女士歷任中石化北京燕山石化公司橡膠廠生產技術處技術員，國電集團政治工作部綜合處副處長、人力資源部綜合處處長，本公司黨組成員、紀檢組組長及工会主席，本公司黨委委員、紀委書記。何女士畢業於北京航空航天大學工商管理專業，獲得碩士學位。何女士是高級政工師、高級經濟師。

李偉先生，為本公司的職工代表監事。李先生於2008年3月10日加入本集團。李先生同時擔任本公司副總經濟師兼審計部主任。李先生歷任中國電子物資總公司審計處副處長及財務部副總經理，聯合動力副總會計師，本公司審計部副經理、監察審計部副經理、監察部(紀檢辦)經理。李先生畢業於杭州電子科技大學會計專業，獲得經濟學學士學位；亦畢業於北京航空航天大學工商管理專業，獲得碩士學位。李先生是高級會計師。

高級管理人員

下表載列有關本公司高級管理人員的若干資料。

Name*	Age	Current position	Date of Joining the Group
姓名	年齡	現任職位	加入日期
Mr. CHEN Dongqing	54	Secretary of the Party Committee, Chairman of Board	29 March 2016
陳冬青先生		黨委書記、董事長	2016年3月29日
Mr. ZHANG Jun	56	Deputy Secretary of the Party Committee, General Manager	September 2004
張軍先生		黨委副書記、總經理	2004年9月
Mr. TANG Chaoxiong	52	Member of the Party Committee, Deputy General Manager and Chief Accountant	12 October 2015
唐超雄先生		黨委委員、副總經理、總會計師	2015年10月12日
Mr. ZHANG Xiaodong	44	Member of the Party Committee, Deputy General Manager and Chairman of the Labor Union	1 November 2010
張曉東先生		黨委委員、副總經理、工會主席	2010年11月1日
Mr. CAI Zhaowen	51	Member of the Party Committee, Deputy General Manager, Secretary of the Board and the Joint Company Secretary	18 March 2014



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Name* 姓名	Age 年齡	Current position 現任職位	Date of Joining the Group 加入日期
蔡兆文先生		黨委委員、副總經理、董事會秘書、聯席公司秘書	2014年3月18日
Mr. CHU Jingchun	43	Member of the Party Committee and Deputy General Manager	13 July 2011
褚景春先生		黨委委員、副總經理	2011年7月13日
Mr. LI Caiyun	51	Member of the Party Committee and Deputy General Manager	15 July 2014
李彩雲先生		黨委委員、副總經理	2014年7月15日

Note :

Mr. TANG Jian ceased to be a member of the Party Committee and deputy general manager of the Company on 22 May, 2019 due to personal work arrangement.

Mr. CHEN Dongqing – Please see details under the section headed “Board of Directors” above.

Mr. ZHANG Jun – Please see details under the section headed “Board of Directors” above.

Mr. TANG Chaoxiong – Please see details under the section headed “Board of Directors” above.

Mr. ZHANG Xiaodong is a member of the Party Committee, a deputy general manager, the chairman of the labor union of the Company. Mr. ZHANG joined the Group on 1 November 2010. Mr. ZHANG served successively as project principal of Energy Conservation Information Dissemination Center and project principal of the project construction division of the Information Center of the State Economic and Trade Commission; the deputy director of research and consulting division of the SASAC’s Information Center and director of the application and development division of the SASAC’s Information Center. Mr. ZHANG obtained a bachelor’s degree in electric technology from Taiyuan Heavy Machinery Institute, and a degree of MBA from Beijing University of Aeronautics and Astronautics. Mr. ZHANG is a senior engineer.

附註 :

唐堅先生因個人工作安排調整，於2019年5月22日不再擔任本公司黨委委員及副總經理職務。

陳冬青先生 – 請參閱上文「董事會」部份相關內容。

張軍先生 – 請參閱上文「董事會」部份相關內容。

唐超雄先生 – 請參閱上文「董事會」部份相關內容。

張曉東先生，為本公司黨委委員、副總經理、工會主席。張先生於2010年11月1日加入本集團。張先生歷任國家經貿委節能信息傳播中心項目負責人以及國家經貿委信息中心項目建設處項目負責人，國資委信息中心研究諮詢處副處長、國資委信息中心應用開發處處長。張先生畢業於太原重型機械學院，獲得電氣技術學士學位；亦畢業於北京航空航天大學工商管理專業，獲得碩士學位。張先生是高級工程師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

Mr. CAI Zhaowen is a member of the Party Committee, a deputy general manager, board secretary of the Company and joint secretary of the Company. Mr. CAI joined the group on 18 March 2014 and was appointed as the joint secretary of the Company on 30 March 2017. Mr. CAI served successively as the deputy general manager of Yichun Xing Anling Wind Power Co., Ltd., Yilan Longyuan Wind Power Co., Ltd., and Huanan Longyuan Wind Power Co., Ltd; the director of the planning and development department and a general manager assistant and the director of planning and development department of Longyuan Power. Mr. CAI graduated from Tsinghua University, obtained a bachelor's degree with a double major in hydraulic architecture and environmental engineering, and a degree of MBA. Mr. CAI is a senior engineer.

Mr. CHU Jingchun is a member of the Party Committee and the deputy general manager of the Company. Mr. CHU concurrently serves as the chairman of United Power, the director of the National Key Laboratory of Wind Power Equipment and Control, the director of the National Key Laboratory of Energy, Tide and Marine Power Generation Technology. Mr. CHU joined the Group on 13 July 2011. Mr. CHU served successively as the deputy head and the head of the Admissions Office of Students Affairs Division, the director of the Liaison Office of the Board, the deputy director of the Party Committee and the General Manager Office, the director of the Council office, the director of Alumni Association Office, the deputy director (in charge of relevant work) and the director of the University-enterprise cooperation Office of North China Electric Power University; the manager of General Management Department of the Company; the secretary of the Party Committee and deputy general manager of Guodian United Power Technology Co., Ltd.; the general manager assistant and a member of the Party Committee of the Company. Mr. CHU obtained a master's degree in technology economy and management from the School of Economics and Management of Beijing University of Aeronautics and Astronautics and also obtained a doctor's degree in technology economy and management from North China Electric Power University. Mr. CHU is a professor-level senior engineer.

Mr. LI Caiyun is a member of the Party Committee and the deputy general manager of the Company. LI joined the Group on 15 July 2014. Mr. LI successively served as the deputy director of construction site of Jiangsu Electric Power Construction No. 3 Engineering Company; the manager of architecture company; the director and the deputy chief engineer of the engineering department of Guodian Changzhou Power Generating Co., Ltd.; the deputy chief engineer and the deputy general manager of Guodian Taizhou Generation Co., Ltd.; the deputy chief and chief of the engineering department of bidding center of Guodian Group; the general manager assistant, a member of the Party Group of the Company; the general manager and the deputy secretary of Party Committee of Longyuan Engineering. Mr. LI obtained a bachelor's degree in industrial and civil construction from School of Water Resources and Hydropower Engineering Wuhan University. Mr. LI is a senior engineer.

蔡兆文先生，為本公司黨委委員、副總經理、董事會秘書及聯席公司秘書。蔡先生於2014年3月18日加入本集團，於2017年3月30日獲委任為本公司的聯席公司秘書。蔡先生歷任伊春興安嶺風力發電有限公司、依蘭龍源風力發電有限公司、樺南龍源風力發電有限公司常務副總經理，龍源電力計劃發展部主任，龍源電力總經理助理兼規劃發展部主任。蔡先生畢業於清華大學，獲得水工建築、環境工程專業雙學士學位，亦獲得工商管理專業碩士學位。蔡先生是高級工程師。

褚景春先生，為本公司黨委委員、副總經理。褚先生目前還兼任聯合動力董事長，風電設備及控制國家重點實驗室主任、國家能源潮汐海洋能發電技術重點實驗室主任。褚先生於2011年7月13日加入本集團。褚先生歷任華北電力大學招辦副主任、招辦主任，董事會聯絡辦公室主任，黨委辦公室副主任、校長辦公室副主任、理事會工作辦公室主任、校友會工作辦公室主任，校企合作辦公室副主任(主持工作)、校企合作辦公室主任；本公司綜合管理部經理，聯合動力黨委書記兼副總經理，本公司總經理助理、黨組成員。褚先生畢業於北京航空航天大學經管學院技術經濟及管理專業，獲得碩士學位，亦畢業於華北電力大學技術經濟及管理專業，獲得博士學位。褚先生是教授級高級工程師。

李彩雲先生，為本公司黨委委員、副總經理。李先生於2014年7月15日加入本集團。李先生歷任江蘇電建三公司建築工地副主任、建築專業公司經理，國電常州發電有限公司工程部主任、副總工程師，國電泰州發電有限公司副總工程師、副總經理，國電集團招標中心副處長、招標中心工程處處長，本公司總經理助理、黨組成員，龍源工程總經理、黨委副書記。李先生畢業於武漢水利電力學院工民建專業，獲得學士學位。李先生是高級工程師。



DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT (CONTINUED) 董事、監事及高級管理人員(續)

On 24 October 2016, the Group set up the Party Committee of the new term. As at the end of this Report, Mr. CHEN Dongqing has been the secretary of the Party Committee of the Group, Mr. ZHANG Jun has been the deputy secretary of the Party Committee, Mr. TANG Chaoxiong, Mr. ZHANG Xiaodong, Mr. CAI Zhaowen, Mr. CHU Jingchun, Mr. LI Caiyun and Mr. GONG Zhenguang have been the members of the Party Committee; and Mr. GONG Zhenguang has been also the secretary of the Disciplinary Inspection Committee. Please refer to the following for the resume of Mr. GONG Zhenguang. Please refer to the the section headed "Board of Directors" and "Senior Management" above for other members of the Party Committee.

Mr. GONG Zhenguang is a member of the Party Committee and the secretary of the Disciplinary Inspection Committee of the Company. Mr. GONG joined the Group on 28 December 2019. Mr. GONG served successively as the office secretary of Dadougou Mine of Datong Mining Bureau; the assistant economist of the Office of Shuohuang Railway Development Co., Ltd.; the supervisor of comprehensive business of the Supervision and Audit Department, the business manager of the Case Inspection Division of the Supervision Department, the director of the Second Division of the Supervision Department of Shenhua Group Corporation Limited; the director of the Audit Division and the director of the Fourth Office of the Supervision Team of the Supervision Department of China Energy Investment Group Corporation. Mr. GONG graduated from Shanxi University with the major in administration and obtained a master's degree in public administration from China University of Political Science and Law. Mr. Gong is a senior economist.

JOINT COMPANY SECRETARIES

Mr. CAI Zhaowen – Please see details under the section headed "Senior Management" above.

Mr. LEE Kwok Fai Kenneth is the joint company secretary of the Company. Mr. LEE was appointed as the joint company secretary of the Company on 23 August 2018. Mr. LEE is a director and head of corporate secretarial services of TMF Hong Kong Limited. Mr. LEE has over 20 years of experience in providing transaction services and in financial due diligence, specialized in mergers and acquisitions. Mr. LEE is an associate member of Hong Kong Certified Public Accountants, a member of the American Institute of Certified Public Accountants in the United States and a Chartered Financial Analyst.

2016年10月24日，本集團成立新一屆黨委。截至本報告期末，陳冬青先生任本集團黨委書記，張軍先生任黨委副書記，唐超雄先生、張曉東先生、蔡兆文先生、褚景春先生、李彩雲先生、宮振光先生任黨委委員，宮振光先生選任紀委書記。宮振光先生簡歷請見下文，其他黨委成員簡歷請見上文「董事會」及「高級管理人員」部份相關內容。

宮振光先生，為本公司黨委委員、紀委書記。宮先生於2019年12月28日加入本集團。宮先生歷任大同礦務局大門溝礦辦公室秘書，朔黃鐵路發展有限責任公司辦公室助理經濟師，神華集團有限責任公司紀檢監察審計部綜合業務主管、紀檢監察部案件檢查處業務經理、紀檢監察部紀律審查二處處長，國家能源投資集團有限責任公司紀檢監察部審查處處長、紀檢監察組四室主任。宮先生畢業於山西大學行政管理專業，獲得中國政法大學公共管理碩士學位。宮先生是高級經濟師。

聯席公司秘書

蔡兆文先生 – 請參閱上文「高級管理人員」部份相關內容。

李國輝先生，為本公司聯席公司秘書。李先生於2018年8月23日獲委任為本公司的聯席公司秘書。李先生為達盟香港有限公司之董事兼公司秘書服務部主管。李先生擁有超過20年諮詢服務經驗，以及併購交易的財務盡職調查服務經驗。李先生是香港註冊會計師、美國註冊會計師及特許金融分析師。



REPORT OF THE BOARD OF DIRECTORS

董事會報告

The Board of Directors hereby presents to Shareholders this Annual Report and the audited financial statements for 2019 (“**Financial Statements**”).

SHARE CAPITAL

As of 31 December 2019, the total issued share capital of the Company was RMB6,063,770,000 shares, the total amount of share capital of the Company was RMB6,063,770,000, and the par value per share was RMB1.0, including 4,754,000,000 domestic shares and 1,309,770,000 H shares. Details of movement in the share capital of the Company during the year are set out in Note 38(c) to the Financial Statements.

PURCHASE, SALE OR REDEMPTION OF THE COMPANY'S LISTED SECURITIES

Neither the Company nor any of its subsidiaries purchased, sold or redeemed any of the Company's listed securities during the year ended 31 December 2019.

PRE-EMPTIVE RIGHTS

According to the AOA or the PRC law, there are no provisions for pre-emptive rights requiring the Company to offer new shares to the existing Shareholders of the Company in proportion to their shareholdings.

PRINCIPAL BUSINESS

The Company is principally engaged in (1) the business of environmental protection and energy conservation solutions, and (2) the business of renewable energy equipment manufacturing and service. The Company offers diversified products and services and uses diversified business models in its business operations. Details of subsidiaries and associates of the Company are set out in Notes 20 and 21 to the Financial Statements.

RESULTS

The annual results of the Company and its subsidiaries for the year ended 31 December 2019 and the statement of financial position of the Company and its subsidiaries as of 31 December 2019 are set out in the Financial Statements of this Annual Report.

BUSINESS REVIEW

A discussion and analysis on results performance during the year and material factors underlying its results and financial position and business prospect of the Group are set out in the Management's Discussion and Analysis section of this Annual Report. Details of financial risk management of the Group are set out in Note 40 to the Financial Statements.

本公司董事會現向股東提呈其於2019年的年度報告及經審核財務報表(「**財務報表**」)。

股本

於2019年12月31日，本公司已發行股本總數為6,063,770,000股，股本總額為人民幣6,063,770,000元，每股面值人民幣1.0元，其中內資股4,754,000,000股，H股1,309,770,000股。本公司股本於本年度的變動詳情載於財務報表附註38(c)。

購買、出售或贖回本公司上市證券

本公司或其任何附屬公司於截至2019年12月31日止年度未購買、出售或贖回本公司任何上市證券。

優先購股權

根據《公司章程》或中國法律並無存在要求本公司按現有股東持股比例向其發售新股的優先購股權的規定。

主營業務

本公司的主營業務為(1)環保及節能解決方案業務，以及(2)可再生能源設備製造及服務業務。本公司供應多元化的產品及服務，並於開展業務時使用多樣化的業務模式。本公司附屬公司及聯營公司的詳情分別載於財務報表附註20及21。

業績

本公司及其附屬公司截至2019年12月31日止年度的業績以及本公司及其附屬公司於2019年12月31日的財務狀況載於本年報的財務報表。

業務審視

有關本集團本年度的業績表現、影響業績和財務狀況的重要因素及業務展望的討論及分析，載於本年報的「管理層討論與分析」一節。有關本集團財務風險管理的詳情載於財務報表附註40。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

RELATIONSHIP WITH THE CONNECTED PERSONS OF PRINCIPAL BUSINESS

Employees

As of 31 December 2019, the Group has had 6,180 employees in total. In accordance with the applicable national laws and regulations and the applicable regulations of China Energy/Guodian Group, the Group has established a clear and transparent human resources (“HR”) system, including 28 HR rules and regulations at all levels, in order to protect the legitimate rights and interests of the employees. The Group has established and improved the management system of total salary based on market value and performance evaluation. The salary of staff is composed of basic salary, performance salary and reward salary. The performance salary is determined on the basis of company performance and performance evaluation, and reward salary is determined according to the completion of the company’s annual key work. The Group will pay social insurance premiums, housing funds, corporate annuities, etc., for the employees strictly in accordance with applicable national and local government policies and regulations. The Group also attaches great importance to the selection, training, incentive and development of talents, concentrates all kinds of superior resources on high-potential and high-performance employees.

Suppliers

The Group requires its subsidiaries to learn advanced experience in the industry, optimize the development process of qualified suppliers, introduce excellent suppliers of leading enterprises in the industry, speed up the verification and probation process of newly-developed suppliers, develop a reasonable development plan, and reasonably plan the procurement proposal, and make assessment and evaluation of suppliers from time to time.

ORDERLY ADVANCING RULE BY LAW AND COMPLIANCE

In 2019, the Group continued to further carry forward and implement the Opinion on Comprehensively Promoting the Construction of Central Enterprises under the Rule by Law and the Regulations on the Principal Responsible Persons of Central Enterprises Carrying out the Duties of the First Responsible Person in Promoting the Construction of the Rule of Law of SASAC, the Central Enterprise Compliance Management Guidelines (Trial), as well as the Implementation Plan for Comprehensively Promoting the Construction of “Energy in the Country Ruled by Law”, the Regulations on the Principal Responsible Persons of Central Enterprises Carrying out the Duties of the First Responsible Person in Promoting the Construction of the Rule by Law, and the Regulations on Compliance Management of China Energy, and comprehensively enhanced the rule-by-law and compliance construction of the Group from the aspects of strengthening organization and leadership, perfecting the working mechanism, cultivating the culture of ruling by law, deepening the management of enterprises according to law, operating according to rules and regulations, etc.

與主要業務有關人士的關係

員工

於2019年12月31日，本集團共有員工6,180人。依據國家相關法律法規及國家能源集團/國電集團相關規定，本集團建立了清晰透明的人力資源制度，包括各級人力資源制度共28項，切實保障了員工的合法權益。本集團建立和完善了以市場價值為導向、以績效考核為基礎的工資總額管理體系，員工薪酬由基本工資、績效工資和獎勵工資三部份組成，績效工資依據公司業績及績效考核情況確定，獎勵工資依據公司年度重點工作完成情況確定，並嚴格按照國家和地方政府有關政策法規為員工繳納各項社會保險、住房公積金、企業年金等。本集團亦十分重視人才的選拔、培養、激勵和發展工作，集中各類優勢資源向高潛力、高績效員工傾斜。

供應商

本集團要求附屬公司學習行業內先進經驗，優化合格供應商開發流程，引進行業內排名靠前的企業的優秀供應商，加快新開發供應商驗證試用環節，制定合理的開發計劃，亦不時對供應商作出考核和評價。

法治合規工作有序推進

2019年，本集團繼續深入貫徹落實國務院國資委《關於全面推進法治央企建設的意見》、《中央企業主要負責人履行推進法治建設第一責任人職責規定》、《中央企業合規管理指引(試行)》以及國家能源集團《關於全面推進「法治國家能源」建設的實施方案》、《企業主要負責人履行推進法治建設第一責任人職責若干規定》《合規管理規定》的有關要求，從加強組織領導、完善工作機制、培育法治文化、深化依法治企、合規經營等方面全面推進本集團法治合規建設各項工作。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

COMPLIANCE WITH LAWS

The Group requires its subsidiaries to strictly abide by national laws and local regulations and industry standards. The relevant departments of the Group are responsible for monitoring, supervising and inspecting the management and implementation of laws and regulations of the subsidiaries on a regular basis and from time to time and assessing their implementation and compliance in these areas. In 2019, the Company did not have any event that had materially violated or had not been in compliance with the laws and regulations applicable to the Group and which had a significant impact on the Group's business and operation.

ENVIRONMENTAL POLICIES

As an enterprise providing environmental protection, energy conservation and renewable energy equipment and services, the Group has always attached importance to the national environmental protection policies and fulfilled its social responsibility from the perspective of the survival and development of enterprises. The Group strictly implements the Environmental Protection Law of the People's Republic of China, the Law on the Prevention and Control of Environmental Pollution by Solid Wastes of the People's Republic of China, the Air Pollution Prevention and Control Law of the People's Republic of China and the applicable industrial and local environmental protection rules and regulations of each affiliate, strictly implements the environmental protection requirements of projects, and ensures the simultaneous design, construction and production of the environmental protection facilities and the main works, so as to achieve efficient operation and emission according to standards.

Take Longyuan Environmental as an example, in order to cope with the supervision of the environmental protection facilities from governments at all levels, ensure the facilities for the desulfurization and denitrification projects were operated stably and met the discharge standards, a series of effective measures were taken, including the construction of the safety control system and the construction of the HSE system of the National Occupational Safety Association, carrying out the standardized construction of the operation management, carrying out the regular random check of the equipment non-leakage treatment, implementing the full coverage of technical supervision, strengthening the control of the field operation indicators, continuing to strengthen the standardization rectification of safety and civilization, thus improving the level of standardization in the safety and operation management of the project company in an all-round manner. In 2019, there was no environmental violation that had a significant impact on the Group.

As of 31 December 2019, there has had no environmental event with a significant impact on the Group's operational, financial or business prospects. The above discussion forms part of this Report of the Board of Directors.

法律遵守情況

本集團要求附屬公司嚴格遵守國家法律及各地規章、各行業準則。本集團相關部門負責定期及不時監測、監督及檢查各附屬公司的法律法規管理及執行情況，且評估其於該等領域的執行及遵守情況。於2019年年內，本公司並無發生重大違反或不遵守本集團適用的法律法規，且對本集團業務及經營造成重要影響的事件。

環保政策

作為一家提供環保節能及可再生能源設備及服務的企業，本集團一貫從企業生存和發展的高度，重視國家的環保政策，履行企業的社會責任。嚴格落實《中華人民共和國環保法》、《中華人民共和國固體廢物污染環境防治法》、《中華人民共和國大氣污染防治法》等法規及各附屬公司適用的行業及地方環保制度及規定，嚴格執行項目的環保要求，確保環保設施和主體工程同時設計、施工、投產，實現高效運行和達標排放。

以龍源環保為例，為更好的迎接各級政府對環保設施的監管，保證各脫硫脫硝項目設施穩定運行，達標排放，其採取了一系列有效的舉措，進行了安全管控系統建設及國家職業安全協會安健環體系建設，推行運行管理標準化建設，開展設備無滲漏治理常態化抽查，落實技術監督全覆蓋，加強現場運行指標管控，繼續加強安全文明標準化整治，全面提升了項目公司安全、運行管理工作規範化水準。本年度未發生對本集團有重大影響的環境違規事件。

截至2019年12月31日止，未發生對本集團營運、財務或經營前景產生重大影響的環保事件。以上討論屬本董事會報告的一部分。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

DIVIDEND

The Board does not recommend the payment of a final dividend for the year ended 31 December 2019.

PROPERTY, PLANT AND EQUIPMENT

Details of the movements in property, plant and equipment of the Company and its subsidiaries during the year are set out in Note 15 to the Financial Statements.

RESERVES

Details of the movements in reserves of the Company during the year are set out in Note 38(a) to the Financial Statements, among which, details of reserves available for distribution to the Shareholders as of 31 December 2019 are set out in Note 38(e) to the Financial Statements.

BANK LOANS AND OTHER BORROWINGS

Details of bank loans and other borrowings of the Company and its subsidiaries as of 31 December 2019 are set out in Note 30 to the Financial Statements.

DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

The relevant information of the Directors, Supervisors and senior management of the Company at the date of this Annual Report, such as name, position in the Company and date of joining/appointment/re-election/resignation, is set out in the Directors, Supervisors and Senior Management section of this Annual Report.

The Company has received, from each of the independent non-executive Directors, an annual confirmation of his independence pursuant to Rule 3.13 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the "Listing Rules") and considers that all of the independent non-executive Directors are independent of the Company.

BIOGRAPHIES OF DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT

Biographical details of Directors, Supervisors and senior management are set out in the Directors, Supervisors and Senior Management section of this Annual Report.

股息

董事會不建議派發截至2019年12月31日止年度之末期股息。

物業、廠房及設備

本公司及其附屬公司物業、廠房及設備於本年度的變動詳情載於財務報表附註15。

儲備

本年度內本公司儲備的變動詳情載於財務報表附註38(a)，其中截至2019年12月31日止可供分配予股東的儲備詳情載於財務報表附註38(e)。

銀行貸款及其他借款

關於本公司及其附屬公司於2019年12月31日之銀行貸款及其他借款的詳情載於財務報表附註30。

董事、監事和高級管理人員

於本年報日期，本公司董事、監事和高級管理人員的有關資料，如姓名、本公司職位及加入/委任/重選/辭任日期，載於本年報的「董事、監事及高級管理人員」一節。

本公司已收到每名獨立非執行董事根據香港聯合交易所有限公司證券上市規則(「上市規則」)第3.13條就其各自的獨立性出具的年度確認書，並認為每名獨立非執行董事均獨立於本公司。

董事、監事和高級管理人員簡歷

董事、監事和高級管理人員的簡歷詳情載於本年報的「董事、監事及高級管理人員」一節。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

SERVICE CONTRACTS OF THE DIRECTORS AND SUPERVISORS

Each of the executive Directors and Supervisors of the Company entered into a service contract with the Company on 8 August 2017, which is for a term of three years commencing from 8 August 2017. Each of the non-executive Directors and independent non-executive Directors entered into a letter of appointment with the Company on 8 August 2017, for a term of three years, with a clause of one-year automatic renewal.

Save as disclosed above, none of the Directors or Supervisors has entered into a service contract with the Company which is not determinable by the Company within one year without payment of compensation, other than statutory compensation.

PERMITTED INDEMNITY PROVISIONS

Pursuant to the AOA, every Director, Supervisor and senior management of the Company shall be entitled to be indemnified out of the assets of the Company against all losses or liabilities which he/she may sustain or incur in relation to the execution of the duties of his/her office or otherwise in relation thereto. Besides, the Company has arranged appropriate insurance for Directors, Supervisors and senior management in respect of possible legal actions.

DIRECTORS' AND SUPERVISORS' REMUNERATION

Details of the remuneration of the Directors and Supervisors of the Company are set out in Note 11 to the Financial Statements.

Details of the remuneration of five Individuals with highest emoluments of the Company are set out in Note 12 to the Financial Statements.

PENSION SCHEMES

Details of pension schemes of the Company are set out in Note 9(a) to the Financial Statements.

INTERESTS OF DIRECTORS AND SUPERVISORS IN CONTRACTS, TRANSACTIONS OR ARRANGEMENTS

At any time during the year of 2019, there was no contract of significance, transaction or arrangement related to the Group's business in which the Company and its subsidiaries was a party, and in which a Director or Supervisor or an entity connected with a Director or a Supervisor had a material interest, either directly or indirectly, which subsisted during the year or at the end of the year.

董事及監事的服務合約

本公司各執行董事及監事已於2017年8月8日與本公司訂立了服務合約，各服務協議自2017年8月8日起為期三年。而各非執行董事及獨立非執行董事亦已於2017年8月8日與本公司訂立了委任函，為期三年，委任函包含自動延期一年的條款。

除上文所披露者外，概無董事或監事與本公司訂立本公司不可於一年內不付賠償(法定賠償除外)而終止的服務合約。

獲准許的彌償條文

根據《公司章程》，本公司每名董事、監事及高級管理人員在其執行職責或在其他方面與此有關之情況下可能蒙受或產生之所有損失或責任，有權獲得從本公司之資產中撥付彌償。此外，本公司已就其可能面對之有關法律制裁安排適當的董事、監事及高級管理人員保險。

董事及監事的酬金

本公司董事及監事酬金的詳情載於財務報表附註11。

本公司的五位最高薪酬人士的薪酬詳情載於財務報表附註12。

退休金計劃

本公司退休金計劃的詳情載於財務報表附註9(a)。

董事及監事於合約、交易或安排的權益

於2019年度內的任何時間，本公司及其附屬公司概無直接或間接參與訂立與董事或監事或其有關連的實體有重大利益關係、與本集團業務有關、且於本年度內或結束時仍然有效的重要合約、交易或安排。

REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

董事會報告(續)



INTERESTS OF DIRECTORS IN COMPETING BUSINESS

During the year of 2019, save as disclosed below, none of the Directors and their associates had any competing interests in any business which competed, or was likely to compete, either directly or indirectly, with the business of the Group:

董事於競爭業務的權益

於2019年度內，除下文所披露者外，概無董事及其聯繫人於任何與本集團業務直接或間接構成競爭或可能構成競爭的業務中擁有任何競爭權益：

Name of Director 董事姓名	Position in the Company 本公司職位	Other Equity 其他權益
Mr. WANG Zhongqu 王忠渠先生	Non-executive Director 非執行董事	Chief Production Security Officer of China Energy 國家能源集團安全生產總監
Mr. ZHANG Wenjian 張文建先生	Non-executive Director 非執行董事	Director and Party Secretary of the Science and Technology Department (the Office of the Science and Technology Committee and Major Special Office) of China Energy 國家能源集團科技部(科技委辦公室、重大專項辦公室)主任及書記
Mr. GU Yuchun 顧玉春先生	Non-executive Director 非執行董事	Member of the Party Committee and the vice general manager of Guodian Power 國電電力黨委委員、副總經理

INTERESTS AND SHORT POSITIONS OF THE DIRECTORS, SUPERVISORS AND SENIOR MANAGEMENT IN THE SHARES, UNDERLYING SHARES AND DEBENTURES

As of 31 December 2019, Mr. YAN Andrew Y., a non-executive Director of the Company, has been interested in 288,200,000 shares of the Company. Please refer to "Substantial Shareholders' Interests in Shares" for more information. Save as disclosed above, none of the Directors, Supervisors and senior management of the Company had any interests or short positions in the shares, underlying shares and debentures of the Company or any of its associated corporations (within the meaning of Part XV of the Securities and Futures Ordinance ("SFO")) which would have to be notified to the Company and the Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interests or short positions which they were taken or deemed to have under such provisions of the SFO) or which were required, pursuant to Section 352 of the SFO, to be registered in the register referred to therein, or which would fall to be disclosed to the Company and the Stock Exchange pursuant to the Model Code for Securities Transactions by Directors of Listed Issuers.

董事、監事及高級管理人員於股份、相關股份及債權證的權益及淡倉

於2019年12月31日，本公司非執行董事閻焱先生對本公司的288,200,000股股份擁有權益。更多資料請見「主要股東於股份之權益」。除上文所披露者之外，本公司各董事、監事及高級管理人員概無在本公司或其任何相聯法團(定義見《證券及期貨條例》(「《證券及期貨條例》」)第XV部)的股份、相關股份或債權證中擁有任何根據《證券及期貨條例》第XV部第7及8分部須知會本公司及聯交所的權益或淡倉(包括根據《證券及期貨條例》的該等條文被當作或視為擁有的權益或淡倉)，或根據《證券及期貨條例》第352條須登記於該條所指登記冊的權益或淡倉，或根據《上市發行人董事進行證券交易的標準守則》須知會本公司及聯交所的權益或淡倉。

EQUITY-LINKED AGREEMENTS

No equity-linked agreements that will or may result in the Company issuing shares or that require the Company to enter into any agreements that will or may result in the Company issuing shares were entered into by the Company during the year or subsisted at the end of the year.

股票掛鈎協議

於年內或年度結束時，本公司概無訂立或存在任何股票掛鈎協議將會或可導致本公司發行股份，或要求本公司訂立任何協議將會或可導致本公司發行股份。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

SUBSTANTIAL SHAREHOLDERS' INTERESTS IN SHARES

As at 31 December 2019, to the knowledge of the Directors, the persons below (except the directors, supervisors and senior management of the Company, but including Mr. YAN Andrew Y.) have interests or short positions in the shares or underlying shares of the Company which are required to be disclosed pursuant to Divisions 2 and 3 of Part XV of the SFO (the table has been updated according to the records of CCASS and the shareholder identification report):

主要股東於股份之權益

於2019年12月31日，就董事所知，下列人士(本公司董事、監事及高級管理人員除外，唯包括本公司董事閻焱先生)於本公司股份或相關股份中擁有根據《證券及期貨條例》第XV部第2及3分部須向本公司披露之權益或淡倉(該表已根據中央結算系統持股紀錄及股東身份識別報告更新)：

Shareholder Name	Share Category	Status	Number of Shares/ Underlying Shares Held 持有股份/ 相關股份數目 (shares) (股)	Percentage in the Relevant Class of Share Capital ⁽¹⁾ 佔有關股本類別 之百分比 ⁽¹⁾ %	Percentage in the Total Share Capital ⁽¹⁾ 佔股本總數 之百分比 ⁽¹⁾ %
China Energy 國家能源集團	Domestic shares 內資股	Interests of beneficial owner and controlled corporation 實益擁有人及受控公司之權益	4,754,000,000 ⁽²⁾ (Long position) (好倉)	100.00	78.40
Guodian Power 國電電力	Domestic shares 內資股	Interests of beneficial owner 實益擁有人之權益	2,376,500,000 ⁽²⁾ (Long position) (好倉)	49.99	39.19
Mr. YAN Andrew Y. 閻焱先生	H shares H股	Interests of controlled corporation 受控公司之權益	288,200,000 ⁽³⁾ (Long position) (好倉)	22.00	4.75
SAIF IV GP Capital Ltd.	H shares H股	Interests of controlled corporation 受控公司之權益	288,200,000 ⁽³⁾ (Long position) (好倉)	22.00	4.75
SAIF IV GP LP	H shares H股	Interests of controlled corporation 受控公司之權益	288,200,000 ⁽³⁾ (Long position) (好倉)	22.00	4.75
SAIF Partners IV L.P.	H shares H股	Interests of beneficial owner 實益擁有人之權益	288,200,000 ⁽³⁾ (Long position) (好倉)	22.00	4.75
Datang Renewables (HK) Co., Ltd. 大唐新能源(香港)有限公司	H shares H股	Interests of beneficial owner 實益擁有人之權益	108,050,000 (Long position) (好倉)	8.25	1.78
National Council for Social Security Fund of the PRC 全國社會保障基金理事會	H shares H股	Interests of beneficial owner 實益擁有人之權益	77,310,000 (Long position) (好倉)	5.90	1.27
State Grid International Development Limited 國家電網國際發展有限公司	H shares H股	Interests of beneficial owner 實益擁有人之權益	76,284,000 (Long position) (好倉)	5.82	1.26



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Notes:

- (1) This percentage is calculated based on the number of relevant shares/ total shares issued by the Company as of 31 December 2019.
- (2) As China Energy has merged and acquired Guodian Group, the subsidiaries of Guodian Group and the shares or equity of such subsidiaries held by Guodian Group have been vested in China Energy since the closing date of the M&A. According to the Confirmation of Transfer Registration issued by China Securities Depository and Clearing Co., Ltd. on 30 July 2019, and the Company's 2,377,500,000 domestic capital shares directly held by Guodian Group were transferred to China Energy on 30 July 2019. As at 31 December 2019, China Energy directly held 2,377,500,000 domestic capital shares of the Company, accounting for 39.21% of the total issued share capital of the Company, and through its affiliate, Guodian Power Development Co., Ltd., it held 2,376,500,000 domestic capital shares of the Company, accounting for 39.19% of the total issued share capital of the Company. China Energy holds a total of 4,754,000,000 domestic capital shares of the Company, accounting for about 78.40% of the total issued share capital of the Company, and therefore China Energy is the controlling shareholder of the Company. For details, see the announcement of the Company dated 31 July 2019.
- (3) Mr. YAN Andrew Y. indirectly held 22.00% interest in the H shares indirectly via SAIF Partners IV L. P. through SAIF IV GP Capital Ltd. and SAIF IV GP LP. He is the controlling shareholder of SAIF IV GP Capital Ltd., SAIF IV GP LP, and SAIF Partners IV L. P.. SAIF IV GP Capital Ltd. is the controlling shareholder of SAIF IV GP LP. SAIF IV GP LP is the controlling shareholder of SAIF Partners IV L.P.. SAIF Partners IV L.P. has 22.00% interest in the H shares. Therefore, Mr. YAN Andrew Y., SAIF IV GP Capital Ltd. and SAIF IV GP LP are deemed to have the interests in the H shares held by SAIF Partners IV L. P..

MANAGEMENT CONTRACTS

The Company did not enter into any contract in respect of the management or administration of the entire or any significant part of the business of the Company nor did such contract subsist at any time during 2019.

CONNECTED TRANSACTIONS

The Company has entered into certain contracts with its connected persons (as defined under Chapter 14A of the Listing Rules). These transactions were monitored and managed by the Company in accordance with the Listing Rules.

Non-exempt connected transactions of the Group during 2019 are as follows (unless otherwise defined, capitalized terms used herein shall have the same meanings as those defined in the relevant announcements as mentioned below):

附註：

- (1) 該百分比是以本公司於2019年12月31日已發行的相關股份數目/總股份數目計算。
- (2) 由於國家能源集團吸收合併國電集團，自合併的交割日起，國電集團的下屬分支機構及國電集團持有的下屬企業股權或權益即歸屬於國家能源集團。根據中國證券登記結算有限責任公司2019年7月30日出具的《過戶登記確認書》，國電集團直接持有的本公司2,377,500,000股內資股，已於2019年7月30日過戶登記至國家能源集團名下。截至2019年12月31日止，國家能源集團直接持有本公司2,377,500,000股內資股，約佔本公司已發行總股本的39.21%，並通過其附屬公司國電電力發展股份有限公司持有本公司2,376,500,000股內資股，約佔本公司已發行總股本的39.19%。國家能源集團合計持有本公司4,754,000,000股內資股，約佔本公司已發行總股本的78.40%，為本公司控股股東。詳見本公司日期為2019年7月31日之公告。
- (3) 閻焱先生透過SAIF IV GP Capital Ltd.及SAIF IV GP LP經SAIF Partners IV L.P.間接持有22.00%的H股。閻焱先生是SAIF IV GP Capital Ltd.、SAIF IV GP LP以及SAIF Partners IV L.P.的控股股東。SAIF IV GP Capital Ltd.是SAIF IV GP LP的控股股東。SAIF IV GP LP是SAIF Partners IV L.P.的控股股東。SAIF Partners IV L.P.擁有22.00%的H股。因此，閻焱先生、SAIF IV GP Capital Ltd.以及SAIF IV GP LP被視作為擁有SAIF Partners IV L.P.所持有H股的權益。

管理合約

2019年度內本公司並未於任何時間就有關本公司全部或任何重大部份業務的管理或行政工作訂立或存在任何合約。

關連交易

本公司已與其關連人士(定義見上市規則第14A章)訂立若干合約。此等交易乃由本公司根據上市規則監督和管理。

下列為本集團於2019年度內的未獲豁免關連交易(除非另有定義，本年報所用之詞彙與如下公告所界定者具相同含義)：



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

(1) Non-exempt One-off Connected Transaction

The details of a non-exempt one-off connected transaction in 2019 are as follows:

China Energy provided a full guarantee for the Company's corporate bonds with a total amount of not more than RMB1.2 billion and the targeted debt financing instruments with a total amount of not more than RMB1 billion, and Guodian Power provided China Energy with the same proportion of counter-guarantee according to its 39.19% shares in the Company. At the same time, Longyuan Environmental, a wholly-owned affiliate of the Company, provides the same amount of counter-guarantee for Guodian Power in the form of letter of counter-guarantee.

As at 31 December 2019, China Energy held about 39.21% of the shares of the Company, and Guodian Power held about 39.19% of the shares of the Company; therefore, Guodian Power is the connected person of the Company. In accordance with Chapter 14A of the Listing Rules, the provision of counter-guarantee constitutes the Company's connected transaction.

Since one or more of the applicable percentages relating to the provision of counter-guarantees (as defined in the Listing Rules) exceed 25% but all applicable percentages are less than 75%, the provision of counter-guarantees is subject to the applicable provisions under Chapter 14A of the Listing Rules on declaration, notice and independent shareholder approval. The provision of counter-guarantees also constitutes a major transaction of the Company.

The Company convened a general meeting on 11 June 2019 to request the approval of independent shareholders to provide counter-guarantee by Longyuan Environmental for Guodian Power, and the proposal has been formally passed. For details, see the announcements of the Company dated respectively 26 April 2019 and 11 June 2019.

(2) Non-exempt Continuing Connected Transaction

The Group entered into certain non-exempt continuing connected transactions in 2019.

For the continuing connected transactions of Items 1 through to 4 and Item 8, the Company has obtained approval from the shareholders' meeting on the annual caps for the year 2019. For the continuing connected transactions of Items 5 through to 7 and Items 9 through to 12, the Company has obtained approval from the Board of Directors and has published announcements on the annual caps for the year 2019.

(1) 不獲豁免一次性關連交易

本集團於2019年度發生的一項不獲豁免一次性關連交易詳情如下：

國家能源集團為本公司發行的總額不超過人民幣12億元的公司債及總額不超過人民幣10億元的定向債務融資工具提供全額擔保，國電電力按照其持有本公司的股權比例39.19%，向國家能源集團提供相同比例反擔保。同時由本公司一家全資附屬公司龍源環保以反擔保函形式向國電電力提供同等金額反擔保。

於2019年12月31日，國家能源集團持有本公司約39.21%股份，國電電力持有本公司約39.19%股份，故國電電力為本公司的關連人士。根據上市規則第14A章，提供反擔保構成本公司的關連交易。

由於與提供反擔保有關的其中一項或多項適用百分比率(定義見上市規則)超過25%但所有適用百分比率低於75%，故提供反擔保須遵守上市規則第14A章下有關申報、公告及獨立股東批准規定。提供反擔保亦構成本公司的一項主要交易。

本公司已於2019年6月11日召開股東大會請求獨立股東批准由龍源環保向國電電力提供反擔保，該議案獲正式通過。有關詳情請見本公司日期為2019年4月26日及2019年6月11日之公告。

(2) 不獲豁免持續關連交易

本集團於2019年度訂立了若干不獲豁免持續關連交易。

就第一項至第四項及第八項持續關連交易而言，本公司已就2019年年度上限獲得股東大會批准通過。就第五項至第七項、第九項至第十二項持續關連交易而言，本公司已就2019年年度上限向董事會取得批准，並就此刊發公告。

REPORT OF THE BOARD OF DIRECTORS (CONTINUED)

董事會報告(續)



The table below sets out the annual caps and the actual transaction amounts of such continuing connected transactions.

下表載列年度上限及該等持續關連交易的實際交易金額。

Connected Party 關連方	Transaction Type 交易類型	Annual Cap for 2019 2019年 年度上限 (RMB million) (人民幣百萬元)	Annual Actual Transaction Amount for 2019 2019年年度 實際交易金額 (RMB million) (人民幣百萬元)
1 China Energy/Guodian Group 國家能源集團/ 國電集團	Provision of Products and Services by the Group for China Energy/Guodian Group and their subsidiaries 由本集團向國家能源集團/國電集團及其附屬公司提供產品及服務	22,000.0	8,905.1
2 China Energy/Guodian Group 國家能源集團/ 國電集團	Provision of Products and Services by China Energy/Guodian Group and their subsidiaries 由國家能源集團/國電集團及其附屬公司向本集團提供產品及服務	800.0	312.3
3 United Power 聯合動力	Provision of Products and Services by the Group for United Power and its subsidiaries 由本集團向聯合動力及其附屬公司提供產品及服務	1,000.0	378.5
4 United Power 聯合動力	Provision of Products and Services by United Power and its subsidiaries for the Group 由聯合動力及其附屬公司向本集團提供產品及服務	500.0	68.4
5 United Power 聯合動力	Property Lease by the Group to United Power and its subsidiaries 由本集團向聯合動力及其附屬公司出租物業	30.0	22.3
6 Longyuan Technology 龍源技術	Provision of Products and Services by the Group for Longyuan Technology and its subsidiaries 由本集團向龍源技術及其附屬公司提供產品及服務	50.0	1.4
7 Longyuan Technology 龍源技術	Provision of Products and Services by Longyuan Technology and its subsidiaries for the Group 由龍源技術及其附屬公司向本集團提供產品及服務	130.0	74.6
8 Guodian Capital Holdings Limited ("Guodian Capital Holdings") 國電資本控股有限公司 (「國電資本控股」)	Provision of Deposit Services by Guodian Capital Holdings and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供存款服務	3,000.0 ⁽¹⁾	2,585.1



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Connected Party 關連方	Transaction Type 交易類型	Annual Cap for 2019	Annual Actual Transaction Amount for 2019
		2019年 年度上限 (RMB million) (人民幣百萬元)	2019年年度 實際交易金額 (RMB million) (人民幣百萬元)
9 Guodian Capital Holdings 國電資本控股	Provision of Credit Services by Guodian Capital Holdings and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供信貸服務	130.0	–
10 Guodian Capital Holdings 國電資本控股	Provision of Other Financial Services by Guodian Capital Holdings and its subsidiaries for the Group 由國電資本控股及其附屬公司向本集團提供其他金融服務	130.0	–
11 Changjiang Property & Casualty Insurance Co., Ltd (“ Changjiang Insurance ”) 長江財產保險股份有限公司(「長江保險」)	Provision of Insurance Services by Changjiang Insurance for the Group 由長江保險為本集團提供保險服務	10.0	0.4
12 Guodian New Energy Technology Research Institute (“ New Energy Technology Research Institute ”) 國電新能源技術研究院(「新能源研究院」)	Property Lease by New Energy Research Institute to the Group 由新能源研究院向本集團出租物業	47.0	9.9

Note:

(1) These numbers represent the maximum daily balance of the deposit placed with Guodian Capital Holdings by the Group.

1. Provision of Products and Services by the Group for China Energy/Guodian Group and their subsidiaries (other than the Group)

The Company entered into a framework agreement on the mutual supply of products and services (“**Framework Agreement for Purchase and Sale of Comprehensive Products and Services**”) with China Energy and Guodian Group on 13 November, 2018.

Material terms and conditions of the Framework Agreement for Purchase and Sale of Comprehensive Products and Services are set out as follows:

附註：

(1) 該等數字為本集團存於國電資本控股的每日最高存款餘額。

1. 本集團向國家能源集團/國電集團及其附屬公司(除本集團外)提供產品及服務

本公司與國家能源集團及國電集團於2018年11月13日訂立了互相供應產品及服務的框架協議(「綜合產品和服務購銷框架協議」)。

綜合產品和服務購銷框架協議主要條款及條件載列如下：



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Products and services to be provided by the Company for China Energy/Guodian Group and their subsidiaries (other than the Group) mainly include:

- Supply of products: environmental protection (including ash removal, water treatment and denitrification catalyst) equipment, energy-saving (including plasma ignition combustion technology) equipment, wind turbine parts and components, power station distributed control system (“**DCS**”), etc.; and
- Services: environmental protection services (including desulfurization and denitrification franchise, desulfurization and denitrification engineering, procurement and construction (“**EPC**”), and water treatment build-operate-transfer (“**BOT**”), energy conservation services (including steam turbine flow passage improvement and energy management contracts), wind farm and PV power station EPC services, power station general contracting, etc.

The Parties agree that the signing of the Framework Agreement for Purchase and Sale of Comprehensive Products and Services shall not preclude them from choosing counterparties at their discretion, or conducting transactions with third parties.

China Energy/Guodian Group agrees to prioritize the use of the Company's products and services, in the event that conditions and fees payable for the products and services to be provided by third parties are comparable with those of the products and services to be provided by the Company.

The term of the Framework Agreement for Purchase and Sale of Comprehensive Products and Services is from 1 January 2019 to 31 December 2021. For details, see the announcement of the Company dated 13 November 2018.

The products and services covered under the Framework Agreement for Purchase and Sale of Comprehensive Products and Services will be based on the following pricing policies:

- (1) Government-prescribed price (including any price prescribed by any relevant local government, if applicable);
- (2) Where there is no government-prescribed price but there is a government-guidance price, then the government-guidance price;

本公司向國家能源集團/國電集團及其附屬公司(除本集團外)提供的產品及服務主要包括：

- 產品供應類：環保(包括除塵、水處理、脫硝催化劑等)設備，節能(包括等離子體點火助燃技術等)設備，風機及其備品備件、配件，電站分散式控制系統(“**DCS**”)等；及
- 服務類：環保服務(包括脫硫脫硝特許經營、脫硫脫硝設計採購施工(“**EPC**”)、水處理建設—經營—轉讓(“**BOT**”)等)，節能服務(包括汽輪機通流改造，合同能源管理等)，風電場及光伏電站EPC服務，電站總承包等。

訂約方同意，綜合產品和服務購銷框架協議的簽訂，並不影響各訂約方自主選擇交易對象，或與第三方進行交易。

國家能源集團/國電集團同意，對於本公司提供的產品和服務，在第三方提供的產品和服務條件及應支付費用相同時，應優先使用本公司的產品或服務。

綜合產品和服務購銷框架協議年期自2019年1月1日起至2021年12月31日。有關詳情請見本公司日期為2018年11月13日之公告。

綜合產品和服務購銷框架協議項下涉及之產品及服務將按下列定價政策定價：

- (1) 政府定價(包括任何有關的地方政府的定價(如適用))；
- (2) 凡沒有政府定價，但有政府指導價的，則執行政府指導價；



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

- (3) Where there is no government-prescribed or government-guidance price, the supplier shall be selected through a tender or non-tender inquiry, competitive negotiation procedure; or
- (4) Where the procurement procedures such as inquiry and competitive negotiation procedures are infeasible or impracticable, the contract negotiation may be adopted instead; or sole-source procurement process may be adopted directly in accordance with the relevant rules of China Energy/Guodian Group. In case of contract negotiation or sole-source procurement process, comparisons and negotiations between quotations of the exclusive supplier and historical or market prices shall be carried out.

As approved by the SASAC (Guo Zi Fa Gai Ge [2017] No. 146), China Energy and Guodian Group have implemented strategic restructuring, such that Guodian Group is absorbed by and merged into China Energy. Prior to the absorption and merger, Guodian Group holds 78.40% equity interests of the Company. After the absorption and merger, all of the assets, liabilities, businesses, staff, contracts, qualifications and all other rights and obligations of Guodian Group will be transferred to/assumed by China Energy. China Energy/Guodian Group and their subsidiaries are the connected persons of the Company as defined in Chapter 14A of the Listing Rules. The transaction between the Group and China Energy/Guodian Group and their subsidiaries constitute the connected transaction of the Company under the Listing Rules.

China Energy is the world's largest coal group, thermal power group, wind power group and coal oil chemical group, and its two subsidiaries Guodian Power and China Longyuan Power Group Corporation Limited are listed companies and are the leaders in the thermal power industry and wind power industry respectively. As the Company cooperates with China Energy/Guodian Group for energy production activities, it provides environmental protection and energy conservation services for the thermal power generation facilities owned or operated by it and provides Guodian Group with the wind power generation products necessary for its renewable energy platform. It is estimated that the demand for the products and services provided by China Energy/Guodian Group will continue to grow gradually.

The annual cap of this continuing connected transaction for 2019 was RMB22,000 million and the actual transaction amount was RMB8,905.1 million for the reporting year.

- (3) 凡沒有政府定價和政府指導價的，需通過招標或非招標的詢價、競爭性談判程式選擇供應商；或
- (4) 如詢價、競爭性談判程序等採購程序不具可行性或實際上不可行，轉為合同談判方式；或根據國家能源集團/國電集團等相關公司規定，可直接採用單一來源方式採購。採用合同談判或單一來源方式，均將該獨家供應商的報價與歷史價或市場價進行比價磋商。

根據國資委(國資發改革[2017]146號文)批准國家能源集團和國電集團實施戰略重組，國家能源集團對國電集團實施吸收合併。吸收合併交割前，國電集團持有本公司78.40%股權；吸收合併交割後，國電集團的全部資產、負債、業務、人員、合同、資質及其他一切權利與義務由國家能源集團承繼及承接。國家能源集團/國電集團及其附屬公司為上市規則第14A章定義下本公司的關連人士。本集團與國家能源集團/國電集團及其附屬公司之間的交易構成本公司於上市規則項下的關連交易。

國家能源集團為全球最大的煤炭集團、火力發電集團、風力發電集團及煤製油化工集團，其兩間附屬公司國電電力及龍源電力為上市公司，並分別為火電行業及風電行業的領先者。本公司因與國家能源集團/國電集團合作進行能源生產活動，向其旗下或經營的火電生產設施提供環保及節能服務，以及提供其可再生能源平台所用風力發電產品。預計國家能源集團/國電集團對本集團提供的產品及服務將保持持續而逐步擴大的需求。

此項持續關連交易的2019年年度上限為人民幣22,000百萬元，而本報告年度內的實際交易金額為人民幣8,905.1百萬元。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

2. *Provision of Products and Services by China Energy/Guodian Group and their subsidiaries (other than the Group) for the Group*

The Framework Agreement for Purchase and Sale of Comprehensive Products and Services also specifies the products and services to be provided by China Energy/Guodian Group and their subsidiaries (other than the Group) for the Group.

Please refer to the relevant disclosure under “1. Provision of Products and Services by the Group for China Energy/Guodian Group and their subsidiaries (other than the Group)” for material terms and conditions of the relevant framework agreement.

Products and services provided by China Energy/Guodian Group and their subsidiaries (other than the Group) to the Group include: desulfurization and denitrification equipment, water supply, electricity supply, steam supply and technical consulting services.

China Energy/Guodian Group undertakes that it will, and will cause any of their subsidiaries to deliver products and services to the Company under the terms equivalent to or superior to those provided to any third party.

China Energy/Guodian Group has the right to provide products and services for any third party on condition that the products and services provided for the Company will not be affected. Before meeting the Company's demand for products and services, China Energy/Guodian Group may not provide such products and services for any independent third party.

The Group believes that the stable provision of products and services by China Energy/Guodian Group for the Group is essential to the Group's environmental protection and energy conservation solutions and that the Group can benefit from the products and services provided by China Energy/Guodian Group.

The annual cap of this continuing connected transaction for 2019 was RMB800.0 million and the actual transaction amount was RMB312.3 million for the reporting year.

2. 國家能源集團/國電集團及其附屬公司(除本集團外)向本集團提供產品及服務

綜合產品和服務購銷框架協議同時規定了國家能源集團/國電集團及其附屬公司(除本集團外)向本集團提供產品及服務。

該框架協議的主要條款及條件，請參閱上文「1.本集團向國家能源集團/國電集團及其附屬公司(除本集團外)提供產品及服務」項下的有關披露。

國家能源集團/國電集團及其附屬公司(除本集團外)向本集團提供的產品及服務包括：供應脫硫脫硝設備、供水、供電、供蒸汽和技術諮詢服務等。

國家能源集團/國電集團承諾其將、並將促使其附屬公司以相當於或優於提供給第三方的條款向本公司提供產品和服務。

國家能源集團/國電集團有權向第三方提供產品和服務，先決條件是向本公司提供的產品和服務將不受影響。在滿足本公司對產品和服務的需求前，國家能源集團/國電集團不得向獨立第三方提供該類產品和服務。

本集團認為國家能源集團/國電集團為本集團提供穩定的產品及服務，對本集團環保及節能解決方案業務至關重要，本集團能從國家能源集團/國電集團提供的產品及服務中受惠。

此項持續關連交易的2019年年度上限為人民幣800.0百萬元，而本報告年度內的實際交易金額為人民幣312.3百萬元。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

3. Provision of Products and Services by the Group to United Power and its Subsidiaries

The Company entered into a framework agreement with United Power for provision of products and services by the Group for United Power and its subsidiaries on 23 November 2011, was amended and supplemented by the first supplemental agreement dated 11 November 2013 and the second supplemental agreement dated 4 February 2016 (“**United Power Framework Agreement**”).

Pursuant to this agreement, the products and services to be provided by the Group for United Power and its subsidiaries include parts and components of wind turbine generators.

Subsidiaries of both parties will enter into separate agreements which shall set out the specific terms and conditions for the provision of such products and services according to the principles laid down by the framework agreement.

The agreement is for a term of three years and ended on 31 December 2019. The Group entered into the Framework Agreement for Purchase and Sale of Comprehensive Products and Services for 2020-2022 with United Power and its subsidiaries on 29 October 2019, for a term from 1 January 2020 to 31 December 2022. For details, see the announcement of the Company dated 29 October 2019.

The Company owns 70%, while Longyuan Power owns 30%, of the equity interest in United Power. China Energy, the controlling shareholder of the Company, owns 58.44% of the shares of Longyuan Power, and United Power is a connected person of China Energy. Pursuant to Chapter 14A of the Listing Rules, United Power and its subsidiaries are the connected persons of the Company, the results of the transactions between United Power and its subsidiaries and the Company will be eliminated in consolidated financial statements.

United Power and its subsidiaries have always been the main subsidiaries and important customers of the Group (except United Power and its subsidiaries). The Group supplies parts and components of wind turbines to United Power, which in turn sells the wind turbine generators equipped with these components. The Group has always benefited from cooperation between United Power and its subsidiaries. The relationship between the Group and United Power has always been mutually beneficial.

The annual cap of this continuing connected transaction for 2019 was RMB1,000.0 million and the actual transaction amount was RMB378.5 million for the reporting year.

3. 本集團向聯合動力及其附屬公司提供產品及服務

本公司於2011年11月23日與聯合動力訂立由本集團向聯合動力及其附屬公司供應產品及服務的框架協議，經2013年11月11日訂立的第一次補充協議及2016年2月4日訂立的第二次補充協議修訂及補充(「**聯合動力框架協議**」)。

根據該協議，本集團向聯合動力及其附屬公司供應的產品及服務，包括風力發電機組的零件及組件。

雙方的附屬公司將根據該框架協議所定的原則訂立獨立協議，當中將載有提供產品及服務的條款及條件。

該協議為期三年，已於2019年12月31日屆滿。本集團已與聯合動力及其附屬公司於2019年10月29日訂立2020-2022年綜合產品和服務購銷框架協議，年期自2020年1月1日至2022年12月31日。有關詳情請見本公司日期為2019年10月29日之公告。

本公司擁有聯合動力70%的股權，而龍源電力擁有聯合動力30%的股權。本公司的控股股東國家能源集團持有龍源電力約58.44%的股權，聯合動力為國家能源集團的關連人士。根據上市規則第14A章，聯合動力及其附屬公司為本公司的關連人士，本公司與聯合動力及其附屬公司的交易結果將在合併財務報表層面抵銷。

聯合動力及其附屬公司一直為本集團(聯合動力及其附屬公司除外)的主要附屬公司及重要客戶。本集團向聯合動力供應風力發電機組的零件及組件，而聯合動力繼而出售已裝置此等零件及組件的風力發電機組。本集團一直受惠於與聯合動力及其附屬公司的合作，本集團與聯合動力的關係一直為互惠互利。

此項持續關連交易的2019年年度上限為人民幣1,000.0百萬元，而本報告年度內的實際交易金額為人民幣378.5百萬元。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

4. *Provision of Products and Services by United Power and its Subsidiaries for the Group*

After the United Power Framework Agreement was amended and supplemented by the second supplementary agreement dated 4 February 2016, new categories of the continuing connected transactions for the provision of products and services by United Power and its subsidiaries for the Group has been added.

For the material terms and conditions of such framework agreement, please refer to the relevant disclosure under “3. Provision of Products and Services by the Group for United Power and its Subsidiaries” above.

The products and services provided by United Power and its subsidiaries for the Group include parts and components of wind turbine generators and operating services.

The Group is in need of the products and services, including parts and components of wind turbine generators, and operating services provided by United Power and its subsidiaries. The Group will be benefited from cooperation between United Power and its subsidiaries. The relationship between the Group and United Power has always been mutually beneficial.

The annual cap of this continuing connected transaction for 2019 was RMB500.0 million and the actual transaction amount was RMB68.4 million for the reporting year.

5. *Property Lease by the Group to United Power and its Subsidiaries*

The Company entered into a Property Lease Framework Agreement (“**Lease Agreement**”) with United Power on 23 November 2011, amended and supplemented by the supplemental agreement dated 11 November 2013 and the second supplemental agreement dated 4 February 2016.

Material terms and conditions of the Lease Agreement are set out as follows:

The Company agreed to lease land and buildings to United Power and its subsidiaries as offices, production facilities, workshops and staff quarters;

United Power and its subsidiaries are not allowed to sub-lease or transfer such properties to another party without prior written consent from the Company;

4. *聯合動力及其附屬公司向本集團提供產品及服務*

聯合動力框架協議經2016年2月4日訂立的第二次補充協議修訂及補充後，增加了由聯合動力及其附屬公司向本集團提供產品及服務的持續關連交易新類別。

有關該框架協議的主要條款及條件，請參閱上文「3. 本集團向聯合動力及其附屬公司提供產品及服務」項下的有關披露。

由聯合動力及其附屬公司向本集團提供的產品及服務包括風力發電機組的零件及組件以及營運服務等。

本集團對聯合動力及其附屬公司所提供的產品及服務，包括風力發電機組的零件及組件及營運服務有需求。本集團將受惠於與聯合動力及其附屬公司的合作，本集團與聯合動力的關係一直為互惠互利。

此項持續關連交易的2019年年度上限為人民幣500.0百萬元，而本報告年度內的實際交易金額為人民幣68.4百萬元。

5. *由本集團向聯合動力及其附屬公司出租物業*

本公司與聯合動力於2011年11月23日訂立物業租賃框架協議(「**物業租賃協議**」)，經2013年11月11日訂立的補充協議及2016年2月4日訂立的第二次補充協議修訂及補充。

物業租賃協議的主要條款及條件載列如下：

本公司同意將土地及樓宇租給聯合動力及其附屬公司用作辦公室、生產設施、車間及員工宿舍之用；

聯合動力及其附屬公司在未取得本公司的事先書面批准的情況下，不得分租或轉讓該物業予其他人士；



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The Lease Agreement was expired on 31 December 2019. The Group entered into the Property Lease Framework Agreement for 2020-2022 with United Power and its subsidiaries on 29 October 2019, for a term from 1 January 2020 to 31 December 2022. For details, see the announcement of the Company dated 29 October 2019.

During the term of the leases for the properties, each party to each lease will bear their own taxes in accordance with the applicable laws and regulations;

United Power has guaranteed that it and its subsidiaries will pay the rents specified for each of the properties in a timely manner and that United Power and its subsidiaries shall use the properties in accordance with the leases terms and will not cause or allow damage to the value of the properties by others;

The rights and obligations of the parties under the Lease Agreement are not transferable; and

The rent for each of the leases has been determined for the three year period with reference to similar properties in locations as specified in each of the leases and (where applicable) will be adjusted in accordance with the terms of the lease by mutual agreement or by the appointment of an independent valuer acceptable to both parties. However, any such increment in rent shall be reasonable and shall not be higher than the rent that would otherwise be payable by an independent third party paying market rent for similar properties.

As a whole, the Lease Agreement enables the Company to use the property more effectively and minimize any unnecessary replacement cost for the Group. The Property Lease Framework Agreement is beneficial to the Company and United Power and its subsidiaries and is fair and reasonable in the overall interest of the Company and its shareholders.

The annual cap of this continuing connected transaction for 2019 was RMB30.0 million and the actual transaction amount was RMB22.3 million for the reporting year.

物業租賃協議有效期已於2019年12月31日屆滿。本集團已與聯合動力及其附屬公司於2019年10月29日訂立2020-2022年物業租賃框架協議，年期自2020年1月1日至2022年12月31日。有關詳情請見本公司日期為2019年10月29日之公告。

於物業租賃期內，訂約雙方將根據適用法律及法規承擔各自的稅項；

聯合動力保證，聯合動力及其附屬公司將及時支付各項物業的指定租金，並根據租約使用物業，且不會亦不容許他人損害物業價值；

物業租賃協議雙方的權利及責任不得轉讓；及

每份租約的租金乃經參考各租約指定地點的同類物業後按三年期限釐定，並(如適用)將通過雙方磋商或委任雙方認可的獨立估值師根據租約條款作出調整。然而，租金的任何增幅必須合理，不得高於獨立第三方就同類物業支付的市場租金。

物業租賃協議在整體上有助本公司更加有效使用物業，並為本集團儘量降低任何不必要的置換成本。物業租賃框架協議對本公司及聯合動力及其附屬公司有利，屬公平合理並符合本公司及股東的整體利益。

此項持續關連交易的2019年年度上限為人民幣30.0百萬元，而本報告年度內的實際交易金額為人民幣22.3百萬元。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

6. *Provision of Products and Services by the Group for Longyuan Technology and its Subsidiaries*

The Company entered into the Framework Agreement (“**Longyuan Technology Framework Agreement**”) on the mutual supply of products and services with Longyuan Technology on 23 November 2011, amended and supplemented by the supplemental agreement dated 31 July 2012, second supplemental agreement dated 11 November 2013, third supplemental agreement dated 22 August 2014, fourth supplemental agreement dated 4 February 2016 and fifth supplementary agreement dated 29 May 2018.

Material terms and conditions of the Longyuan Technology Framework Agreement are set out as follows:

The products and services to be provided by the Group for Longyuan Technology and its subsidiaries include DCS and accessories, and on-site assembling and commissioning.

If the conditions of similar products and services and the fees payable thereof offered by an independent third party are not better than those offered by one of the parties, the other party will give priority in sourcing the requisite products and services from the first party.

The Group and Longyuan Technology and its subsidiaries will enter into separate agreements which shall set out the specific scope of products and services in accordance with the terms and conditions for the provision of such products according to the principles laid down by the agreement.

The Longyuan Technology Framework Agreement was expired on 31 December 2019. The Group entered into the Framework Agreement for Purchase and Sale of Comprehensive Products and Services for 2020-2022 with Longyuan Technology and its subsidiaries on 29 October 2019, for a term from 1 January 2020 to 31 December 2022. For details, see the announcement of the Company dated 29 October 2019.

The Company directly holds 23.25% of the issued share capital of Longyuan Technology. The Company is the main shareholder of Longyuan Technology. As at the date of this Report, Hero Asia (BVI) Company Limited, a wholly owned subsidiary of Longyuan Power, has owned approximately 18.75% of equity interest in Longyuan Technology. Given that Longyuan Power is a subsidiary of China Energy, Longyuan Technology and its subsidiaries are connected persons of the Company under Chapter 14A of the Listing Rules, the results of the transactions between Longyuan Technology and its subsidiaries and the Group will be eliminated in consolidated financial statements.

6. *由本集團向龍源技術及其附屬公司提供產品及服務*

2011年11月23日，本公司與龍源技術就互相提供產品及服務訂立的框架協議(「龍源技術框架協議」)，經於2012年7月31日訂立的補充協議、2013年11月11日訂立的第二次補充協議及2014年8月22日訂立的第三次補充協議、2016年2月4日訂立的第四次補充協議及2018年5月29日訂立的第五次補充協議修訂及補充。

龍源技術框架協議主要條款及條件載列如下：

本集團向龍源技術及其附屬公司提供的產品和服務包括：DCS分散控制系統及相關備件、DCS系統的現場組裝及調試服務等。

倘獨立第三方提供類似產品及服務的條件及就此收取的費用並不比其中一方所提供者優惠，則另一方將優先向對方採購所需產品及服務。

本集團與龍源技術及其附屬公司將訂立獨立協議，當中將載有服務的具體範圍、產品以及根據該協議所定的原則提供該等產品的條款及條件。

龍源技術框架協議有效期已於2019年12月31日屆滿。本集團已與龍源技術及其附屬公司於2019年10月29日訂立2020-2022年綜合產品和服務購銷框架協議，年期自2020年1月1日至2022年12月31日。有關詳情請見本公司日期為2019年10月29日之公告。

本公司直接持有龍源技術已發行股份的約23.25%，本公司為龍源技術的主要股東。於本報告日，雄亞(維爾京)有限公司是龍源電力的一間全資附屬公司，擁有龍源技術約18.75%股權。鑒於龍源電力是國家能源集團的附屬公司，根據上市規則第14A章，龍源技術及其附屬公司為本公司的關連人士，且本集團與龍源技術及其附屬公司的交易結果將在合併財務報表層面抵銷。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Longyuan Technology needs the DCS scattered control systems, the site assembly and commissioning, and other products and services provided by the Group; and the Group has always been benefiting from the cooperation with Longyuan Technology.

The annual cap of this continuing connected transaction for 2019 was RMB50.0 million and the actual transaction amount was RMB1.4 million.

7. *Provision of Products and Services by Longyuan Technology and its Subsidiaries to the Group*

The Longyuan Technical Framework Agreement has also set forth the provision of products and services by Longyuan Technology and its subsidiaries for the Group.

For the material terms and conditions of the framework agreement, please refer to the relevant disclosures under “6. Provision of products and services by the Group to Longyuan Technology and its subsidiaries”.

The products and services provided by Longyuan Technology and its subsidiaries for the Group include plasma ignition equipment and other products and services for environmental protection and energy conservation, software development, operation and maintenance, market services, etc.

Longyuan Technology is an important supplier of products and services for the Group. The Group has always been benefiting from the cooperation with Longyuan Technology and believed that the provision of stable products and services by Longyuan Technology for the Group is essential to the Group's business.

The annual cap of this continuing connected transaction for 2019 was RMB130.0 million and the actual transaction amount was RMB74.6 million.

8. *Provision of Deposit Services by Guodian Capital Holdings for the Group*

The Company entered into a finance service framework agreement (“**Financial Service Framework Agreement**”) with Guodian Capital Holdings for the provision of financial services by Guodian Capital Holdings for the Group on 9 November 2017.

The services provided by Guodian Capital Holdings and its subsidiaries for the Group are deposit services, including but not limited to agreement deposit, notice deposit and term deposit.

龍源技術需要本集團提供的DCS分散控制系統及其現場組態及調試等產品及服務，本集團一直受惠於與龍源技術的合作。

此項持續關連交易的2019年年度上限為人民幣50.0百萬元，而實際交易金額為人民幣1.4百萬元。

7. *由龍源技術及其附屬公司向本集團提供產品及服務*

龍源技術框架協議同時規定了由龍源技術及其附屬公司向本集團提供產品及服務。

該框架協議的主要條款及條件，請參閱上文「6. 由本集團向龍源技術及其附屬公司提供產品及服務」項下的有關披露。

龍源技術及其附屬公司為本集團提供的產品及服務包括：等離子體點火設備等環保節能產品和服務、軟件發展及運維、市場服務等。

龍源技術為本集團重要的產品及服務供應商。本集團一直受惠於與龍源技術的合作，並認為龍源技術為本集團提供穩定的產品及服務，對本集團業務至關重要。

此項持續關連交易的2019年年度上限為人民幣130.0百萬元，而實際交易金額為人民幣74.6百萬元。

8. *由國電資本控股向本集團提供存款服務*

本公司於2017年11月9日就國電資本控股向本集團提供金融服務事宜與國電資本控股簽訂金融服務框架協議（「**金融服務框架協議**」）。

國電資本控股及其附屬公司向本集團提供的服務包括存款服務，包括但不限於協議存款、通知存款及定期存款。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Part of the material terms and conditions of the Financial Service Framework Agreement are set out as follows:

Under the Financial Service Framework Agreement, Guodian Capital Holdings has promised that the terms of financial services provided for the Group will not be less favorable than those offered to other members of China Energy, or the terms of comparable services provided by commercial banks for the Company.

The Company and its subsidiaries shall utilize the financial services of Guodian Capital Holdings on a voluntary and non-compulsory basis and are not obliged to engage Guodian Capital Holdings for any particular service.

Guodian Capital Holdings and its subsidiaries may, from time to time, enter into independent and separate financial service agreements with the Company and its subsidiaries for the provision of specific financial services by it to the Company and its subsidiaries, subject to the terms of the Financial Service Framework Agreement.

The interest rate for the deposit services provided by Guodian Capital Holdings and its subsidiaries according to such agreement shall not be lower than either: (i) the interest rates offered to other members under China Energy by Guodian Capital Holdings for the same category of deposits and (ii) the interest rates offered to the Company and its subsidiaries by any domestic commercial bank for the same category of deposits.

The term of the Financial Service Framework Agreement is from 1 January 2018 and to expire on 31 December 2020.

According to the definitions of the Listing Rules, Guodian Group (at the time of signing of this Agreement, the controlling shareholder of the Group is still Guodian Group. In respect of the M&A of Guodian Group by China Energy, the subsidiaries of Guodian Group and the shares or equity of such subsidiaries held by Guodian Group have been vested in China Energy since the closing date of the M&A.) is the controlling shareholder of the Company; therefore, it is the connected person of the Company. Guodian Capital Holdings and its subsidiaries are the subsidiaries of Guodian Group, and therefore Guodian Capital Holdings and its subsidiaries are the connected persons of the Company.

該金融服務框架協議的部分主要條款及條件如下：

根據該金融服務框架協議，國電資本控股承諾，國電資本控股向本集團提供金融服務的條款不遜於國電資本控股向國家能源集團旗下其他成員提供金融服務的條款、或商業銀行向本公司提供可比服務的條款。

本集團按自願而非強制性基準使用國電資本控股提供的服務，且並無責任就任何特定服務而委聘國電資本控股。

根據該金融服務框架協議載明的條款，國電資本控股及其附屬公司可不時就其向本公司及其附屬公司提供具體金融服務的事宜，與本公司及其附屬公司簽訂獨立個別金融服務協議。

國電資本控股及其附屬公司根據該協議提供的存款服務的利率不得低於下述任何一項：(i)國電資本控股就同類存款向國家能源集團旗下其他成員提供的利率；以及(ii)國內其他商業銀行就同類存款向本公司及其附屬公司提供的利率。

金融服務框架協議的有效期自2018年1月1日起至2020年12月31日。

根據上市規則定義，國電集團(本協議簽署時本集團控股股東仍為國電集團。國家能源集團吸收合併國電集團，自合併的交割日起，國電集團的下屬分支機構及國電集團持有的下屬企業股權或權益即歸屬於國家能源集團。)為本公司控股股東，因此也是本公司的關連人士。國電資本控股及其附屬公司為國電集團附屬公司，因此國電資本控股及其附屬公司也是本公司的關連人士。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

Guodian Capital Holdings is a professional subsidiary authorized by China Energy to integrate financial resources, invest in financial equity and manage financial assets. Its operation must comply with all the applicable laws and regulations, requirements and guidelines designated by China Banking and Insurance Regulatory Commission and the People's Bank of China. It behaves well in risk monitoring and management. The deposit placed in Guodian Capital Holdings is mainly to respond to business needs and some of the Group's customers also use the deposit services provided by Guodian Capital Holdings. This practice can facilitate settlement and timely collection; and at the same time, Guodian Capital Holdings can provide the Group with the commercial terms no less favorable than those provided by other China's commercial banks. The cooperation between the Group and Guodian Capital Holdings and its subsidiaries may reduce financing costs, increase interest incomes on deposits, reduce settlement costs, and benefit risk monitoring.

In 2019, the upper limit of the daily deposit balance placed by the Group in Guodian Capital Holdings and its subsidiaries (including any interest payable on deposits) was RMB3,000.0 million, and the actual maximum daily deposit balance was RMB2,585.1 million for the reporting year.

9. Provision of Credit Services by Guodian Capital Holdings and its Subsidiaries for the Group

The Financial Service Framework Agreement also sets forth the provision of credit services by Guodian Capital Holdings and its subsidiaries for the Group, including but not limited to fixed assets loan, project working capital loan, working capital loan, temporary working capital loan, opening of notes, acceptance and discounting, letter of guarantee and factoring of accounts receivable, etc.

Part of the material terms and conditions of the framework agreement are set out above, please refer to the relevant disclosures under "8. Provision of Deposit Services by Guodian Capital Holdings for the Group".

國電資本控股是國家能源集團授權進行金融資源整合、金融股權投資及金融資產管理的專業附屬公司，其經營必須遵守中國銀保監會及人民銀行指定的所有相關法律、規定、要求及指引，風險監控管理方面表現良好。將存款放置在國電資本控股，主要是應對業務需要，本集團的一些客戶也使用國電資本控股提供的存款服務，這種做法可方便結算，及時收款；同時國電資本控股能為本集團提供不遜於其他中國商業銀行的良好的商業條款。本集團、國電資本控股及其附屬公司之間的合作或會減少融資成本，增加存款利息收入，減低結算成本，並有助監控風險。

2019年度本集團存置於國電資本控股及其附屬公司的每日存款餘額上限(包括存款中任何應付利息)為人民幣3,000.0百萬元，而報告年度內的實際最高每日存款餘額為人民幣2,585.1百萬元。

9. 由國電資本控股及其附屬公司向本集團提供信貸服務

金融服務框架協議同時規定了由國電資本控股及其附屬公司向本集團提供信貸服務，包括但不限於固定資產貸款、項目週轉貸款、流動資金貸款、臨時流動資金週轉貸款、票據開立、承兌及貼現、保函和應收賬款保理等。

該框架協議的部分主要條款及條件，請參閱上文「8.由國電資本控股向本集團提供存款服務」項下的有關披露。

REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The interest rate of the loan services provided by Guodian Capital Holdings and its subsidiaries according to such agreement shall not be higher than any of the following: (i) the base rate published uniformly by the People's Bank of China for the same category of loans; (ii) the interest rate offered to other members under China Energy by Guodian Capital Holdings for the same category of loans; or (iii) the interest rate offered to the Company and its subsidiaries by any commercial bank for the same category of loans. In the case of service charges, they (i) must be in accordance with the standard interest rate promulgated from time to time by the People's Bank of China or China Banking Regulatory Commission (if applicable); or (ii) shall not be higher or shall be equal to the interest or service charges required by the commercial banks or other financial institutions for the provision of similar services; or (iii) shall not be higher than the interest or service charges charged by Guodian Capital Holdings for providing similar services for other companies of China Energy.

The annual cap of this continuing connected transaction for 2019 was RMB130.0 million and there was no actual transaction amount in the reporting year.

10. Provision of Other Financial Services by Guodian Capital Holdings and its Subsidiaries for the Group

The Financial Service Framework Agreement also sets forth other financial services to be provided by Guodian Capital Holdings and its subsidiaries for the Group, including but not limited to intra-group transfer and settlement services, assistance in the receipt and payment of transactions, insurance and insurance brokerage, transaction of entrusted loan and entrusted investment, finance lease (direct lease, after-sale lease) and business factoring, financial advisory and training services.

Part of the material terms and conditions of the framework agreement are set out above, please refer to the relevant disclosures under "8. Provision of Deposit Services by Guodian Capital Holdings for the Group".

The service charges for the other financial services provided by Guodian Capital Holdings and its subsidiaries according to such agreement (i) must be in accordance with the standard interest rate promulgated from time to time by the People's Bank of China or China Banking Regulatory Commission (if applicable); (ii) shall not be higher or shall be equal to the interest or service charges required by the commercial banks or other financial institutions for the provision of similar services; or (iii) shall not be higher than the interest or service charges charged by Guodian Capital Holdings for providing similar services for other companies of China Energy.

國電資本控股及其附屬公司根據該協議提供的貸款服務的利率不得高於下述任何一項：同等條件下(i)中國人民銀行統一頒佈的基準貸款利率；(ii)國電資本控股就同類貸款向國家能源集團其他成員公司提供的利率；或(iii)商業銀行就同類貸款向本公司及其附屬公司提供的利率。如涉及服務費用，其收費標準(i)須符合人民銀行或中國銀行業監督管理委員會不時公佈的標準利率(如適用)；或(ii)不得高於或須相等於商業銀行或其他金融機構提供類似服務所收取的利息或服務費用；或(iii)不得高於國電資本控股就向國家能源集團旗下其他成員公司提供類似服務所收取的利息或服務費用。

此項持續關連交易的2019年度上限為人民幣130.0百萬元，而報告年度內並無實際交易金額。

10. 由國電資本控股及其附屬公司向本集團提供其他金融服務

金融服務框架協議同時規定了由國電資本控股及其附屬公司向本集團提供其他金融服務，包括但不限於集團內轉帳及結算服務、協助實現交易款項的收付、保險及保險經紀業務、辦理委託貸款及委託投資、融資租賃(直接租賃、售後回租)及商業保理、金融諮詢及培訓服務等。

該框架協議的部分主要條款及條件，請參閱上文「8. 由國電資本控股向本集團提供存款服務」項下的有關披露。

國電資本控股及其附屬公司根據該協議提供的其他金融服務，其服務費用(i)須符合中國人民銀行或中國銀行業監督管理委員會不時公佈的標準利率(如適用)；(ii)不得高於或須等同於商業銀行或其他金融機構提供類似服務所收取的利息或服務費用；或(iii)不得高於國電資本控股就向國家能源集團旗下其他成員公司提供類似服務所收取的利息或服務費用。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The annual cap of this continuing connected transaction for 2019 was RMB130.0 million and there was no actual transaction amount in the reporting year.

11. Provision of Insurance Services by Changjiang Insurance for the Group

On 28 December 2017, the Company entered into an insurance framework agreement (“**Insurance Service Framework Agreement**”) with Changjiang Insurance. Pursuant to the framework agreement, Changjiang Insurance and its subsidiaries agreed to provide insurance services for the Group covering property all-risk insurance, machinery damage insurance and public liability insurance for a term of three years from 1 January 2018 to 31 December 2020.

The service charges for the services under such agreement: (1) shall be within the term of the agreement and observe the valid charge standards issued by China Insurance Regulatory Commission for the same type of insurance services (if applicable); or (2) under the same conditions, shall not more than or shall be equal to the same level of operating expenses of other domestic institutions; or (3) under the same conditions, shall not be higher than the interest or service charges required by Changjiang Insurance from other members of China Energy for the same category of insurance services.

The members of the Group may, from time to time and as necessary, enter into individual implementation agreements with Changjiang Insurance in respect of specific transactions to be undertaken under the Insurance Service Framework Agreement.

According to the definitions of the Listing Rules, Guodian Group, the controlling shareholder of the Company, (at the time of signing of this Agreement, the controlling shareholder of the Group is still Guodian Group. In respect of the M&A of Guodian Group by China Energy, the subsidiaries of Guodian Group and the shares or equity of such subsidiaries held by Guodian Group have been vested in China Energy since the closing date of the M&A.) directly and indirectly holds 34% of Changjiang Insurance; therefore, Changjiang Insurance is the connected person of the Company and the Insurance Service Framework Agreement and the transactions thereunder shall constitute the continuous connected transactions of the Company.

Changjiang Insurance is a professional service organization. The directors believe that Changjiang Insurance and its subsidiaries can provide the Group with high-quality, high-efficiency and comprehensive insurance services in many aspects, such as underwriting, insurance policy preparation, claim investigation and so on.

此項持續關連交易的2019年度上限為人民幣130.0百萬元，而報告年度內無實際交易金額。

11. 由長江保險為本集團提供保險服務

於2017年12月28日，本公司與長江保險訂立保險服務框架協議（「**保險服務框架協議**」）。根據該框架協議，長江保險及其附屬公司同意向本集團提供包括財產一切保險、機器損壞保險、公眾責任保險等保險服務，自2018年1月1日起至2020年12月31日止，為期三年。

保險服務框架協議項下服務收費標準應：(1)在保險服務框架協議有效期內，遵守中國保險監督管理委員會就同種類保險服務頒佈的有效收費標準（如適用）；或(2)同等條件下，不高於（或等於）國內其他機構同等業務費用水準；或(3)同等條件下，不高於長江保險就提供同種類保險服務向國家能源集團其他成員收取的利息或服務費。

本集團成員公司可不時及於有需要時，就保險服務框架協議項下擬進行的各項特定交易，與長江保險訂立個別實施協議。

根據上市規則定義，本公司控股股東國電集團（本協議簽署時本集團控股股東仍為國電集團。國家能源集團吸收合併國電集團，自合併的交割日起，國電集團的下屬分支機構及國電集團持有的下屬企業股權或權益即歸屬於國家能源集團。）直接及間接持有長江保險34%股權，故長江保險為本公司的關連人士，保險服務框架協議及其項下交易構成本公司的持續關連交易。

長江保險為專業的服務機構，董事認為長江保險及其附屬公司能向本集團從承保出單、保單繕制、理賠查勘等多方面提供優質高效全方位的保險服務。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The annual cap of this continuing connected transaction for 2019 was RMB10.0 million and the actual transaction amount was RMB0.4 million for the reporting year.

此項持續關連交易的2019年年度上限為人民幣10.0百萬元，而本報告年度內的實際交易金額為人民幣0.4百萬元。

12. *Property Lease by New Energy Research Institute to the Group*

On 28 December 2018, the Company entered into a property lease framework agreement (“**Property Lease Framework Agreement**”) for 2019 with New Energy Research Institute. Pursuant to the Property Lease Framework Agreement, New Energy Research Institute agreed to lease certain premises to the Company and its subsidiaries for a term of one year commencing from 1 January 2019 and ending on 31 December 2019.

Rent will not exceed RMB3.6 per square meter per day (excluding property management fees and water and electricity tariffs) on basis of the floor area of the property. Rents may be adjusted by mutual agreement or by appointing an independent valuer accepted by both parties. However, the adjustment must be reasonable and not higher than the amount of rent/property management fee that would be payable by third party tenants and charged by an independent third party for similar properties. Rents will be determined according to the condition of each property by referring to the fair and reasonable market price and the rent of comparable properties in similar locations. The annual cap is calculated after taking into account the Group’s demand for the leased properties for New Energy Research Institute and the past data.

China Energy/Guodian Group and their subsidiaries are the connected persons of the Company as defined in Chapter 14A of the Listing Rules. New Energy Research Institute is wholly-owned by China Energy/Guodian Group and therefore a related party of the Company. In accordance with Chapter 14A of the Listing Rules, the proposed transaction under the Property Lease Framework Agreement 2019 constitutes the continuing connected transaction of the Company.

The transaction provides a number of subsidiaries of the Company with stable and necessary office properties and enables them to carry out their business in the properties of New Energy Research Institute. The Property Lease Framework Agreement 2019 was entered into after fair negotiation and is in favor of the Company and its related subsidiaries.

During the reporting year, the annual cap of this continuing connected transaction for 2019 was RMB47.0 million and the actual transaction amount was RMB9.9 million.

12. *由新能源研究院向本集團出租物業*

於2018年12月28日，本公司及各附屬公司與新能源研究院訂立2019年物業租賃框架協議（「**物業租賃框架協議**」）。根據物業租賃框架協議，新能源研究院同意向本公司及其附屬公司出租若干物業，自2019年1月1日起計至2019年12月31日止，為期一年。

租金將按物業建築面積計算，不得超過每天每平方米人民幣3.6元（不包括物業管理費及水電費）。租金可在雙方同意下或委聘獲雙方認可的獨立估值師予以調整。然而，有關調整須屬合理，且不得高於第三方租戶及獨立第三方就類似物業收取的租金/物業管理費水平。租金將按各物業的狀況經參考公平合理的市價以及於類似地點的可資比較物業的租金後釐定。年度上限乃經考慮本集團對自新能源研究院租賃物業之需求及過往資料後計算得出。

國家能源集團/國電集團及其附屬公司為上市規則第14A章定義下本公司的關連人士。而新能源研究院由國家能源集團/國電集團全資擁有，因此為本公司關連人士。根據上市規則第14A章，2019年物業租賃框架協議項下擬進行的交易構成本公司之持續關連交易。

該交易為本公司若干附屬公司提供穩定及所需的辦公室物業，並讓彼等能於新能源研究院之物業內進行其業務。2019年物業租賃框架協議乃經公平磋商後訂立，且對本公司及其相關附屬公司有利。

本報告年度內，此項持續關連交易的2019年年度上限為人民幣47.0百萬元，而實際交易金額為人民幣9.9百萬元。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

On 30 December 2019, the Company entered into a Property Lease Framework Agreement for 2020 with New Energy Research Institute. Pursuant to such agreement, New Energy Research Institute agreed to lease certain premises to the Company and its subsidiaries for a term of one year commencing from 1 January 2020 and ending on 31 December 2020. For details, see the announcement of the Company dated 30 December 2019.

於2019年12月30日，本公司與新能源研究院訂立2020年物業租賃框架協議。根據該協議，新能源研究院同意向本公司及其附屬公司出租若干物業，自2020年1月1日起計至2020年12月31日止，為期一年。有關詳情請見本公司日期為2019年12月30日之公告。

REVIEW OF INDEPENDENT NON-EXECUTIVE DIRECTORS

The independent non-executive directors of the Company have reviewed each of the above-mentioned continuing connected transactions and confirmed that such transactions were:

- (1) made in the ordinary and usual course of business of the Group;
- (2) on normal commercial terms or better, or, if there are no comparable transactions to determine whether they are on normal commercial terms or better, from the perspective of the Group, on terms of such transactions no less favorable than the terms available to or from an independent third party; and
- (3) in accordance with relevant agreements governing the relevant transactions on terms that are fair and reasonable and in the interests of the Shareholders as a whole.

獨立非執行董事審核確認情況

本公司獨立非執行董事已審閱上述各項持續關連交易，並確認該等交易：

- (1) 在本集團日常業務過程中訂立；
- (2) 按照一般商業條款或更佳條款進行，或如並無可供比較的交易釐定該等交易是否按一般商業條款或更佳條款進行，則對本集團而言，該等交易的條款不遜於獨立協力廠商可取得或提供的條款；及
- (3) 根據規管有關交易的相關協議進行，而條款公平合理，並符合本公司股東整體利益。

LETTER FROM AUDITORS

Pursuant to rule 14A.56 of the Listing Rules, the Company's auditor was engaged by the Board of Directors of the Company to report on the Group's continuing connected transactions in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information" and with reference to Practice Note 740 "Auditor's Letter on Continuing Connected Transactions under the Listing Rules" issued by the Hong Kong Institute of Certified Public Accountants. Based on the work performed, the auditor of the Company confirmed to the Board of Directors of the Company that the aforesaid continuing connected transactions:

- (1) have been approved by the Board of Directors of the Company;
- (2) involving the provision of products and services by the Group were entered into in accordance with the pricing policies of the Group stipulated under the relevant agreements governing such transactions;
- (3) have been entered into in accordance with the relevant agreements governing such transactions; and
- (4) have not exceeded the relevant annual caps as disclosed in the relevant announcements of the Company.

核數師函件

根據上市規則第14A.56條，本公司核數師已獲本公司董事會聘用，根據香港會計師公會頒佈之香港鑒證業務準則第3000號(經修訂)「非審核或審閱歷史財務資料之鑒證工作」及參照實務說明第740號「關於香港上市規則所述持續關連交易的核數師函件」就本集團的持續關連交易作出報告。根據所執行的工作，本公司核數師向本公司董事會確認上述持續關連交易：

- (1) 已獲本公司董事會批准；
- (2) 涉及由本集團提供產品及服務的，乃按照規管有關交易的協議規定的本集團的定價政策而進行；
- (3) 已根據規管有關交易的協議條款進行；及
- (4) 並無超過本公司的相關公告中披露的有關年度上限。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

The auditor has issued a letter containing its findings and conclusions in respect of the continuing connected transactions disclosed by the Group on pages 68 to 84 of this Annual Report in accordance with Article 14A.56 of the Listing Rules. A copy of the auditor's letter has been provided by the Company to the Stock Exchange of Hong Kong Limited.

Save as disclosed above, no related party transaction set out in the Notes to the Financial Statements falls into the category of connected transactions or continuing connected transactions under the Listing Rules.

RELATED PARTY TRANSACTIONS

The related party transactions in 2019 disclosed in Note 43(a) to the Financial Statements in accordance with International Accounting Standard 24 "Related Party Disclosures" that also fall under the definitions of "connected transaction" or "continuing connected transaction" (as the case may be) in Chapter 14A of the Listing Rules have been disclosed in the section headed "Connected Transactions". Note 43(a) to the Financial Statements also includes related party transactions that do not fall under the definition of "connected transaction" or "continuing connected transaction" or are otherwise fully exempt from all disclosure requirements in accordance with Chapter 14A of the Listing Rules.

TRUST DEPOSIT

For the year ended 31 December 2019, the Company and its subsidiaries have not placed any trust deposit at domestic or overseas financial institutions, and had no unrecovered time deposit which had passed their maturity dates.

DONATION

During the year, the Company and its subsidiaries donated RMB464,300 (2018: RMB79,000).

COMPLIANCE WITH NON-COMPETITION AGREEMENT

The Company entered into the non-competition agreement ("**Non-Competition Agreement**") with Guodian Group and Guodian Power respectively on 23 November 2011.

Pursuant to the agreement, Guodian Group and Guodian Power provided certain non-competition undertakings to the Company and granted the options and pre-emptive rights to acquire the retained business and any new business opportunities of Guodian Group or Guodian Power (as the case may be) to the Company. Pursuant to the agreement, the independent non-executive directors of the Company are responsible for reviewing and considering whether to exercise such options and pre-emptive rights and are entitled, on behalf of the Company, to review the implementation of the undertakings under the agreement on an annual basis.

根據上市規則第14A.56條，核數師已就本年報第68頁至第84頁本集團所披露的持續關連交易出具列載其發現及結論的函件。本公司已向香港聯合交易所有限公司提供核數師函件之副本。

除上述披露外，沒有載列於財務報表附註的任何關聯方交易屬於上市規則下的關連交易或持續關連交易。

關聯方交易

於財務報表附註43(a)中根據國際會計準則第24號「關聯方披露」所披露的2019年度關聯方交易中，同時也歸入上市規則第14A章有關「關連交易」或「持續關連交易」的定義(視乎何情況而定)，已遵守上市規則第14A章的披露規定於「關連交易」章節中對該等交易進行了披露。財務報表附註43(a)也包括不歸入上市規則第14A章所定義的「關連交易」或「持續關連交易」或獲全面豁免所有披露規定的關聯方交易。

委託存款

截至2019年12月31日止年度，本公司及其附屬公司未有存放於中國境內外金融機構的任何委託存款，亦未出現定期存款到期而不能償付的情況。

捐款

年內，本公司及其附屬公司作出的捐款為人民幣464,300元(2018年：人民幣79,000元)。

《避免同業競爭協議》的遵守

於2011年11月23日，本公司已分別與國電集團及國電電力訂立《避免同業競爭協議》(「**避免同業競爭協議**」)。

根據該協議，國電集團及國電電力對本公司作出了若干不競爭承諾，並授予本公司收購國電集團及國電電力保留業務及任何新業務機會的選擇權及優先受讓權。根據該協議，本公司的獨立非執行董事負責審閱並考慮是否行使該等選擇權及優先受讓權，並有權代表本公司對該協議下承諾的執行情況進行年度審查。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

According to the Confirmation of Transfer Registration issued by China Securities Depository and Clearing Co., Ltd. on 30 July 2019, the Company's 2,377,500,000 domestic shares directly held by Guodian Group were transferred to China Energy on 30 July 2019. Therefore, the statement on the implementation of the Non-Competition Agreement with Guodian Group of the year is presented by China Energy.

During the year, the independent non-executive directors of the Company have reviewed the implementation of the Non-Competition Agreement and confirmed China Energy and Guodian Power had been in full compliance with the agreement and there was no breach by Guodian Group and Guodian Power.

MAJOR CUSTOMERS AND SUPPLIERS

For the year ended 31 December 2019, the purchase from the Group's five largest suppliers in aggregate contributed 15.4% of the Group's total purchase for the year, among which, the total purchase from the largest supplier contributed 6.3% of the Group's total purchase for the year.

For the year ended 31 December 2019, the sales to the Group's five largest customers in aggregate contributed 13.1% of the Group's total sales for the year, among which, the sales to the largest customer contributed 3.4% of the Group's total sales for the year.

Guodian Power and Longyuan Power, the main customers of the Group, are the subsidiaries of China Energy and the Group's connected persons. Save as disclosed above, during the year, so far as the Directors are aware, none of the Directors, associates of Directors or any Shareholders (who to the knowledge of the Directors owns more than 5% of the Company's issued share capital) had any interest in the Company's five largest suppliers or customers during the year.

SIGNIFICANT CONTRACTS

Save as disclosed in the section headed "Connected Transactions" on page 67 of this Annual Report, neither the Company nor any of its subsidiaries has entered into any significant contract with the controlling shareholder or any of its subsidiaries other than the Group, and the Group did not enter into significant contracts with the controlling shareholder or any of its subsidiaries other than the Group in relation to the provision of services.

INTERESTS OF THE CONTROLLING SHAREHOLDER IN SIGNIFICANT CONTRACTS

Details of significant contracts entered into between the Company and the controlling shareholder or its subsidiaries are disclosed in the section headed "Connected Transactions" on page 67 of this Annual Report.

根據2019年7月30日中國證券登記結算有限責任公司出具的《過戶登記確認書》，國電集團直接持有的本公司2,377,500,000股內資股，已於2019年7月30日過戶登記至國家能源集團名下。因此，本年度與國電集團間的《避免同業競爭協議》的執行情況聲明由國家能源集團出示。

本年度內，本公司獨立非執行董事已就《避免同業競爭協議》的執行情況進行了審閱，並確認國家能源集團及國電電力已充分遵守該協議，並無任何違約情形。

主要客戶及供應商

截至2019年12月31日止年度，本集團五大供應商的購買額共佔本集團本年度購買總額的15.4%，其中最大供應商的購買總額佔本集團本年度購買總額的6.3%。

截至2019年12月31日止年度，本集團向五大客戶作出的銷售共佔本集團本年度銷售總額的13.1%，其中向最大客戶作出的銷售佔本集團本年度銷售總額的3.4%。

本集團主要客戶國電電力及龍源電力為國家能源集團的附屬公司，均為本集團的關連人士。除上文披露外，於本年度內，就董事所知，概無董事、董事的聯繫人或本公司任何股東（據董事所知擁有本公司已發行股本5%以上的權益）於本年度內在本公司五大供應商或客戶中擁有任何權益。

重大合約

除於本年報第67頁的「關連交易」一節中披露之外，本公司或其任何一家附屬公司概無和控股股東或其任何一家除本集團之外的附屬公司簽訂重大合約，且本集團並不存在與控股股東或其任何一家除本集團之外的附屬公司之間提供服務的重大合約。

控股股東於重要合約的權益

本公司與控股股東或其附屬公司之間所訂的重要合約詳情已披露於本年報第67頁的「關連交易」一節。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

ISSUED BONDS

The Company completed the public offering of green corporate bonds (first issue) on 16 September 2019, with the total amount of offering up to RMB900 million and with a term of five years, as detailed in the announcement of the Company dated 16 September 2019.

The Company completed the offering of the first issue of 2019 targeted debt financing instruments from 18 October 2019 to 21 October 2019, with the total amount of offering up to RMB1.00 billion and with a term of three years, as detailed in the announcement of the Company dated 23 October 2019.

RETIREMENT AND EMPLOYEES BENEFIT SCHEME

Details of the Group's retirement and employees benefit scheme are set out in Note 9(a) to the Financial Statements.

COMPLIANCE WITH THE CODE ON CORPORATE GOVERNANCE PRACTICES

In 2019, the Company has complied with relevant code provisions as set out in the Code on Corporate Governance Practices in Appendix 14 to the Listing Rules. Please refer to the Corporate Governance Report of this Annual Report for details.

PUBLIC FLOAT

Based on information publicly available to the Company and so far as the Directors are aware, not less than 21.6% of the issued share capital of the Company was held by the public as of the date of this Annual Report, which was in compliance with the requirements under the Listing Rules.

MATERIAL LITIGATION AND ARBITRATION

For the year ended 31 December 2019, the Company was not involved in any litigation or arbitration that may have a material adverse effect on the financial position, operating results and business of the Group.

AUDIT COMMITTEE

According to the Listing Rules, the Group has established an audit committee ("Audit Committee"), the responsibilities of which including providing the Board of Directors with suggestions to the appointment, re-appointment and dismissal of external independent auditors, and monitoring their works. The Audit Committee comprises Mr. YEUNG Chi Tat (independent non-executive Director), Mr. SHEN Xiaoliu (independent non-executive Director) and Mr. ZHANG Wenjian (non-executive Director). The 2019 annual results of the Group and the Financial Statements as at and for the year ended 31 December 2019, which have been prepared in accordance with the International Financial Reporting Standards, have been reviewed by the Audit Committee of the Company.

已發行的債權證

本公司於2019年9月16日完成公開發行綠色公司債券(第一期)，總發行金額為人民幣9.0億元，期限為五年，詳見本公司日期為2019年9月16日之公告。

於2019年10月18日至21日完成發行本公司2019年第一期定向債務融資工具，總發行金額為人民幣10.0億元，期限為三年，詳見本公司日期為2019年10月23日之公告。

退休及僱員福利計劃

本集團退休及僱員福利計劃詳情載於財務報表附註9(a)。

遵守企業管治常規守則

2019年，本公司已遵守上市規則附錄14所載企業管治常規守則內的相關守則條文。詳情請參閱本年報的企業管治報告。

公眾持股量

根據本公司可公開獲得的資料，就董事所知，於本報告日期，公眾人士持有本公司已發行股本不少於21.6%，符合上市規則的規定。

重大訴訟及仲裁

截至2019年12月31日止年度，本公司並無涉及任何對公司財務狀況、經營成果及業務存在重大不利影響的訴訟或仲裁。

審計委員會

本集團已根據上市規則的規定成立審計委員會(「審計委員會」)，職責包括就外聘獨立核數師的委任、重新委任及罷免向董事會提出建議，並監督他們的工作。審計委員會成員為楊志達先生(獨立非執行董事)、申曉留先生(獨立非執行董事)及張文建先生(非執行董事)。本公司的審計委員會已審閱本集團2019年之年度業績，及按《國際財務報告準則》編製的於2019年12月31日及截至該日止年度的財務報表。



REPORT OF THE BOARD OF DIRECTORS (CONTINUED) 董事會報告(續)

AUDITORS

Ernst & Young ("**Ernst & Young**") and ShineWing Certified Public Accountants (Special General Partnership) ("**ShineWing**") were appointed as the Company's international and PRC auditors, respectively, for the year ended 31 December 2019.

KPMG has been appointed as international auditor by the Company since the date of its listing till the year ended for the year ended 31 December 2018.

The financial statements for the year ended 31 December 2019 of the Company have been prepared in accordance with the International Financial Reporting Standards, and have been audited by Ernst & Young.

By order of the Board of Directors
Guodian Technology & Environment Group Corporation Limited
Chairman of the Board
Mr. CHEN Dongqing

Beijing, China, 17 April 2020

核數師

本公司已分別委任安永會計師事務所(「安永」)和信永中和會計師事務所(特殊普通合伙)(「信永中和」)為截至2019年12月31日止年度的國際和中國核數師。

畢馬威會計師事務所自本公司上市之日起至截至2018年12月31日止年度獲本公司委任為國際核數師。

安永已審核本公司按《國際財務報告準則》編製的截至2019年12月31日止年度的財務報表。

承董事會命
國電科技環保集團股份有限公司
董事長
陳冬青先生

中國·北京·2020年4月17日



REPORT OF THE BOARD OF SUPERVISORS

監事會報告

In 2019, to protect the interests of the Shareholders and the Company, and in compliance with the applicable laws and regulations and the AOA, the Board of Supervisors effectively exercised its supervision authority over the meeting-convening and decision-making procedures of the Board of Directors. During this reporting year, the main responsibilities of the Board of Supervisors are as follows:

1. MEETINGS OF THE BOARD OF SUPERVISORS

Two meetings of the Board of Supervisors were convened in 2019:

- (1) The 2019 first meeting of the third session of the Board of Supervisors was convened on 27 March 2019. The meeting considered and approved the proposals on the 2018 annual report (draft), the 2018 annual performance report (draft) and the 2018 profit distribution plan and the supervisor's report.
- (2) The 2019 second meeting of the third session of the Board of Supervisors was convened on 28 August 2019. The meeting considered and approved the proposals on the 2019 interim report(draft), the interim results announcement(draft), the 2019 interim financial statement and the 2019 interim profit distribution plan.

2. WORK UNDERTAKEN BY THE BOARD OF SUPERVISORS

In 2019, the Board of Supervisors mainly undertook the following work: During the reporting year, the Board of Supervisors duly reviewed the Company's operation and development plan and proposed reasonable suggestions and advice to the Board of Directors. To safeguard the interests of the Shareholders, the Board of Supervisors actively and effectively performed its supervision duties over significant decisions and detailed implementations by the Company's senior management to ensure to conform to relevant laws and regulations and the AOA.

2019年，監事會為維護股東權益和公司利益，依照有關法律法規和《公司章程》的規定，對董事會的召開和決策過程有效行使其監管權。於本年度內，監事會的主要工作情況如下：

1. 監事會會議召開情況

2019年監事會共召開兩次會議：

- (1) 2019年3月27日，召開第三屆監事會2019年第一次會議，審議通過了關於2018年報(審議稿)及2018年度業績公告(審議稿)、2018年度利潤分配方案及監事會報告的議案。
- (2) 2019年8月28日，召開第三屆監事會2019年第二次會議，審議通過了關於2019年度中期報告(審議稿)及中期業績公告(審議稿)、2019年度中期財務報表及2019年中期利潤分配方案的議案。

2. 監事會工作開展情況

2019年度，監事會主要開展以下工作：在本報告年度內，監事會對本公司的經營及發展計劃進行充分審查，並向董事會提出合理的建議和意見。監事會積極且有效地履行監管職責，對本公司高級管理人員的重大決策及決策的具體實施情況實施監督，確保其符合國家法律法規以及《公司章程》的規定，維護股東利益。



REPORT OF THE BOARD OF SUPERVISORS (CONTINUED) 監事會報告(續)

The Board of Supervisors duly reviewed and approved the Report of the Board of Directors, audited financial report and the profit distribution plan which were to be presented at the 2019 annual general meeting, and thought that the members of the Board of Directors, general manager and other senior management of the Company strictly complied with the principles of integrity, performed their duties diligently, exercised their powers in the best interests of the Company and discharged their responsibilities in accordance with the AOA. Meanwhile, the Company's operations have been further standardized and its internal control system has been improved. The Company's connected transactions were in the interests of the Shareholders as a whole and were on fair and reasonable terms. The Board of Supervisors has not discovered any Director or Senior Management that had abused their power or any of their actions were prejudicial to the interests of the Company or Shareholders, or violated the applicable laws and regulations or the AOA.

The Board of Supervisors is satisfied with the financial position and operational results of the Company in 2019. The Board of Supervisors is confident in the prospects of the Group.

監事會認真審閱並批准董事會報告，並審閱擬提呈予2019年度股東週年大會的經審核的財務報告以及利潤分配方案，認為本公司董事會成員、總經理及其他高級管理人員，嚴格遵守誠信原則，工作克勤盡職，以本公司最佳利益為出發點行使職權，能夠按照《公司章程》履行其各項職責。同時，公司的運作更為規範化，內部控制系統也相應改善。本公司關連交易均本著公平、合理的原則，從本公司股東整體利益出發。監事會並無發現公司任何董事或者高級管理人員有濫用職權、損害本公司及公司股東合法利益以及違反有關法律、法規及《公司章程》規定的行為。

監事會對2019年度公司的財務狀況以及業績狀況表示認可，對本集團未來的發展前景充滿信心。

By Order of the Board of Supervisors
Guodian Technology & Environment Group Company Limited
Chairman of the Board of Supervisors
Mr. LUAN Baoxing

Beijing, China, 17 April 2020

承監事會命
國電科技環保集團股份有限公司
監事會主席
樂寶興先生

中國·北京·2020年4月17日

CORPORATE GOVERNANCE REPORT

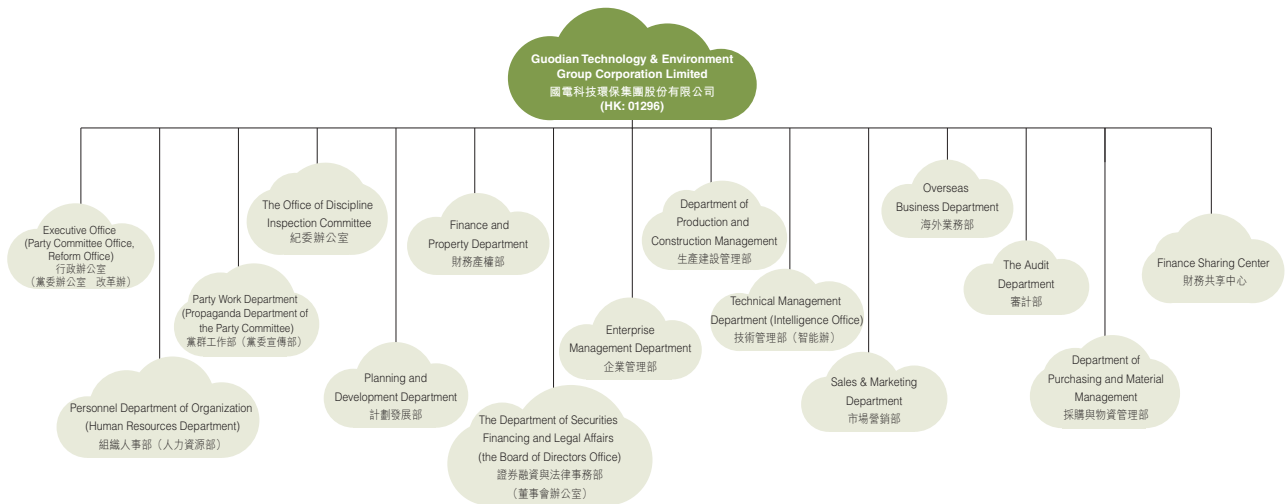
企業管治報告

The Board of Directors hereby presents to the Shareholders the corporate governance report for the year ended 31 December 2019 (“**Reporting Period**”).

本公司董事會現向股東提呈截至2019年12月31日止年度(「**報告期間**」)的企業管治報告。

The corporate governance framework of the Company is set out as follows:

本公司的企業管治框架如下：



CORPORATE GOVERNANCE PRACTICES

Since its establishment, the Company has been committed to improving its corporate governance, which is considered essential to the creation of value for the Shareholders. The Company has established a modern corporate governance structure, which comprises a number of independently-operated and effectively-balanced bodies, including general meeting, the Board of Directors, the Board of Supervisors and the senior management, by referring to the Code on Corporate Governance Practices (“**Code**”) in Appendix 14 to the Listing Rules. The Company has also adopted the Code as its own corporate governance practice. In 2019, the Company strictly complied with the principles and provisions of the Code, and in some circumstances, adopted the best practices recommended by the Code.

The Company is dedicated to maintaining a high level of corporate governance. The Board of Directors has adopted various corporate policies and standards for application of proper governance principles in our usual business operations. In the course of our usual business operations, we comply with the applicable laws, rules and regulations of different countries and regions as part of our vigorous efforts to ensure a healthy and safe working environment for our employees, devote our utmost endeavor to safeguarding the interests of shareholders as a whole and place key focus on the sustainable development of the Company. In the Reporting Period, the Company adopted the principles under the Code and complied with all the code provisions thereunder.

企業管治常規

自成立以來，本公司始終致力於提升企業管治水平，視企業管治為實現為股東創造價值不可或缺的一部分。本公司參照上市規則附錄14所載《企業管治守則》(「《守則》」)，建立了由股東大會、董事會、監事會及高級管理層等獨立運作、有效制衡的現代公司治理架構。本公司亦採納《守則》作為本公司的企業管治常規。2019年度，本公司嚴格遵守《守則》所載的原則及條文，並在特定情形下採取《守則》建議的最佳常規。

本公司致力維持高水平之企業管治。本公司董事會已採納多項企業政策及準則，以於我們日常活動中應用良好之管治原則。在我們的日常營運中，我們遵守適用國家及地區之法律、規則及規例，致力確保員工擁有健康及安全之工作環境，並竭力保障股東之整體利益，把重點放在本公司的可持續發展上。於報告期間，本公司已採用守則之原則並遵守所有守則條文。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The corporate governance framework of the Company is set out as follows:

1. Board of Directors

The Board of Directors exercises its powers and functions in accordance with the provisions as set out in the AOA. In the best interests of the Company and the Shareholders, the Board of Directors reports to the general meetings, implements the resolutions passed thereon and is accountable to the general meetings.

1.1 Composition of the Board of Directors

As of the date of the Annual Report, the Board of Directors had consisted of 11 Directors, including 3 executive Directors, 4 non-executive Directors and 4 independent non-executive Directors.

The biographical details of the Directors as of the date of the Annual Report are set out in the section headed "Directors, Supervisors and Senior Management" of the Annual Report. There are no relationships (including financial, business, family or other material or relevant relationships) among members of the Board of Directors. The structure of the Board of Directors is well balanced with each Director owning sound knowledge, experience and expertise on the business operations and development of the Group. All Directors are well aware of their joint and several responsibilities to the Shareholders.

Since the listing of the Company, the Board of Directors has been in compliance with the requirements of the Listing Rules regarding the appointment of at least three independent non-executive Directors. The Board of Directors has also been in compliance with Article 3.10A of the Listing Rules to appoint independent non-executive Directors representing at least one-third of the Board of Directors. Furthermore, the qualifications of all 4 independent non-executive Directors of the Company are in full compliance with the requirements under Article 3.10(1) and (2) of the Listing Rules. In addition, the Company has received annual confirmations from all independent non-executive Directors as to their respective independence in accordance with Article 3.13 of the Listing Rules. Therefore, the Company considers all independent non-executive Directors to be in compliance with the independence requirements as set out in the Listing Rules.

本公司所採用的企業管治常規概述如下：

1. 董事會

董事會按照《公司章程》的規定行使其權力及職責，以本公司及其股東的最大利益為原則，向股東大會報告工作，執行股東大會的決議，對股東大會負責。

1.1 董事會的組成

截至本年報發佈日期止，董事會由11名董事組成，其中包括3名執行董事，4名非執行董事及4名獨立非執行董事。

董事於本年度報告日期的簡歷詳情載於本年報的「董事、監事及高級管理人員」一節。董事會各成員之間不存在任何關係(包括財務、業務、家族或其他重大或相關關係)。董事會結構平衡，每名董事均具備與本集團業務運營及發展有關的豐富知識、經驗及才能。所有董事深知其共同及個別對股東所負之責任。

自本公司上市以來，董事會一直符合上市規則有關委任至少三名獨立非執行董事的要求，且符合上市規則第3.10A條的規定，即所委任的獨立非執行董事必須佔董事會成員人數至少三分之一。本公司目前4名獨立非執行董事的資格完全符合上市規則第3.10(1)及(2)條的規定。此外，本公司已收到每名獨立非執行董事根據上市規則第3.13條就其各自的獨立性出具的年度確認書。因此，本公司認為所有獨立非執行董事均具備上市規則要求的獨立性。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The Board of Directors' functions and responsibilities include: convening general meetings; reporting its work to the general meeting; implementing resolutions approved at general meetings; deciding on the Company's business plans and investment plans; formulating the Company's annual financial budget and final accounts; formulating the Company's profit distribution plans and proposals for the increase in or reduction of the registered capital; and exercising other powers, functions and responsibilities as set out in the AOA. The Company has entered into a service contract or letter of appointment with each Director.

The Company firmly believes that the increasing diversity at the Board of Directors level is one of the essential elements in attaining the Company's strategic objectives and maintaining sustainable development; therefore, the Company has formulated the Board Member Diversity Policy. While determining the composition of the Board of Directors, the Company shall consider the diversity of the Board of Directors from various perspectives, including but not limited to gender, age, cultural and educational background, professional experience, skill, knowledge and service tenure. The final decisions are made based on the value of candidates and contributions they can bring to the Board of Directors. The appointment of the members of the Board of Directors shall be orientated by the need of the skill and experience of the Board of Directors for its overall normal operation, and based on the principle of selecting talented people, while fully considering the above-mentioned goals and requirements for diversity. The Nomination Committee will discuss any amendment to the Board Member Diversity Policy when necessary and propose such amendments to the Board of Directors pending its approval.

Certain information concerning the incumbent Directors of the Company is set out in the section headed "Directors, Supervisors and Senior Management" of this Annual Report. The current term of all the Directors of the Company will expire on 7 August 2020.

1.2 Director's Continuous Training and Development

In compliance with the requirement of the Rule A.6.5 of the Code and to ensure that the Directors' contribution to the Board of Directors remains informed and relevant, during the reporting year, the Company arranged and funded suitable training for all the Directors, for example, holding special training sessions covering topics including to explore the continuous obligation subject to the notifiable transactions under Chapter 14 of the Listing Rules, connected transactions under Chapter 14A of the Listing Rules and the issuer's continuing obligations under Chapter 13 of the Listing Rules.

本公司董事會的職能及職責包括：召集股東大會；於股東大會上報告董事會的工作；執行股東大會通過的決議；決定本公司業務計劃及投資計劃；制定本公司年度預算及決算；制定本公司利潤分配方案及關於註冊資本增減的議案；以及行使《公司章程》所賦予的其他權力、職能及職責。本公司與每一位董事訂立了服務合約或委任函。

本公司堅信董事會層面日益多元化是支持其達到戰略目標及維持可持續發展的關鍵因素之一，因此本公司制定了《董事會成員多元化政策》，確定本公司在設定董事會成員構成時，應從多個方面考慮董事會成員多元化情況，包括但不限於性別、年齡、文化及教育背景、專業經驗、技能、知識及服務任期。最終將按人選的價值及可為董事會作出的貢獻而作決定。董事會成員的委任以董事會整體良好運作所需的技能和經驗為本，以選用有才能的人士為原則，同時充分考慮上述董事會成員多元化的目標和要求。提名委員會也將於有必要時討論任何修訂，再將有關修訂提呈董事會供其批准。

有關本公司現任董事的若干資料載於本年報的「董事、監事及高級管理人員」一節。本公司所有董事的本屆任期將於2020年8月7日屆滿。

1.2 董事的持續培訓及發展

遵照《守則》第A.6.5條的規定，並為確保董事在具備全面信息及切合所需的情況下對董事會作出貢獻，在報告年度裡，本公司為所有董事安排了合適的培訓並提供有關經費，例如舉辦特別的培訓會議，就上市規則第14章規定的須予公佈的交易、上市規則第14A章規定的關連交易以及發行人在上市規則第13章下持續責任進行探討。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

Besides the training provided by the Company, the Directors have also developed their professional skills through various ways including attending different forums, seminars and public lectures.

As of 31 December 2019, all the Directors had participated in continuous professional development to develop and refresh their knowledge and skills as required by Article A.6.5 of the Code, in order to ensure that the Directors' contribution to the Board of Directors remains informed and relevant. According to the record of the Board of Directors, the summary of the training received by the Directors for the year ended 31 December 2019 is as follows:

除接受本公司提供的培訓外，董事還通過各種途徑積極提高其專業技能，包括參加各類論壇、研討會以及公開講座。

截至2019年12月31日止，本公司的所有董事均已按照《守則》第A.6.5條的要求參與持續專業發展，發展並更新其知識及技能，以確保其繼續在具備全面諮詢及切合所需的情況下對董事會作出貢獻。根據董事會記錄，截至2019年12月31日止年度董事接受培訓的概要如下

Name 姓名	Types of Continuous Professional Development Programmes 持續專業發展計劃類別
Executive Directors 執行董事	
Mr. CHEN Dongqing 陳冬青先生	A, B
Mr. ZHANG Jun 張軍先生	A, B
Mr. TANG Chaoxiong 唐超雄先生	A, B
Non-executive Directors 非執行董事	
Mr. WANG Zhongqu 王忠渠先生	A, B
Mr. ZHANG Wenjian 張文建先生	A, B
Mr. GU Yuchun 顧玉春先生	A, B
Mr. YAN Andrew Y. 閻焱先生	A
Independent Non-executive Directors 獨立非執行董事	
Mr. SHEN Xiaoliu 申曉留先生	A, B
Mr. QU Jihui 曲久輝先生	A
Mr. XIE Qiuye 謝秋野先生	A, B
Mr. YEUNG Chi Tat 楊志達先生	A, B

A: Read the latest materials for seminars and updates in relation to the Listing Rules and other regulatory requirements

B: Attending the briefing and/or seminars

A: 閱讀有關上市規則及其他適用監管規定最新修訂的研討會材料與更新資料

B: 出席簡介會及/或研討會

CORPORATE GOVERNANCE REPORT (CONTINUED)

企業管治報告(續)

1.3 Board Meetings

Pursuant to the AOA, the Board of Directors is required to hold at least four Board meetings each year, which shall be convened by the chairman of the Board of Directors. A notice of at least 14 days shall be given for the regular Board meeting. The notice must state the time, venue and means by which the Board meeting will be convened.

Except for the Board of Directors' consideration of matters in relation to connected transactions as set forth in the AOA, the Board meeting should be convened with the present parties of a majority of Directors. A Director may attend the Board meeting in person, or appoint another Director in writing as his/her proxy to attend the meeting. The secretary to the Board of Directors is responsible for preparing and keeping the minutes of the Board meetings and ensuring that such records are available for inspection by any Director.

In 2019, the Board of Directors held a total of 9 Board meetings, four of which included the proposals that the related Directors (Mr. Zhongqu Wang, Mr. Wenjian Zhang and Mr. Yuchun Gu) who need to avoid voting. And the Board of Directors convened 2 general meetings in total. As at 31 December 2019, the Company had 11 directors whose attendance at the Board meetings and the general meetings is as follows:

1.3 董事會會議

根據《公司章程》的規定，董事會每年至少召開四次會議，董事會會議由董事長召集。定期董事會會議應於召開前至少14天發出通知，通知須列明會議召開的時間、地點以及方式。

除《公司章程》所規定董事會審議關連交易事項的情況外，董事會會議應由大多數董事出席方可舉行。董事可以親自參加董事會會議，亦可以書面委託其他董事作為其受委代表代為出席董事會會議。本公司董事會秘書負責編製和保管董事會會議記錄，並確保董事能夠查閱該等記錄。

於2019年度，董事會共舉行了九次董事會會議，其中有四次董事會會議包含關連董事(即王忠渠先生、張文建先生及顧玉春先生)需迴避表決的議案。此外，董事會共召集了兩次股東大會。於2019年12月31日，本公司共有11位董事，其出席董事會會議及股東大會情況如下：

The Third Session of the Board of Directors						
第三屆董事會						
Name	Position in the Company	Number of Board Meetings Attended/Convened 出席/舉行董事會會議次數	Attendance Rate%	Number of General Meetings Attended/Convened*	Attendance Rate%	
姓名	本公司職位		出席率%	出席/舉行股東大會會議次數*	出席率%	
Mr. CHEN Dongqing	Executive Director and Chairman of the Board	9/9	100	2/2	100	
陳冬青先生	執行董事兼董事長					
Mr. ZHANG Jun	Executive Director	9/9	100	2/2	100	
張軍先生	執行董事					
Mr. TANG Chaoxiong	Executive Director	9/9	100	2/2	100	
唐超雄先生	執行董事					
Mr. WANG Zhongqu	Non-executive Director	9/9	100	1/2	50	
王忠渠先生	非執行董事					
Mr. ZHANG Wenjian	Non-executive Director	9/9	100	1/2	50	
張文建先生	非執行董事					
Mr. GU Yuchun	Non-executive Director	9/9	100	1/2	50	
顧玉春先生	非執行董事					
Mr. YAN Andrew Y.	Non-executive Director	9/9	100	2/2	100	
閻焱先生	非執行董事					
Mr. SHEN Xiaoliu	Independent Non-executive Director	9/9	100	2/2	100	
申曉留先生	獨立非執行董事					



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The Third Session of the Board of Directors 第三屆董事會					
Name	Position in the Company	Number of Board Meetings Attended/Convened 出席/舉行董事會會議次數	Attendance Rate%	Number of General Meetings Attended/Convened*	Attendance Rate%
姓名	本公司職位		出席率%	出席/舉行股東大會會議次數*	出席率%
Mr. QU Jiuhui 曲久輝先生	Independent Non-executive Director 獨立非執行董事	9/9	100	1/2	50
Mr. XIE Qiuye 謝秋野先生	Independent Non-executive Director 獨立非執行董事	9/9	100	1/2	50
Mr. YEUNG Chi Tat 楊志達先生	Independent Non-executive Director 獨立非執行董事	9/9	100	2/2	100

* The non-executive directors and independent non-executive directors who were unable to attend the general meeting(s) had been informed of the contents of the general meetings through electronic communication or teleconference.

* 未能現場或電子通訊方式出席股東大會的非執行董事及獨立非執行董事均知悉股東大會內容。

1.4 Powers Exercised by the Board and the Management

The Company performs the following corporate governance duties:

- To formulate and review the corporate governance policies and practices of the Company and make recommendations to the Board of Directors;
- To review and monitor the training and continuing professional development of directors, supervisors and senior management;
- To review and monitor the Company's policies and practices in compliance with legal and regulatory requirements;
- To formulate, review and monitor the details of the work of directors, supervisors and employees, etc.; and
- To review the compliance of the Code and disclosure in corporate governance reports.

The powers and duties of the Board and the management have been clearly defined in the AOA so as to ensure that adequate check-and-balance is in place for the purpose of maintaining effective corporate governance and internal control.

1.4 由董事會和管理層行使的權力

本公司履行以下企業管治職責：

- 制定及檢討本公司的企業管治政策及常規，並向董事會提出建議；
- 檢討及監察董事、監事及高級管理人員的培訓及持續專業發展；
- 檢討及監察本公司在遵守法律及監管規定方面的政策及常規；
- 制定、檢討及監察董事、監事及僱員的工作細則等；及
- 檢討本公司遵守守則的情況及在企業管治報告內的披露。

董事會和管理層的權力和職責已在《公司章程》中進行了明確規定，以確保為保持有效的公司管治和內部控制提供充分的平衡和制約機制。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The Board is responsible for making decisions on the Company's business and investment plans, determining the establishment of the Company's internal management structure, issuing the Company's essential administration regulations, resolving and approving other material business and administrative matters of the Company and supervising the performance of the management.

Led by the General Manager (and also executive Director), the management of the Company is responsible for implementing the resolutions passed by the Board and managing the Company's day-to-day operations.

1.5 *Chairman and General Manager*

The posts of the chairman of the Board and the General Manager of the Company (i.e. chief executive officer pursuant to the applicable Listing Rules) are separated and convened by different persons in order to ensure the independence of their respective responsibilities, and the balance of power and authority between them. Mr. CHEN Dongqing acts as the chairman of the Board and Mr. ZHANG Jun acts as the general manager. The Rules of Procedures of the Board Meeting and the Working Rules of the General Manager, as considered and approved by the Board, clearly define the division of duties between the chairman of the Board and the general manager.

Mr. CHEN Dongqing, the Chairman of the Board, is responsible for leading the Board in determining the overall development strategies of the Company and ensuring that the Board effectively performs its duties and discusses significant and appropriate matters in a timely manner, ensuring that the Company establishes effective corporate governance practices and procedures and the Board acts in the best interest of the Company and the Shareholders. Mr. ZHANG Jun, the General Manager of the Company, is mainly responsible for the Company's day-to-day operations, including implementing the Board's resolutions and making day-to-day decisions.

1.6 *Appointment and Re-election of Directors*

Pursuant to the AOA, the Directors, including the non-executive Directors, shall be elected at the general meetings with a term of office for no more than three years and may be re-elected and re-appointed.

The Company has established a set of procedures for appointing new Directors. The nomination of new Directors shall first be considered by the Nomination Committee, whose recommendations will then be presented to the Board for consideration. All newly nominated Directors are subject to election and approval at general meetings.

董事會負責決定本公司的經營計劃和投資方案，決定本公司內部管理機構的設置，頒佈本公司必要的管理制度，對本公司的其他重大業務和行政事項做出決議並對管理層的履職進行監督。

本公司管理層在總經理(同時亦為執行董事)的領導下，負責執行董事會批准的各項決議，並管理本公司的日常經營。

1.5 *董事長及總經理*

本公司董事長和總經理(即相關上市規則條文下之行政總裁)職務分別由不同人士擔任，以確保各自職責的獨立性以及權力和授權的分佈平衡。董事長由陳冬青先生擔任，總經理由張軍先生擔任。董事會審議通過的《董事會議事規則》和《總經理工作細則》，分別對董事長和總經理的職責分工進行了明確清楚的界定。

董事長陳冬青先生負責領導董事會確定本公司的整體發展戰略，確保董事會有效履行其職責，並及時就所有重要的適当事項進行討論，確保本公司得以制定有效的企業管治常規及程序，並確保董事會行事符合本公司及全體股東的最佳利益。總經理張軍先生主要負責本公司的日常運營，包括實施董事會決議及進行日常決策等。

1.6 *委任及重選董事*

根據《公司章程》的規定，董事(包括非執行董事)由股東大會選舉產生，每屆任期不得超過三年，可連選連任。

本公司已就新董事的委任建立了一套有效的程序。新董事的提名事宜先由提名委員會商議，然後再向董事會提交以供審議，並由股東大會選舉通過。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

In compliance with the applicable laws and regulations, and the AOA, each of the executive Directors of the Company entered into a service contract with the Company on 8 August 2017, which is preliminarily for a term of three years commencing from 8 August 2017. Each of the non-executive Directors and independent non-executive Directors entered into a letter of appointment with the Company on 8 August 2017, for a term of three years, with a clause of one-year automatic renewal.

1.7 Directors' Remuneration

The Remuneration and Appraisal Committee makes recommendations in relation to the Directors' remuneration by taking into consideration factors such as educational background, work experience, etc.. The Board determines the Directors' remuneration by considering the Directors' experiences, work performances, positions and market conditions after the approval of the general meeting.

2. Board Committees

There are four Board committees ("Committees"), namely, the Audit Committee, the Remuneration and Appraisal Committee, the Nomination Committee and the Strategic Committee.

On 8 August 2017, the chairmen and members of the third session of Board committees were appointed on the first Board meeting of the third session of the Board for 2017.

2.1 Audit Committee

The Audit Committee consists of three Directors: Mr. YEUNG Chi Tat (independent non-executive Director), Mr. SHEN Xiaoliu (independent non-executive Director) and Mr. ZHANG Wenjian (independent non-executive Director). Mr. YEUNG Chi Tat serves as the chairman of the Audit Committee. The primary responsibilities of the Audit Committee are to review and supervise the Company's financial reporting procedures, including:

- Making proposals in respect of the appointment, re-appointment or change of the external auditors to the Board, approving the remuneration and terms of engagement of external auditors, and handling any issues related to the resignation or dismissal of external auditors;
- Evaluating and examining the independence and objectivity of the external auditors and the effectiveness of the auditing procedures in accordance with the relevant standards;

根據相關法律法規及《公司章程》的規定，本公司各執行董事已於2017年8月8日與本公司訂立了服務合約，各服務協議自2017年8月8日起初步為期三年。而各非執行董事及獨立非執行董事亦已於2017年8月8日與本公司訂立了委任函，為期三年，委任函包含自動延期一年的條款。

1.7 董事薪酬

董事薪酬根據專業背景及工作經驗等因素，由薪酬與考核委員會提出建議，經股東大會批准由董事會根據董事經驗、工作表現、職務及市場確定。

2. 董事會轄下委員會

董事會下設四個委員會(「委員會」)，包括審計委員會、薪酬與考核委員會、提名委員會和戰略委員會。

2017年8月8日，第三屆董事會2017年第一次會議決議委任第三屆董事會專門委員會主席及成員。

2.1 審計委員會

審計委員會由三名董事組成，他們分別是：楊志達先生(獨立非執行董事)、申曉留先生(獨立非執行董事)及張文建先生(非執行董事)。楊志達先生為審計委員會主席。審計委員會的主要職責為審計及監督公司的財務申報程序，包括：

- 就董事會外聘核數師的任命、重新任命或變更提出議案，審批外聘核數師的薪酬與僱傭條款，並處理與外聘核數師辭職或解僱相關的任何問題；
- 根據相關標準評估及審查外聘核數師的獨立性及客觀性和審計程序的有效性；



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

- Monitoring completeness, accuracy and impartiality of the financial statements of the Company and the Company's accounts, annual reports and interim reports and reviewing significant financial reporting opinions contained in them;
- Reviewing the Company's financial control, internal control and risk management systems; and
- Taking necessary measures to ensure that employees have a channel to raise concerns in an anonymous manner about any possible improprieties in financial reporting, internal control or other matters.

During the Reporting Period, the Audit Committee convened three meetings in total, with details as follows:

- On 21 March 2019, the first meeting of the Audit Committee of the third session of the Board in 2019 was convened, whereby (1) the proposal regarding the Company's 2018 announcement of the annual results (draft); and (2) the proposal regarding the 2018 annual report of the Company (draft) was considered and approved.
- On 24 April 2019, the second meeting of the Audit Committee of the third session of the Board in 2019 was convened, whereby (1) the proposal regarding the Company's appointment of foreign auditors for 2019; and (2) the proposal regarding the Company's appointment of domestic auditors for 2019 were considered and approved.
- On 21 August 2019, the third meeting of the Audit Committee of the third session of the Board in 2019 was convened, whereby (1) the proposal regarding the 2019 interim report of the Company (draft); and (2) the proposal regarding the 2019 interim results announcement of the Company (draft) were considered and approved.

All the members of the Audit Committee attended the above meetings.

- 監察本公司財務報表、本公司賬目、年度報告和中期報告的完整性、準確性和公正性，並審查其中重要的財務報告意見；
- 審查本公司的財務控制、內部控制和風險管理系統；及
- 採取必要措施，確保員工能夠以匿名的方式對財務報告、內部控制或其他事項中的任何不當行為提出質疑。

在報告期間，審計委員會共召開了三次會議，每次會議的詳細情況如下：

- 於2019年3月21日召開了第三屆董事會審計委員會2019年第一次會議，審議並通過(1)關於本公司2018年度業績公告(審議稿)的議案；及(2)關於本公司2018年報(審議稿)的議案。
- 於2019年4月24日召開了第三屆董事會審計委員會2019年第二次會議，審議並通過(1)關於本公司聘請2019年度境外審計機構的議案；及(2)關於本公司聘請2019年度境內審計機構的議案。
- 於2019年8月21日召開了第三屆董事會審計委員會2019年第三次會議，審議並通過(1)關於本公司2019年中期報告(審議稿)的議案；及(2)關於本公司2019年中期業績公告(審議稿)的議案。

審計委員會全體委員均出席了上述會議。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

2.2 Remuneration and Appraisal Committee

The Remuneration and Appraisal Committee consists of three Directors: Mr. QU Jihui (independent non-executive Director), Mr. XIE Qiuye (independent non-executive Director) and Mr. WANG Zhongqu (non-executive Director). Mr. QU Jihui is the chairman of the Remuneration and Approval Committee of the Company. The primary responsibilities of the Remuneration and Appraisal Committee are to formulate the standards concerning the assessment of the directors and the senior management, assess their performance and determine and review the remuneration policies and plans concerning the directors and the senior management, including:

- Discussing the assessment standards, performance evaluation procedures and remuneration and rewards and punishments of Directors and senior management and submitting the same to the Board of Directors for approval;
- Assessing the duty performance of Directors and senior management of the Company and conducting performance evaluation for them;
- Supervising the implementation of the Company's remuneration system; and
- Obtaining the authorization granted by the Board of Directors to consider and determine the specific remuneration package of all the executive Directors and senior management, including non-pecuniary benefits, pension rights and amounts of compensation (including compensation arising from loss or termination of office or appointment) and make recommendations to the Board of Directors on the remuneration of non-executive Directors. The factors to be considered by the Remuneration and Appraisal Committee include the remuneration paid by companies of same kinds, the time devoted by the Directors and the duties of the Directors, the terms of employment of other positions in the Company and whether the remuneration should be determined by performance.

During the Reporting Period, the Remuneration and Appraisal Committee convened one meeting in total, with details as follows:

- On 28 March 2019, the first meeting of the Remuneration and Appraisal Committee of the third session of the Board in 2019 was convened, whereby the proposal regarding the remuneration of the Company's directors, supervisors and senior management for 2019 was considered and approved.

2.2 薪酬與考核委員會

薪酬與考核委員會由三名董事組成，他們分別是：曲久輝先生(獨立非執行董事)、謝秋野先生(獨立非執行董事)及王忠渠先生(非執行董事)。曲久輝先生為本公司薪酬與考核委員會主席。薪酬與考核委員會的主要職責為制定評估董事及高級管理人員的標準及對彼等的表現進行評估；釐定、審閱董事及高級管理層相關的薪酬政策及計劃，其中包括：

- 研究董事與高級管理人員考核的標準、績效評價程序和薪酬及獎懲辦法，提交董事會批准；
- 評審公司董事和高級管理人員的履職情況並對其進行績效考核評價；
- 對公司薪酬制度執行情況進行監督；及
- 獲得董事會授權，考量確定全體執行董事及高級管理人員的特定薪酬待遇，包括非金錢利益、退休金權利及賠償金額(包括喪失或終止職務或委任的賠償)，並就非執行董事的薪酬向董事會提出建議。薪酬與考核委員會應考慮的因素包括同類公司支付的薪酬、董事須付出的時間及董事職責、公司內其他職位的僱用條件及是否應該按表現釐定薪酬等。

在報告期間，薪酬與考核委員會共召開了一次會議，會議的詳細情況如下：

- 於2019年3月28日召開了第三屆董事會薪酬與考核委員會2019年第一次會議，審議並通過了公司董事、監事及高級管理人員2019年度薪酬的議案。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

All the members of the Remuneration and Appraisal Committee attended the above meeting.

2.3 Nomination Committee

The Nomination Committee of the Company consists of three Directors: Mr. XIE Qiuye (independent non-executive Director), Mr. QU Jihui (independent non-executive Director) and Mr. TANG Chaoxiu (executive Director). Mr. XIE Qiuye serves as the chairman of the Nomination Committee. The primary responsibilities of the Company's Nomination Committee are to formulate the procedures and standards for nominating candidates as Directors and senior management, and conduct preliminary review of the qualifications and other credentials of the candidates for Directors and senior management. In addition, according to the Board Member Diversity Policy ("Policy"), the Nomination Committee is responsible of supervising execution of the Policy. The appointment of the members of the Board of Directors shall be orientated by the need of skill and experience of the Board of Directors for its overall normal operation, and based on the principle of selecting talented people, while fully considering the above-mentioned goals and requirements for diversity. The Nomination Committee will also discuss any possible amendments and propose the amendments to the Board for its review and approval, so as to ensure the effectiveness. The Nomination Committee is of the opinion that the composition of the Board during the Reporting Period conformed to the requirements of the Policy.

During the Reporting Period, the Nomination Committee convened one meeting in total, with details as follows:

- The structure and composition of the Board and the qualifications of the directors were reviewed, and the independence of independent non-executive directors was reviewed.

All the members of the Nomination Committee attended the above meetings.

2.4 Strategic Committee

The Company's Strategic Committee consists of five Directors: Mr. CHEN Dongqing (executive Director and chairman), Mr. SHEN Xiaoliu (independent non-executive Director), Mr. GU Yuchun (non-executive Director), Mr. YAN Andrew Y. (non-executive Director) and Mr. ZHANG Jun (executive Director and General Manager). Mr. CHEN Dongqing serves as the chairman of the Strategic Committee. The primary responsibilities of the Strategic Committee are to formulate the Company's overall development plans and investment decision-making procedures, and promote the Company's rule-of-law construction, including:

薪酬與考核委員會全體委員均出席了上述會議。

2.3 提名委員會

本公司的提名委員會由三名董事組成，他們分別是：謝秋野先生(獨立非執行董事)、曲久輝先生(獨立非執行董事)及唐超雄先生(執行董事)。謝秋野先生為提名委員會主席。本公司提名委員會的主要職責為制定董事及高級管理人員人選的提名程序及標準、對董事及高級管理人員人選的資格及其他資歷進行初步審閱。此外，根據《董事會成員多元化政策》(「該政策」)，提名委員會負責監察該政策的執行。董事會成員的委任以董事會整體良好運作所需的技能和經驗為本，以選用有才能的人士為原則，同時充分考慮上述董事會成員多元化的目標和要求。提名委員會亦會討論任何需要做出的修訂並提呈予董事會供其審批，以確保行之有效。提名委員會認為於報告期內的董事會成員組成符合該政策的要求。

在報告期間，提名委員會共召並了一次會議，會議的詳細情況如下：

- 檢討了董事會的架構及組成及董事任職資格，並審核了獨立非執行董事的獨立性。

提名委員會全體委員均出席了上述會議。

2.4 戰略委員會

本公司的戰略委員會由五名董事組成，他們分別是：陳冬青先生(執行董事兼董事長)、申曉留先生(獨立非執行董事)、顧玉春先生(非執行董事)、閻焱先生(非執行董事)和張軍先生(執行董事兼總經理)。陳冬青先生為戰略委員會主席。戰略委員會的主要職責為制定本公司的整體發展計劃及投資決策程序、推進公司法治建設，包括：



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

- Reviewing the Company's long-term development strategies;
 - Reviewing the Company's strategic plans and implementation reports;
 - Reviewing significant capital expenditure, investment and financing projects subject to the approval of the Board;
 - Authorizing the management meeting of the Company to formulate specific plans, negotiate and implement relevant review and approval procedures, execute contracts and relevant documents, and handle relevant procedures for the above matters; and
 - Studying the overall plan of rule-of-law construction of the Company, bringing forward suggestions thereof, and monitoring the implementation thereof.
- 審閱本公司的長遠發展戰略；
 - 審閱本公司的戰略規劃及實施報告；
 - 審閱須董事會批准的重大資本支出、投資及融資項目；
 - 授權本公司辦公會對上述各項制定具體方案、協商並實施相關審批程序、簽署合約及相關文件、辦理相關手續等；及
 - 對本公司法治建設總體規劃進行研究並提出建議，並對其實施進行監控。

During the Reporting Period, the Strategic Committee convened two meetings in total, with details as follows:

在報告期間，戰略委員會共召開了兩次會議，會議的詳細情況如下：

- On 27 February 2019, the first meeting of the Strategic Committee of the third session of the Board in 2019 was convened, whereby (1) the proposal regarding the Company's domestic public offering of debentures; and (2) the proposal regarding the Company's domestic public offering of renewable debentures, were considered and approved.
 - On 11 April 2019, the second meeting of the Strategic Committee of the third session of the Board in 2019 was convened, whereby the proposal regarding the Company's domestic offering of Private Publication Notes was considered and approved.
- 於2019年2月27日召開第三屆董事會戰略委員會2019年第一次會議，會議審議並通過(1)關於公司在境內公開發行公司債券的議案；及(2)關於公司在境內公開發行可續期公司債券的議案。
 - 於2019年4月11日召開第三屆董事會戰略委員會2019年第二次會議，會議審議並通過關於公司在境內發行非公開定向債務融資工具的議案。

All the members of the Strategic Committee attended the above meeting.

戰略委員會全體委員均出席了上述會議。

3. Director's Responsibility for the Financial Statements

The Board acknowledges its responsibility for preparing the Financial Statements of the Group for the year ended 31 December 2019.

The Board is responsible for presenting a clear and understandable assessment report in respect of the financial statements for 2019 and other issues required to be disclosed pursuant to the Listing Rules and other monitoring regulations. The management has provided such explanations and information to the Board as necessary to enable the Board to make an informed assessment of the financial information and position of the Group.

3. 董事對財務報表承擔的責任

董事會已確認其承擔編製本集團截至2019年12月31日止年度財務報表的責任。

董事會負責就2019年度的財務報表以及根據上市規則和其他監管條文規定需要進行披露的其他事宜制定一份清晰易懂的評估報告。管理層已經向董事會提交了必要的解釋和數據，確保董事會能夠就財務信息和集團的地位作出有根據的評估。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

There are no material uncertainties relating to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern.

In addition, appropriate insurance coverage for Directors' liabilities has been arranged against potential legal proceedings to be taken against the Directors.

4. Compliance with the Model Code for Securities Transactions

The Company has adopted the Model Code for Securities Transactions by Directors of Listed Issuers ("Model Code") set out in Appendix 10 to the Listing Rules as the code of conduct and rules governing dealings by all Directors and Supervisors in the securities of the Company. After specific inquiries, all Directors and Supervisors of the Company have confirmed that, as of 31 December 2019, they had strictly complied with the required standards set out in the Model Code for the Reporting Period.

To ensure the compliance with relevant requirements under the Listing Rules and protect the Shareholders' interests, the Board will examine the corporate governance practices and the operations of the Company from time to time.

5. Risk Management and Internal Control

The Company places prime importance to risk management and internal control. An internal control system has been established to protect the Shareholders' and the Company's interests.

The Board is responsible for the internal control and risk management systems of the Company and its subsidiaries, reviewing and approving significant policies and reviewing the effectiveness of the internal control and risk management systems. Such system is designed to mitigate the inherent risks faced by the Group in its business to an acceptable level, rather than eliminate all risks. Therefore, this system only provides reasonable, not absolute, assurance against major false statements or financial losses in financial data.

Internal Control

The Company has set up a set of internal control rules, including "Rules and Procedures of the General Meeting", "Rules and Procedures of the Board Meeting", "Rules and Procedures of the Supervisor Meeting", "Terms of References for the Strategic Committee of the Board", "Terms of References for the Audit Committee of the Board", "Terms of References for the Nomination Committee of the Board", "Terms of References for the Remuneration and Appraisal Committee of the Board", "Provisions on Information Disclosure", "Administrative Measures on Connected Transactions", "Administrative Measures on Comprehensive Risk", "Internal Control Principle Policy" and "Administrative Measures on Compliance", etc.

本公司並無面臨可能對本公司持續經營業務之能力產生重大疑慮的事件或情況。

另外，董事可能面對的法律訴訟方面，本公司已為其可能招致的責任作出適當的投保安排。

4. 遵守證券交易標準守則

本公司已採納上市規則附錄10所載上市公司董事進行證券交易的標準守則(「標準守則」)，作為所有董事及監事進行本公司證券交易的行為守則。根據對本公司董事及監事的專門查詢後，所有董事及監事均確認：截至2019年12月31日止年度，各董事及監事均已嚴格遵守標準守則所訂之標準。

董事會將不時檢查本公司的企業管治、常規及運作，以確保符合上市規則有關規定並保障股東的利益。

5. 風險管理及內部控制

本公司高度重視風險管理及內部控制工作，已建立了一套內部控制體系，以保障股東利益和本公司利益。

董事會對本公司及其附屬公司的內部監控及風險管理系統負有責任，審閱及批准重大政策以及檢討內部監控及風險管理系統的有效性。該等系統旨在緩解本集團在業務中面臨的內在風險至可接受的程度，而非消除所有風險。因此，該等系統僅對可防範財務資料中的重大失實陳述或財務損失提供合理而非絕對保證。

內部控制

本公司建立了一套內部控制制度，包括《股東大會議事規則》、《董事會議事規則》、《監事會議事規則》、《董事會戰略委員會工作細則》、《董事會審計委員會工作細則》、《董事會提名委員會工作細則》、《董事會薪酬與考核委員會工作細則》、《信息披露事務管理規定》、《關連交易管理辦法》、《全面風險管理辦法》、《內部控制基本制度》及《合規管理辦法》等相關制度。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The Company has also established the Finance and Property Department, the Enterprise Management Department, the Audit Department and the Discipline Inspection Committee Office (Party Committee Inspection Office) and has sufficient personnel in each department in charge of financial operations, risk management, internal auditing, anti-corruption, etc. Besides, the Company has provided regular training to the Group's employees whose duties relate to finance, risk management and internal auditing so as to ensure that they are well qualified and experienced.

Every department of the Company is able to submit data to the Board of Directors smoothly. The General Manager is the most senior point of contact for each department of the Company who has the duty to effectively report to the Board in relation to the operations of each department, and to coordinate and mobilize the demands of each department to promote reasonable decision-making among the Company. The Audit Committee is responsible for reviewing the financial control, internal control and risk management systems of the Company; discussing the internal control system with the management to ensure that the management has fulfilled its duties to establish an effective internal control system; taking the initiatives or appointed by the Board of Directors to conduct researches on important findings of and the management's responses on internal control matters.

The Group communicated in a timely manner on the identified flaws of significant internal control and carefully assessed the potential risks. The supervising department put forward corrective actions, and obtained the approval from the leadership prior to its implementation. The leadership and the audit department monitored its implementation to ensure monitoring flaws resolved in time and properly.

Risk Management

System construction: At present, the Group's comprehensive risk management system pilot construction has completed "three bases, two handbooks, one report, one standard" (that is, risk information database, risk case database, risk index database, risk operation handbook and internal control handbook, internal control evaluation standard and internal control evaluation report), initially realizing the standardization and systematization of risk management and internal control.

本公司已設立了財務產權部、企業管理部、審計部和紀委辦公室(黨委巡察辦)，並為各個部門配備了充足的人員，負責財務運作、風險管理、內部審計、反腐敗等具體工作。此外，本公司亦定期為本集團內部負責財務、風險管理、內部審計的員工提供培訓，確保其擁有足夠的資質和經驗。

本公司每個部門都能將需要呈交董事會的數據順暢呈交。總經理作為與本公司各部門的最高對接口，有責任將各部門的運作有效地呈報董事會，並配合及調動各部門的需求，推動本公司內部的合理決策。審計委員會負責審查公司的財務控制、內部控制及風險管理制度；與管理層討論內部控制系統，確保管理層已履行職責以確立有效的內部控制系統；主動或應董事會的委派，就有關內部控制事宜的重要調查結果及管理層的回應進行研究。

本集團及時就所識別的重大內部監控瑕疵進行溝通，並審慎評估潛在風險。身為監控責任人的部門提出糾正措施，並於實施前獲得領導層批准。領導層及審計部監察實施情況，確保及時妥善解決監控瑕疵。

風險管理

制度建設：目前本集團的全面風險管理體系試點建設已完成了「三庫、兩冊、一報告、一標準」(即風險信息庫、風險案例庫、風險指標庫、風險操作手冊和內部控制手冊、內控評價標準及內部控制評價報告)的編製，初步實現風險管理和內部控制的標準化與體系化。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

Architectural construction: The Group's overall risk management system has extended laterally to every department horizontally and vertically to every affiliate. The Board of Directors is the highest decision-making organization in respect of overall risk management. The director of each department is responsible for organizing and carrying out daily work in respect of comprehensive risk management. The Company has set up a leadership group for the construction of risk management system led by the General Manager and composed members of the heads of departments, and also established an overall risk management leadership group at every specific unit, clearly defining the management responsibilities at all levels.

Work implementation

This year, from the aspects of optimizing the total risk management system, enhancing the working mechanism, strengthening monitoring and early warning, etc., the Company continued to strengthen the mechanism construction, organize annual risk assessment, quarterly risk analysis, and monthly risk monitoring, intensify major risk management and special risk prevention, conscientiously consolidate the results of risk management, keep driving the organic integration of risk management and business management, gradually improve the risk management capabilities, and strengthen the Company's consistent enhancement of operation and management.

In order to enhance the risk management consciousness of all the staff and promote the conscientiousness and initiative of all staff to participate in risk management, the Group also fostered the risk management culture of participation of all the staff and created good atmosphere of risk management by enhancing risk management knowledge training and multi-channel and multi-media publicity.

In 2019, the Group carried out the evaluation of internal control over all its subsidiaries by the way of independent implementation. The evaluation covered financial management, operation monitoring, compliance monitoring, risk management and other major aspects. And it promoted the construction of the overall risk management system within the whole Group. The Group holds a meeting every year to discuss risk management and internal monitoring systems to ensure that the management has fulfilled its responsibilities to establish effective systems. The Board believes that the current monitoring system of the Group is effective and adequate and considers that the resources, qualifications and experiences of the staff of the Group's accounting and financial reporting functions, its training programs and budgets thereof are adequate. The Board will continue to monitor the risk management and internal control systems in the following year.

體系建設：本集團的全面風險管理體系橫向到部門，縱向到各附屬公司。董事會是全面風險管理的最高決策機構，各部門主任負責組織開展全面風險管理日常工作，成立了以總經理為組長、各部門負責人為成員的風險管理體系建設領導小組；同時在附屬公司成立以總經理為組長的全面風險管理領導小組，明確各級管理職責。

工作實施

本年度從優化全面風險管理體系、健全完善工作機制、加強監控預警等方面，不斷加強機制建設，組織開展年度風險評估、季度風險分析、月度風險監控，強化重大風險治理和專項風險防範，認真鞏固風險管理工作成果、持續推動風險管理與業務管理的有機融合，風險管理能力逐漸提高，助力本公司經營管理水平持續提升。

為增強全員風險管理意識，提升全員參與風險管理的自覺性、主動性，本集團還通過加大風險管理知識培訓和多渠道、多媒體宣貫，營造風險管理的良好氛圍，培育全員參與的風險管理文化。

2019年本集團通過自主實施的方式，對附屬公司開展全覆蓋式內部控制評價工作，評價範圍涵蓋財務監控、運作監控、合規監控及風險管理等各項重大方面，並在全集團範圍內推廣全面風險管理體系建設工作。本集團每年召開一次會議討論風險管理及內部監控系統，確保管理層已履行職責建立有效的系統。董事會認為本集團目前的內部監控體系是有效及足夠的，並認為本集團在會計及財務匯報職能方面的資源、員工的資歷和經驗以及員工培訓計劃及有關預算方面是足夠的。董事會於來年會持續監控本集團的風險管理及內部監控系統。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

Inside Information Management

In order to promote fairness, transparency, accountability and responsibility, which are the core principles of good corporate governance, the Group notifies the Stock Exchange and discloses to Shareholders and other holders of its listed securities the Group's inside information in a timely manner pursuant to the Listing Rules and Part XIVA of the SFO.

In order to monitor and regulate potential insider trading activities and ensure the confidentiality of inside information, the Company has established a set of Management Rules on Inside Information of Guodian Technology & Environment Group Corporation Limited in accordance with the Company Law of the PRC, SFO, Listing Rules and other applicable laws and regulations and the requirements of the AOA. The management of the registration of inside information shall be the responsibility of the Board of Directors; the secretary of the Board of Directors shall organize the implementation of the registration of inside information; the Department of Securities Financing and Legal Affairs (the office of the Board of Directors) ("the office of the Board of Directors") shall be responsible for the judgment and disclosure of inside information and improve the management over the registration management of insiders of inside information; and all the departments and subsidiaries shall report matters that may involve inside information to the office of the Board of Directors. Once the inside information involves disclosure requirements and has the conditions for disclosure, an announcement will be issued in a timely manner according to the applicable information disclosure procedures and the obligation to disclose information will be fulfilled.

6. Insider Trading Management

In order to monitor and regulate potential insider trading activities and ensure the confidentiality of inside information, the Company has established a set of Management Rules on Inside Information of Guodian Technology & Environment Group Corporation Limited in accordance with the Company Law of the PRC, SFO, the Listing Rules and other relevant laws and regulations and the AOA, and has strictly implemented the same in practice.

7. Auditors and Remuneration

Ernst & Young and ShineWing were appointed as auditors for the financial statements prepared in accordance with the International Financial Reporting Standards and Accounting Standards for Business Enterprises of PRC for the Reporting Period, respectively. For the Reporting Period, the fees payable to Ernst & Young and ShineWing for audit services were RMB8.00 million and RMB2.56 million, respectively. For the Reporting Period, the fee payable to Ernst & Young for non-auditing services related to the review of the Company's interim financial report was RMB3.98 million. ShineWing did not provide any non-auditing services for the year ended 31 December 2019.

內幕信息管理

為推行良好公司管治的核心原則，即公正、透明、問責及負責，本集團會適時根據上市規則及《證券及期貨條例》第XIVA部向聯交所、股東及其上市證券的其他持有人披露本集團的內幕信息。

為監管和規範潛在內幕交易行為，確保內幕信息保密工作，本公司根據《中華人民共和國公司法》、《證券及期貨條例》、上市規則等有關法律法規及《公司章程》的規定，制定《國電科技環保集團股份有限公司內幕信息管理辦法》。內幕信息的登記管理工作由董事會負責，董事會秘書組織實施，由董事會的日常辦事機構證券融資與法律事務部（董事會辦公室）（「董事會辦公室」）負責內幕信息的判斷及披露工作，完善內幕信息知情人的登記管理，由各部門及附屬公司向董事會辦公室報送可能涉及內幕信息的事項。一旦內幕信息觸及披露要求、具備披露條件時，將按照信息披露程序及時發佈公告，履行信息披露義務。

6. 內幕交易管理

為監控及規範潛在的內幕交易活動，確保內幕消息的保密性，本公司已根據《中華人民共和國公司法》、《證券及期貨條例》、上市規則及其他相關法律法規和《公司章程》，制定有《國電科技環保集團股份有限公司內幕信息管理辦法》，並在實踐中嚴格執行。

7. 核數師及其酬金

安永和信永中和分別獲委任為審計於報告期間按照國際財務報告準則和中國企業會計準則編製的財務報表的核數師。於報告期間，就安永及信永中和提供的審計服務應付的費用分別為人民幣8,000千元和人民幣2,560千元。於報告期間，應向安永支付的與審閱本公司中期財務報告相關的非審計服務費為人民幣3,980千元。截至2019年12月31日止年度，信永中和並未提供任何非審計服務。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

Ernst & Young, as the Company's external auditor, has the responsibilities for the audit of the Financial Statements, which are set out on Pages 168 to 176 of this Annual Report.

安永作為本公司外聘核數師對財務報表的核數責任，載於本年報第168至176頁。

8. Communications with Shareholders

The Company highly appreciates Shareholders' opinions and advice, actively organizes various investor related activities to maintain communication with the Shareholders and responds to reasonable requests of Shareholders in time.

8. 與股東的溝通

本公司高度重視股東的意見和建議，積極開展各類與投資者相關的活動，與股東保持溝通，及時滿足各股東的合理需求。

8.1 Convening Extraordinary General Meetings by Shareholders

According to the AOA, two or more Shareholders holding more than 10% of the shares carrying the right to vote at the meeting sought to be held may sign one or more counterpart requisitions requiring the Board to convene an extraordinary general meeting and stating the objectives of the meeting. The Board shall, in accordance with the applicable laws and regulations and the AOA, furnish a written reply stating its agreement or disagreement to convene the extraordinary general meeting within ten days upon receipt of such requisition. If the Board agrees to convene the extraordinary general meeting, a notice for convening the meeting shall be issued within five days upon adoption of the resolution by the Board.

8.1 股東召開臨時股東大會

根據《公司章程》，合計持有在該擬舉行的會議上有表決權的股份10%以上的兩個或兩個以上的股東，可以簽署一份或數份同樣格式內容的書面要求，提請董事會召集臨時股東大會，並闡明會議的議題。董事會應當根據法律法規和《公司章程》的規定，在收到請求後十日內提出同意或不同意召開臨時股東大會的書面反饋意見。若董事會同意召開臨時股東大會，應當在作出董事會決議後五日內發出召開會議的通知。

If the Board does not agree to convene the extraordinary general meeting, or if it fails to give its feedback in writing within ten days upon receipt of such requisition, the Shareholders individually or jointly holding an aggregate of more than 10% of the shares carrying the right to vote at the meeting sought to be held shall be entitled to propose to the Board of Supervisors to convene an extraordinary general meeting, and shall submit its proposal in writing to the Board of Supervisors. If the Board of Supervisors agrees to convene the extraordinary general meeting, a notice for convening such meeting shall be issued within five days upon receipt of such requisition.

若董事會不同意召開臨時股東大會，或者在收到請求後十日內未作出書面反饋，單獨或者合計持有在該擬舉行的會議上有表決權的股份10%以上的股東有權向監事會提議召開臨時股東大會，並應當以書面形式向監事會提出請求。若監事會同意召開臨時股東大會，應在收到請求五日內發出召開會議的通知。

If the Board of Supervisors fails to issue a notice for such meeting within the prescribed period, the Board of Supervisors shall be deemed not to convene and preside at the meeting, and the Shareholders individually or jointly holding an aggregate of more than 10% of the shares of the Company for more than 90 consecutive days may convene and preside at the meeting at their own discretion.

若監事會未在規定期限內發出會議通知，視為監事會不召集和主持股東大會，連續九十日以上單獨或者合計持有本公司10%以上股份的股東可以自行召集和主持會議。

The procedures of the meeting convened by requisitioning Shareholders due to the failure of holding such meeting by the Board upon the aforesaid requisition shall be as similar as possible to those in which general meetings are to be convened by the board.

股東因董事會未應前述要求舉行會議而自行召集會議的，召集的程序應當盡可能與董事會召集股東會議的程序相同。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

8.2 Putting Forward Proposals at the General Meetings

According to the AOA, when the Company convenes a general meeting, the Shareholders individually or jointly holding more than 3% of the shares of the Company shall have the right to file the proposal. The Shareholders holding more than 3% of the shares of the Company shall have the right to file the temporary proposal in writing, and the Company shall include matters in the proposal within the scope of duties and responsibilities of the general meetings on the agenda, if the criteria as specified in the AOA are met.

8.3 Investor Relations Activities

The Group has received questions from visiting investors, analysts and press thoughtfully and considered and answered their related questions efficiently and accurately; the Group has paid close attention to the developing trends in the market, and always communicated with the public in a realistic, objective and compliant way.

8.3.1 Results Roadshows

The Group did not carry out roadshow activities in 2019.

8.3.2 Investors' Routine Visits

During the Reporting Period, the Company received 21 groups of investors and analysts by way of one-to-one/group/telephone meetings, totaling 25 people.

8.4 Putting Forward Enquiries to the Board

According to the AOA, all the Directors shall attend general meetings. The Shareholders may present enquiries to the Board of Directors at such general meetings. If the Shareholders need to contact the Board of Directors for enquiries, they are also welcomed to send enquiries directly to the Company, with contact details as follows:

Attn: The Department of Securities
Financing and Legal Affairs (the
Board of Directors Office)
Address: Suite 1225, Building 1, Yard 16,
W.4th Ring Middle Road, Haidian
District, Beijing, PRC
Postal Code: 100039
Tel: 010-5765 7777
Fax: 010-5765 9705
Email: 1296board@chnenergy.com.cn

8.2 在股東大會提出建議

根據《公司章程》，公司召開股東大會，單獨或合計持有公司3%以上股份的股東有權向本公司提出提案。單獨或合計持有本公司3%以上股份的股東，有權以書面形式向本公司提出臨時提案，倘《公司章程》所列的要求均已滿足，則本公司應將該臨時提案中屬股東大會職責範圍內的事項列入會議日程。

8.3 投資者關係活動

本集團週密安排、認真接待投資者、分析師、新聞媒體的來訪，高效、準確地回答相關問題；密切關注市場發展趨勢，始終以真實、客觀、合規的角度與公眾進行溝通。

8.3.1 業績路演

2019年度本集團未開展路演活動。

8.3.2 投資者日常來訪

報告期內，本公司以一對一會議/小組會議/電話會議方式接待投資者、分析師21批次，共計25人。

8.4 向董事會提出查詢

根據《公司章程》，全體董事都應當出席股東大會，股東可以在股東大會上向董事會提出查詢。如果股東因查詢而需聯繫董事會，他們也可以直接將查詢函發送至本公司，具體聯繫方式如下：

收件人：證券融資與法律事務部
(董事會辦公室)
地址：中國北京市海澱區西四環
中路16號院1號樓1225室
郵編：100039
電話：010-5765 7777
傳真：010-5765 9705
電子郵件：1296board@chnenergy.
com.cn



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

For the avoidance of doubt, the Shareholder(s) must deposit and send the original duly signed written enquiry or correspondence of any type to the above address, and provide his or her full name, contact details and proof of identification in order to give effect thereto.

8.5 Disseminating Information through the Internet

In order to promote good corporate governance and increase transparency, the Company has set up a website (www.01296.hk) as a channel to disseminate information. The Company implements certain internal procedures to vet information which is to be put on its website and also monitors its website to ensure that all published information is up-to-date and accurate.

8.6 Overseas Regulatory Announcement

As Longyuan Technology, a subsidiary of the Company, is a public company listed on the Shenzhen Stock Exchange, the Company has complied with the requirements regarding overseas regulatory announcements in accordance with Rule 13.10(B) of the Listing Rules.

Furthermore, as the corporate bonds of the Company are listed on the Shanghai Stock Exchange, the Company has complied with the requirements regarding overseas regulatory announcements in accordance with Rule 13.10(B) of the Listing Rules in this regard.

9. Joint Company Secretaries

Mr. CAI Zhaowen is the secretary of the Board and the joint company secretary and also the major internal contact person of the Company. Please refer to the section headed “Directors, Supervisors and Senior Management – Company Secretary” for further information.

Mr. LEE Kwok Fai Kenneth is the joint company secretary of the Company. He is a director and head of corporate secretarial services of TMF Hong Kong Limited.

In 2019, Mr. CAI Zhaowen and Mr. LEE Kwok Fai Kenneth took no less than 15 hours of relevant professional training in compliance with Rule 3.29 of the Listing Rules.

10. Amendments to the AOA

The amendments to the AOA of the Company were adopted in the form of special proposal by 2019 first extraordinary general meeting held on 23 December 2019.

為免生疑，股東須將正式簽署的書面查詢原件或其他形式的信函送交或寄送至上述地址，並提供全名、聯繫方式詳情以及身份證明，方告生效。

8.5 互聯網信息發佈的管理工作

為提升企業管治水平和增加企業透明度，本公司設立網站(www.01296.hk)並使用互聯網作為發放資料的渠道，本公司執行一定內部程序以審閱即將登載在其網站上的信息，同時監察其網站，以確保所有公佈的信息都是最新的並且是正確的。

8.6 海外監管公告

由於本公司的附屬公司龍源技術於深圳證券交易所上市，本公司已根據上市規則第13.10(B)條遵守海外監管公告的相關規定。

此外，由於本公司的公司債券在上海證券交易所上市，本公司已根據上市規則第13.10(B)條遵守海外監管公告的相關規定。

9. 聯席公司秘書

蔡兆文先生為本公司董事會秘書及聯席公司秘書，亦為本公司內部之主要聯絡人。請參閱名為「董事、監事和高級管理人員—公司秘書」的章節以獲得進一步信息。

李國輝先生為本公司之聯席公司秘書，李先生亦為達盟香港有限公司董事兼公司秘書服務部主管。

於2019年，蔡兆文先生及李國輝先生已遵守上市規則第3.29條之規定完成不少於15小時的相關專業培訓。

10. 對《公司章程》的修改

公司章程修改以特別決議案形式經2019年12月23日召開的2019年第一次臨時股東大會審議通過。



CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)

The amendments to the AOA include: changing the Chinese and English names of the Company in order to implement the requirements of China Energy Investment Group Corporation's Notice on Carrying Out the Change of Names of Enterprises Belonging to the Group Company and the Interim Provisions on the Names of Enterprises; and amending the AOA accordingly in the light of the updated contents of the Company Law, the Guidelines on the Bylaws of Listed Companies and the other applicable laws and regulations. For the change details of the AOA, please refer to the Announcement of the Company on 29 October 2019 and the Circular of the Company on 3 December 2019.

11. Connected Transaction Management

In order to strengthen the Company's management of connected transactions, the Company has established the "Management Rules on the Conduct of Connected Transactions of Guodian Technology & Environment Group Corporation Limited" and designated the office of the Board of Directors and Finance and Property Division for the management of connected transactions. In order to ensure that the Company's connected transactions are carried out in accordance with the relevant rules and regulations and that the aggregated transaction amounts do not exceed the annual caps, the Company has notified all the departments and subsidiaries regarding the applicable continuing connected transaction caps, allocated monitoring obligations to specific departments and subsidiaries, and required the relevant departments and subsidiaries to report to the senior management regarding the connected transactions without delay. The Group has provided regular training to internal staff in relation to connected transactions from time to time, and has designated specialized personnel to report information to ensure full compliance with the relevant Listing Rules.

本次章程修改包括：為貫徹國家能源投資集團有限責任公司《關於開展集團公司所屬企業更名工作的通知》和《企業命名暫行規定》的要求，變更公司註冊中、英文名稱；結合《公司法》及《上市公司章程指引》等法規條例的更新內容，相應修改本公司章程。關於公司章程的修改詳情，請參見本公司2019年10月29日的公告及2019年12月3日的通函。

11. 關連交易管理

為強化本公司的關連交易管理，本公司已建立《國電科技環保集團股份有限公司關連交易管理辦法》，並指定董事會辦公室及財務產權部管理關連交易。為確保本公司關連交易乃根據適用條例和法規實施以及交易總額不超過年度上限，本公司已將適用持續關連交易上限通告所有部門及附屬公司，將監控職責落實到各部門及附屬公司，並要求相關部門及附屬公司將涉及的關連交易及時向高級管理層報告。本集團為內部職工提供不時培訓，並指定專人負責信息報送，以確保完全遵守相關上市規則。

CORPORATE GOVERNANCE REPORT (CONTINUED) 企業管治報告(續)



12. Emoluments of Directors and Senior Management

Details of the emoluments of Directors for the Reporting Period are set out in Note 11 to the Financial Statements.

The emoluments of senior management (exclusive of Directors) for the Reporting Period are within the following bands:

12. 董事及高級管理人員薪酬

各董事於報告期的薪酬詳情載於財務報表附註11。

於報告期高級管理人員(除董事外)的薪酬範圍如下：

Emoluments Band (RMB) 薪酬範圍(人民幣元)	2019 Number of Individuals* 2019年人數*	2018 Number of Individuals 2018年人數
<400,000	–	–
400,000–600,000	1	–
>600,000	4	5
合計	5	5

* Including Mr. TANG Jian, who was no longer a member of the Party committee and deputy general manager of the company due to post adjustment on 22 May 2019.

* 包括於2019年5月22日，因職務調整，不再擔任本公司黨委委員及副總經理職務的唐堅先生。



SUMMARY OF HUMAN RESOURCES

人力資源概況

As at 31 December 2019, the Group had a total of 6,180 staff, of which 4,404 or 71.3% were male while 1,776 or 28.7% were female. The staff structure is as follows:

於2019年12月31日，本集團共有員工6,180人，其中男性僱員4,404人，佔71.3%；女性僱員1,776人，佔28.7%。人員構成情況如下：

Table 1: Analysis of the Group's Staff by Academic Qualification (The Number and Percentage of Staff)

表一：本集團按學歷劃分的員工分析(人數及百分比)

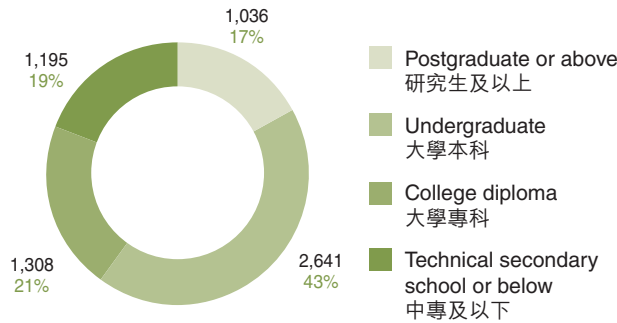
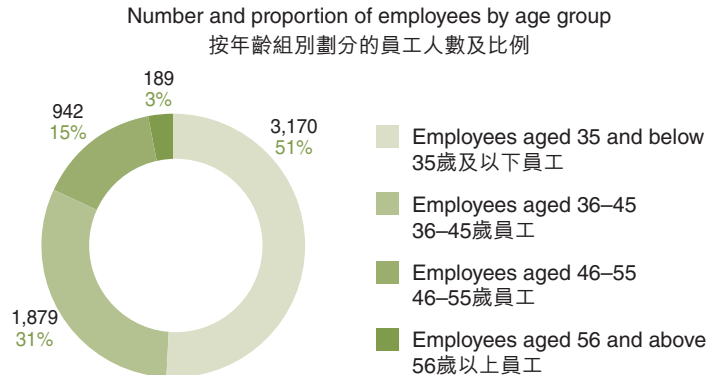


Table 2: Analysis of the Group's Staff by Age (The Number and Percentage of Staff)

表二：本集團按年齡劃分的員工分析(人數及百分比)



SUMMARY OF HUMAN RESOURCES (CONTINUED) 人力資源概況(續)

As at 31 December 2019, the Company had a total of 148 staff. The staff structure is as follows:

於2019年12月31日，本公司共有員工148名。人員構成情況如下：

Table 3: Analysis of the Company's Staff by Academic Qualification (The Number and Percentage of Staff)

表三：本公司按學歷劃分的員工分析(人數及百分比)

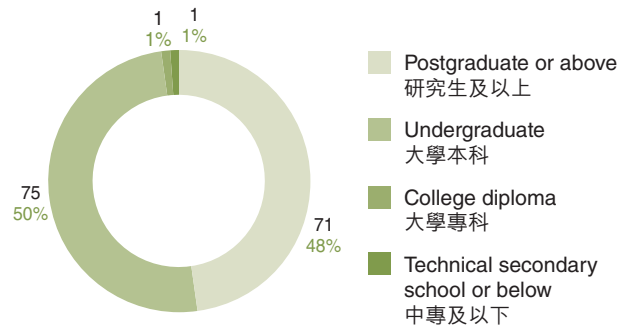
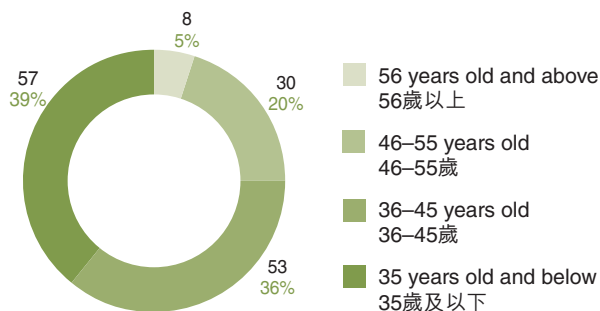


Table 4: Analysis of the Company's Staff by Age (The Number and Percentage of Staff)

表四：本公司按年齡劃分的員工分析(人數及百分比)



EMPLOYEE REMUNERATION SYSTEM AND PERFORMANCE EVALUATION

員工薪酬制度和績效考核

The Company has implemented the Interim Measures Governing Remuneration of the HQ, the Measures Governing Remuneration Payment of the HQ, the Interim Measures Governing the Department Performance Evaluation of the HQ and the Interim Measures Governing the Staff Performance Evaluation of the HQ. The remuneration management of the Company adheres to four principles, namely: the principle of focusing on value creation and more work and more gain, the principle of fairness, justice and reasonable gap, the principle of tripartite linkage among enterprise performance, department performance and individual performance and the principle of paying equal attention to process and result and continuous improvement of performance. Every subsidiary or branch has established its own management measures according to the above principles and according to the regulations and rules of the HQ, and then filed the same with the Group.

本公司施行《本部薪酬管理暫行辦法》、《本部薪酬支付管理辦法》、《本部部門績效考核管理暫行辦法》及《本部員工績效考核管理暫行辦法》。本公司薪酬管理堅持四大原則，即：突出價值創造、多勞多得導向原則；突出公平、公正、合理拉開差距原則；突出企業、部門、個人績效三方聯動原則；過程與結果並重、績效持續改進原則。各子分公司依據上述原則，參照本部規定制定各公司相應管理辦法並報本集團備案。



SUMMARY OF HUMAN RESOURCES (CONTINUED)

人力資源概況(續)

In 2019, the Company continued to implement the internal income distribution mode based on the post value and performance contribution, and formed the post performance salary mechanism of hierarchical classification and diversification. The remuneration of the staff consists of three parts: basic salary, performance salary and reward salary. The performance salary is determined according to the Company's performance and performance evaluation. The reward salary is determined according to the completion of the Company's annual key work.

STAFF TRAINING

In 2019, the Group conscientiously implemented the requirements of the relevant HR rules and regulations of China Energy, conscientiously implemented the spirit of the SASAC's Central Enterprise Talent Work Conference and the core development strategy of China Energy, took the cultivation of high-quality specialized personnel and building of a talent echelon with a reasonable structure as the goal, established a quality-oriented cultivation system of source cultivation, follow-up cultivation and the whole-process cultivation so as to enable the talents to have the quality and ability required for the reform and development of the Company and provide a strong talent guarantee for the healthy development of the enterprise. The Group firmly implemented the "Rainbow" talent plan, firmly grasped the four key links of talent selection, use, cultivation and retention, formed a complete talent work system, improved the talent selection system, improved the talent use system, optimized the talent cultivation system, implemented the talent incentive and retention system. It steadily promoted the training of graduates. In 2019, the Group recruited a total of 71 graduates, and organized a week of new staff orientation training courses; strengthened the "create and enjoy" salon brand building, improved step by step the "create and enjoy" corporate team of internal trainers, promoted innovatively the "create and enjoy" salon brand building. With innovative ideas, the ground-level units' training made many remarkable achievements. With the driving of pilot programs, it firmly pushed forward the construction of the "internal training" brand, provided diverse business training, improved the staff's business capabilities and also carried out the training in relation to the "Double-hundred Plan" for state-owned enterprise reform.

The working concepts of the Group for the next step is to actively implement the new strategy of energy security, focusing on the group company's "one goal, three type and five based, and seven leading" development strategies and the key work tasks of Guodian Tech. Vigorously promoting the strategy of talents to strengthen enterprise, taking firm ideals and beliefs as the foundation, followed by achieving high-quality development of the enterprise, strengthening political theory literacy and training in political capacity building, solidly carrying out professional competence training and knowledge training, and comprehensively improving the cadres' executive skills and employees' knowledge and skills, focussing on cultivating a team of high-quality professional talents catering to the enterprise reform and development, and providing talent guarantee and intellectual support for the construction of a world-class professional technology environmental protection company.

2019年本公司繼續落實以崗位價值和績效貢獻為主的內部收入分配方式，形成分層分類多元化的崗位績效工資機制。本集團員工薪酬由基本工資、績效工資和獎勵工資三部份組成，績效工資依據公司業績及績效考核情況確定，獎勵工資依據公司年度重點工作完成情況確定。

員工培訓

2019年，本集團認真貫徹落實國家能源集團人力資源相關制度要求，認真貫徹國資委中央企業人才工作會議精神與國家能源集團的核心發展戰略，以培養打造高素質專業化人才隊伍、建設結構合理的人才梯隊為目標，建立源頭培養、跟蹤培養、全程培養的素質培養體系，使人才具備公司改革發展要求的素質和能力，為企業健康發展提供有力人才保障。堅定不移的落實「彩虹」人才計劃，牢牢抓住人才選用育留四個關鍵環節，形成完整的人才工作體系，做實人才選拔體系，完善人才使用體系，優化人才培養體系，落實人才激勵與保留體系；穩步推動畢業生培訓工作，2019年本集團共接收畢業生71名，並組織開展為期一周的新員工入職培訓班；加強「創·享」沙龍品牌建設，逐步健全各層級企業內訓師隊伍，創新推進「創·享」沙龍品牌建設；創新思路，基層單位培訓工作亮點紛呈，試點先行，紮實推進「內訓師」品牌建設，多方面開展業務培訓，提高員工業務能力，積極開展國企改革「雙百行動」相關培訓。

本集團下一步工作思路是積極貫徹落實能源安全新戰略，圍繞集團公司「一個目標、三型五化、七個一流」發展戰略和國電科環重點工作任務，大力推進人才強企戰略，以堅定理想信念宗旨為根本，以實現企業高質量發展為遵循，加強政治理論素養、政治能力建設培訓，紮實開展專業化能力培訓和知識培訓，全面提升幹部執企本領和員工知識素養、技能水平，著力培養適應企業改革發展需要的高素質專業化人才隊伍，為建設世界一流專業化的科技環保公司提供人才保證和智力支持。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT

環境、社會及管治報告

1 ABOUT THIS REPORT

This Report is the fourth annual Environmental, Social and Governance (“ESG”) Report issued by the Group. This Report focuses on the Group’s environmental, social and governance policies, as well as specific management measures taken during the Reporting Period, aiming at strengthening communication and connection between and with the Group’s internal and external stakeholders.

The Group’s Board of Directors bears full responsibility for the Group’s ESG strategy and reporting, and is responsible for assessing and identifying the Group’s risks related to ESG and ensuring that the Group has established proper and effective ESG risk management as well as the internal control system. The Board of Directors and all directors hereby guarantee that there are no false records, misleading statements or major omissions in the contents of this Report and that they are severally and jointly liable for the authenticity, accuracy and completeness of the contents hereof.

1.1 Basic Information of the Report

Subject Scope of the Report

Guodian Technology & Environment Group Corporation Limited and its subsidiaries.

Time Range of the Report

The Group’s Environmental, Social and Governance Report is an annual report, with the reporting period from 1 January 2019 to 31 December 2019, where some of the statements and data are appropriately traced back to the previous years.

Preparation Basis

The contents of this Report have been prepared in accordance with the requirements of the “Environmental, Social and Governance Reporting Guide” (the “ESG Reporting Guide”) in Appendix 27 to the Listing Rules.

Access to the Report

This Report is published in the annual report of the Group. You may download the Chinese and English versions of this Report on the website disclosed by the Stock Exchange or the website of the Group: <http://www.khjt.com.cn/>. This Report is published in both Chinese and English. In case of ambiguity between these two versions, the Chinese version shall prevail.

Terms used but not defined in this Report have the same meaning as those defined in the Annual Report.

1 關於本報告

本報告為本集團第四次發佈的年度環境、社會及管治(ESG)報告，主要介紹本集團在環境、社會及管治方面的管理政策以及在報告期間採取的具體管理措施，旨在加強與本集團內外部利益相關方之間的溝通與聯繫。

本集團董事會對本集團的ESG策略及匯報承擔全部責任，負責評估及釐定本集團有關ESG的風險，並確保本集團設立合適及有效的ESG風險管理及內部監控系統。董事會及全體董事保證本報告內容不存在任何虛假記載、誤導性陳述或重大遺漏，並對其內容的真實性、準確性和完整性承擔個別及連帶責任。

1.1 報告基本信息

報告主體範圍

國電科技環保集團股份有限公司及其附屬公司。

報告時間範圍

本集團《環境、社會及管治報告》為年度報告，報告期間為2019年1月1日至2019年12月31日，部分表述及數據適當追溯以前年份。

編製依據

本報告的內容是參照上市規則附錄二十七《環境、社會及管治報告指引》(ESG報告指引)的要求而編製的。

報告獲取

本報告登載在本集團年度報告中，您可以在聯交所披露網站或本集團的網站<http://www.khjt.com.cn/>下載查閱本報告的中英文版本。本報告以中英文兩種文字出版，在對兩種文本理解發生歧義時，請以中文文本為準。

本報告所使用但未定義的詞彙與年度報告所界定者具有相同含義。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

1.2 ESG Management Vision

At present, overall speaking, the world economy is in the state of recovery, and China's economic development has entered a period of new normal and is at the crucial stage of transformation and structural adjustments. With the further deepening of the industrial structural transformation and upgrading, the electric power industry is transforming from the scale-oriented expansion to quality benefit-oriented development. The strict adjustment and control of the Chinese Government on the development of the coal-fired power industry have brought opportunities for the development of the new energy-saving, green, low-carbon environmental protection industries and also brought new challenges and opportunities for the transformation of the Group. The Group will closely focus on the energy structural adjustment and electric power technological reform and under the guidance of the five major development philosophies, i.e. "Innovative, Coordinated, Green, Open, Sharing" issued at the Fifth Plenary Session of the 18th CPC Central Committee, insist on the industrial development direction of safer, cleaner, more efficient and sustainable energy utilization, and make contributions to the construction of Beautiful China, Ecological China and Green China.

Over the years, the Group has committed to developing and promoting environmental protection and energy conservation solutions and renewable energy technologies while focusing on the breakthrough of a range of key core technologies, forming a strategic emerging industry cluster with comparative advantages, enhancing its capability to fulfill its corporate social responsibility and promoting clean electricity production, ending up a pioneering company in environmental protection, energy conservation and renewable energy in China's electric power sector.

Looking into the future, with the platform and resources our controlling shareholder China Energy provides, we will continue to reinforce the leadership of the CPC over the state-owned enterprise and firmly observe the market rules and mechanisms to improve and strengthen the major core business sections including energy conservation, environment protection, wind power products and services, and transform the enterprise from healthy development to sustainable development. We will strive to become a world-leading product and service provider in terms of the environmental protection and energy conservation solutions and renewable energy equipment and solutions. And repay our shareholders and the society with excellent business performance.

1.2 ESG管理願景

當前，世界經濟總體保持復甦態勢，我國經濟發展進入新常態，正處於轉方式調結構的緊要關口，產業結構轉型升級逐步深化，電力行業發展也由規模擴張型向質量效益型轉變，國家對煤電發展進行的嚴格調控，為新型節能和綠色低碳環保產業的發展提供了機會，也為本集團轉型帶來了新的挑戰和機遇。本集團將緊緊圍繞能源結構調整和電力科技變革，按照黨的十八屆五中全會提出的「創新、協調、綠色、開放、共享」五大發展理念為引領，堅持能源利用更加安全、清潔、高效、可持續的產業發展方向，為建設美麗中國、生態中國、綠色中國貢獻力量。

多年來，本集團致力於環保節能與可再生能源技術的開發和推廣，着眼於突破一批關鍵核心技術，形成了具有比較優勢的戰略性新興產業集群，提高了履行企業社會責任的能力和電力行業清潔生產水平，成為中國電力行業中享有盛譽的環保節能和可再生能源領域的先進企業。

展望未來，本集團將繼續利用其控股股東國家能源集團所提供的平台和資源，進一步強化黨對國有企業的領導，堅定不移地按照市場化規律和機制，做優做强節能、環保、風電產品及服務等核心業務分部，推動企業由健康發展向可持續發展轉變。本集團將力爭成為全球領先的環保與節能解決方案及可再生能源設備與解決方案領域的產品和服務提供商。並以優異的經營業績回報股東，回報社會。

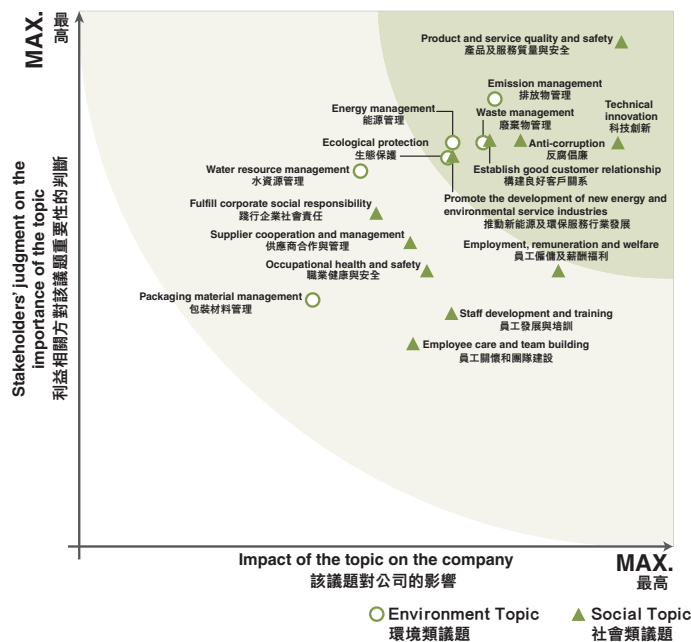


1.3 Materiality Analysis of the Topics

With regard to the process of Materiality Analysis, the Company will, according to the ESG Reporting Instructions of Stock Exchange and with reference to the Global Reporting Initiative (the "GRI"), collect and record the main stakeholders' concerned topics and the importance of each topic through questionnaires, interviews, etc., conduct importance analysis and sort the items, identify the Company's material environmental, social, and governance topics and disclose them in the report, as shown below.

1.3 議題實質性分析

本公司根據聯交所ESG報告指引要求，參考全球報告倡議組織(GRI)有關實質性分析的流程，通過調查問卷、訪談等形式，收集並記錄本公司主要利益相關方關注的議題及對各議題重要性評估結果，並進行重要性分析和排序，確定本公司在環境、社會及管治方面的實質性(重要)議題，並在報告中進行披露，如下圖所示。



2 PRACTICING THE CONCEPT OF GREEN DEVELOPMENT

2 踐行綠色發展理念

2.1 Make use of industry advantages and promote clean development

2.1 發揮行業優勢促進清潔發展

Since its establishment in 2004, the Group has always attached great importance to business operation and the sustainable development of society and environment, and made use of the company's advantages of technology and environmental protection, and actively put the corporate vision of Green Technology for A Better World into practice.

自2004年成立以來，本集團一直重視企業經營和社會、環境的可持續發展，利用科技環保企業的優勢，積極踐行綠色科技、全球共享的企業願景。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The Group, focusing on the main businesses of power generation and coal of China Energy and adhering to the industrial development direction of efficient and clean use of energy, has formed two major core business segments, i.e., environmental protection and energy conservation solutions, renewable energy production and services. Its business system has positive effects on the environment and has made outstanding contributions to the development of green energy.

The Group is currently China's largest energy-saving environmental protection service provider of conventional coal-fired power plants and a leading manufacturer of renewable energy system services and equipment, and continues to boost the industry with leading technologies. Since 2012, the Group has successively been selected for Global TOP 500 New Energy Enterprises for eight years. In its rapid developing process, the Group has cultivated a series of well-known brands such as Longyuan Environmental, Longyuan Technology, United Power and Zhishen Company, etc.

本集團圍繞國家能源集團的發電和煤炭主業，堅持能源高效、清潔利用的產業發展方向，形成了環保與節能解決方案、可再生能源製造及服務兩大核心業務分部，業務體系對環境產生積極影響，為發展綠色能源做出了傑出貢獻。

本集團是目前中國最大的常規燃煤電廠節能環保服務商和領先的可再生能源系統服務及設備製造商，並以領先的技術水平不斷推動行業發展。從2012年至今，本集團連續八年入選全球新能源企業500強。本集團在快速發展中培育了龍源環保、龍源技術、聯合動力和智深公司等一批知名品牌。

Segment 分部	Main Business 主要業務	Industrial Position 行業地位	Representing Enterprises 代表企業
Environmental Protection and Energy Conservation Solutions 環保與節能解決方案	Environmental Protection 環保	Flue gas treatment, water treatment, noise control, sludge treatment etc. for coal-fired power plants 燃煤電廠煙氣治理、水治理、噪聲治理、污泥治理等	Leading enterprise in the thermal power plant environmental protection industry 火電廠環保產業龍頭企業
	Energy conservation solutions 節能解決方案	Boiler energy conservation, steam turbine energy conservation, excess heat and residual pressure utilization, cold-end energy conservation, etc. 鍋爐節能、汽輪機節能、餘熱餘壓利用、冷端節能等	Outstanding achievements 成績斐然
	Power station EPC 電站EPC	General contract of power stations, technical service of energy conservation for power plants, etc. 電站總承包、發電廠節能技術服務等	Domestic first-class level in terms of the engineering construction of generator sets of the same type 國內同類型機組工程建設一流水平
			Longyuan Environmental Longyuan Technology (Low-nitrogen combustion business) Lucency 龍源環保 龍源技術(低氮燃燒業務) 朗聯明 Longyuan Energy Conservation Longyuan Technology (Plasma ignition business) 節能公司 龍源技術(等離子點火業務) Longyuan Engineering 龍源工程

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)



Segment 分部	Main Business 主要業務		Industrial Position 行業地位	Representing Enterprises 代表企業
Renewable energy equipment manufacturing and service	WTG products and services	Complete machine technology of WTG, variable pitch technology and converter technology, covering the entire industrial chain of wind power equipment design and manufacturing	World-leading wind power overall solution supplier, industry-leading customized operation and maintenance service provider	United Power Longyuan Electrical Tianren Company Chifeng Wind Power
可再生能源製造及服務	風機產品及服務	風電整機技術、變槳技術和變流器技術，覆蓋風電設備設計製造整條產業鏈	全球領先的風電整體解決方案提供商、行業領先的定製化運維服務商	聯合動力 龍源電氣 天仁公司 赤峰風電
	Electronic-informatization-based power generation	Power plant DCS, informatization management system	First-rate in China	Zhishen Company Tianren Company
	電力電子信息化	電廠DCS、信息化管理系統等	國內一流	智深公司 天仁公司

2.1.1 Segment of Environmental Protection and Energy Conservation Solutions

Environmental Protection Business

Longyuan Environmental is one of the earliest domestic enterprises specializing in the thermal power plant flue gas treatment and electric power environmental protection, as well as the largest desulfurization and denitrification project service provider and franchised company in PRC.

In 2019, Longyuan Environmental installed 13 units of wet flue gas desulfurization devices with a total installed capacity of 6,765 MW; 23 units of technically transformed wet flue gas desulfurization devices, involving installed capacity of 6,404 MW; installed 7 units of new flue gas denitrification devices, with a total installed capacity of 4,060 MW; 30 units of technically transformed flue gas denitrification devices, involving an installed capacity of 9,734 MW.

As of 31 December 2019, Longyuan Environmental had put into operation a total of 268 million kW installed capacity of thermal power plants desulfurization units, as well as a total of 174 million kW installed capacity of denitration units, ranking the first in the country for 13 consecutive years.

2.1.1 環保與節能解決方案分部

環保業務

龍源環保是國內最早專業從事火電廠煙氣治理和電力環保產業的企業之一，是中國最大的脫硫脫硝工程服務商和特許經營公司。

2019年，龍源環保新建煙氣濕法脫硫裝置13台，裝機容量共6,765兆瓦；煙氣濕法脫硫裝置技術改造23台，涉及裝機容量6,404兆瓦；新建煙氣脫硝裝置7台，裝機容量共4,060兆瓦；煙氣脫硝裝置技術改造30台，涉及裝機容量9,734兆瓦。

截至2019年12月31日，龍源環保累計投運火電廠脫硫裝機容量2.68億千瓦，脫硝裝機容量1.74億千瓦，連續13年排名全國第一。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

As of 31 December 2019, a total installed capacity of 17,210 MW has been built by Longyuan Environmental's desulfurization franchise project, and a total installed capacity of 12,540 MW for the company's denitration franchising projects. Calculated with 4,591 hours of annual total utilization hours of the unit of thermal power desulfurization franchising project, a total of 418,000 tons of sulfur dioxide has been removed; calculated with 4,670 hours of annual total utilization hours of the unit of thermal power desulfurization franchising and maintenance project, a total of 1.2197 million tons of sulfur dioxide has been removed; calculated with 4,799 hours of annual total utilization hours of the unit of thermal power denitration franchising project, 55,600 tons of nitrogen oxides has been removed.

In 2019, 19 boiler combustion nitrogen reduction devices were newly built by Longyuan Technology, totally 583 boilers were put into operation, with an installed capacity up to 170 million kW.

There were 21 sewage treatment plants (stations) operated by Lucency, involving the operation of sewage treatment, reclaimed water and water supply, and with the designed treatment capacity of 1,290,000 t/d. The water product of the sewage treatment plant was discharged after meeting the discharge and reuse standards stipulated in the applicable laws, regulations and standards such as the "Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (GB18918-2002)", the "Reuse of Urban Recycling Water – Water Quality Standard for Urban Miscellaneous Water Consumption (GB/T19820-2002)", etc., or was reused by the industrial enterprises such as power plant after further retexture. Through the water operation mode, as of 31 December 2019, the sewage treatment plant had treated 192,483,100 tons of sewage (including reclaimed water and supplied water), and reduced pollution discharge by 59,900 tons of chemical oxygen demand (COD).

In order to strengthen the dust control and elimination of power plants, build a dust-free operation benchmark power plant, and improve the control standards of coal dust, the company has implemented the closed transformation of the coal yard warehouse. Longyuan Engineering newly set up 21 coal yard close projects in 2019, covering an area of 673,000 m². The number of new coal yard close projects has added up to 28, with a total coverage of 812,500 m².

截至2019年12月31日，龍源環保所屬脫硫特許經營項目的總裝機容量為17,210兆瓦，脫硝特許經營項目的總裝機容量為12,540兆瓦。按照企業火電脫硫特許經營項目機組全年利用小時數4,591小時計算，共脫除二氧化硫41.80萬噸；按照企業火電特許經營項目和運維維護項目機組全年利用小時數4,670小時計算，脫除二氧化硫121.97萬噸；按照企業火電脫硝特許經營項目機組全年利用小時數4,799小時，脫除氮氧化物5.56萬噸。

龍源技術2019年新建鍋爐燃燒降氮裝置19台爐，累計投運583台爐，累計裝機容量達1.7億千瓦。

朗新明運營的污水處理廠(站)有21座，涉及污水、中水、供水運營業務，處理設計能力129萬噸/天。污水處理廠的產品水在達到國家頒佈的《城鎮污水處理廠污染物排放標準(GB18918-2002)》、《城市污水再生利用城市雜用水水質(GB/T19820-2002)》等相關法律規範中要求的排放、回用標準後排放，或進一步再生處理後回用到電廠等工業企業。通過水務運營方式，截至2019年12月31日，污水處理廠處理污水(含中水、供水)19,248.31萬噸，化學需氧量(COD)累計減排5.99萬噸。

為加強電廠粉塵治理，打造無塵作業標桿電廠，提高煤粉塵治理標準，對煤場實施儲倉封閉改造，龍源工程2019年度新建煤場封閉項目數21個，其覆蓋面積達到67.3萬平方米。累計新建煤場封閉項目數量28個，共達到覆蓋面積81.25萬平方米。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)



Business of Energy Conservation Solutions

In terms of energy conservation, oil-saving ignition, etc., the Group has highlighted the key role of science and technology advancement in energy conservation and emission reduction and made full use of its advantages in industrial technology and management.

The business of Longyuan Energy Conservation covers the design, manufacturing and field implementation of steam turbine proper, cold end, auxiliary machinery and heating technology, and has achieved a total of 108 patents. The main energy-saving technologies include the whole-plant comprehensive efficiency promotion and energy conservation optimization technical reconstruction taking into account flexibility, low-energy heat supply technology (winning the first prize of China Power Science and Technology Award, and got successfully implemented in 8 projects); the steam graded heating, power, heat and electricity co-generation energy-conservation technology (winning the first prize of National Electric Power Workers' Technical Achievement Award by of China Electricity Council and got successfully implemented in 6 projects); the technology of revamping the through-flow for steam turbines of 300MW and below (nearly 70 turbine generator sets revamped); the technology of revamping nozzle groups and blade top steam seals of 660MW and below (nearly 200 turbine generator sets revamped); the design of long-distance and large-temperature-difference heating pipe network, etc. 232 contract energy management projects were implemented, and the contracted energy project saved an average of about 280,000 tons of standard coal in the past three years. Longyuan Energy Conservation signed 25 new contracts in 2019, and increased more than 450,000 tons of saving capacity of standard coal. Therefore, it has won the honors such as "IMCA Excellent Member Unit 2019", "2019 Energy Saving Service Industry Top Brand Enterprise", "EMC Excellent Demonstration Project 2019", etc.

節能解決方案業務

在節能、節油點火等節能業務中，本集團重視科技進步在節能減排中的關鍵作用，充分發揮產業技術和管理優勢。

節能公司業務涵蓋了汽輪機本體、冷端、輔機及供熱技術的設計、製造、現場實施領域，共擁有專利108項。主要節能技術包括，火力發電廠全廠兼顧靈活性綜合提效節能優化技術改造、低位能優質供暖技術(榮獲中國電力科學技術一等獎，成功實施了8個項目)、蒸汽分級加熱-功熱電聯產節能技術(榮獲中電聯全國電力職工技術成果一等獎，成功實施了6個項目)、300兆瓦及以下汽輪機通流改造技術(成功改造近70台機組)、660兆瓦及以下噴嘴組及葉頂汽封改造技術(成功改造近200台機組)、遠距離大溫差供熱管網設計等。實施的合同能源管理項目達232項，近三年平均節約標準煤約28萬噸。節能公司2019年新簽合同25項，新增節約標準煤45萬噸以上，榮獲「2019年IMCA優秀會員單位」、「2019年節能服務產業品牌企業」及「2019年合同能源管理優秀示範項目」等榮譽。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The oil-saving ignition products of Longyuan Technology fuel continue to maintain its leading position in the industry, and the company is the only one in the industry with overseas plasma ignition performance. Longyuan Technology continues to carry out small-scale plasma ignition system design optimization, and constantly reduces systematic costs and enhances product competitiveness. At the same time, the company is accelerating the strategy of going global and continues to expand the market space of fuel-saving ignition business in East Asia and Southeast Asia. At present, Longyuan Technology's plasma ignition technology has been successfully applied to 863 sets of devices, with an installed capacity of 380 million kW, taking up 90% of global market, with cumulative fuel savings of more than 10 million tons.

Power station EPC

Longyuan Engineering is the power station EPC construction platform of the Group, which has 73 patents in the fields of biomass power generation, solar thermal power generation, cold-end optimization of thermal power units, waste heat utilization of thermal power plants, and high-sodium coal combustion, etc. It has the Power Engineering Construction General Contracting Grade I Qualification, Engineering Supervision Grade B Qualification, Bidding Agency Grade A Qualification, Engineering Consulting Grade C Qualification, and Technology and Product Import and Export Qualifications. As a national high-tech enterprise, it has passed the Three Standards (quality, environment, occupational health and safety) In One Management System Certification and the Nuclear Industry Quality Management System Certification, and has also passed the certification of Work Safety Standardization Grade I of China Electric Power Construction Association (CEPCA).

龍源技術節油點火產品依然持續保持行業領先地位，並且是行業內唯一擁有海外等離子體點火業績的企業。龍源技術持續進行小型化等離子體點火系統設計優化，不斷降低系統成本，提升產品競爭力。同時加快走出去戰略，持續拓展節油點火業務在東亞、東南亞等地的市場空間。目前，龍源技術的等離子點火技術已成功應用於863台設備，裝機容量達3.8億千瓦，全球市場佔有率超90%，累計節油超過千萬噸。

電站EPC

龍源工程是本集團電站EPC的建設平台，擁有生物質發電、光熱發電、火電機組冷端優化、火電廠餘熱利用、高鈉煤燃燒等領域專利73項，具備電力工程施工總承包一級資質、工程監理乙級資質、招標代理甲級資質、工程諮詢丙級資質、技術和產品進出口資格，是國家高新技術企業，通過了三標(質量、環境、職業健康安全)一體管理體系認證和核工業質量管理體系認證，取得了中國電力建設企業協會安全生產標準化一級達標認證。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



2.1.2 Segment of Renewable Energy Equipment Manufacturing and Services

WTG Products and Services

United Power has produced 625 wind turbines in the year (including 1 unit of 1.5 MW wind turbines, 609 units of 2 MW wind turbines, 15 units of 3 MW wind turbines, totaling 1,265.9 MW), marking significant contribution to the development of green renewable energy. United Power has accumulatively produced and sold 12,300 units of wind turbines, which was equal to 20,636 MW. Taking 2,000 hours as used annually, the carbon dioxide emissions of the company in the year were about 37,062,400 tons. United Power's wind power equipment manufacturer's new installed capacity ranking in the country has jumped to No. 2 since 2016. The wind turbine quality control system of United Power has passed the integrated certification of China Classification Society, and the operational maintenance subsidiary of United Power has passed the Global Consistency Standard – TUV Wind Power Service System Certification. The China Electricity Council announced that in 2018, a total of 57 wind farm applying United Power's fan products were awarded, accounting for 16.7% of all award-winning wind farm.

The Group's branch Chifeng Wind Power is the Group's wind-light power generation and operation enterprise. In 2019, the company's wind and photovoltaic power generation totaled 359,229,900 kwh, equivalent to 302,100 tons of carbon dioxide emission reduction, 71.84 tons of sulfur dioxide, 68.25 tons of nitrogen oxides, and 14.36 tons of particulate matter¹.

¹ Publicly available and up-to-date authoritative data: According to the Annual Development Report of the Chinese Electric Power Industry (2019) by CEC, in 2018, the power supply standard coal consumption of the thermal power plants of 6,000 kW and above around China was 307.6 g/kwh; and the emissions of carbon dioxide, particulate matter, sulfur dioxide and nitrogen oxides were 841 g/kwh, 0.04 g/kwh, 0.20 g/kwh and 0.19 g/kwh respectively.

2.1.2 可再生能源製造及服務分部

風機產品及服務業務

聯合動力全年生產風機625台(其中1.5兆瓦風機1台, 2兆瓦風機609台, 3兆瓦風機15台, 合計1,265.9兆瓦), 為發展綠色可再生能源做出了貢獻。聯合動力累計產銷風機1.23萬台, 合20,636兆瓦, 按年利用2,000小時考慮, 全年減排二氧化碳約3,706.24萬噸。聯合動力在風電設備製造商中新增裝機容量排名從2016年開始躍居全國第二, 其風機質量管控體系通過了中國船級社一體化認證, 運維子公司通過全球一致性標準TUV風電服務體系認證。中電聯公佈2018年共有57個風電場應用聯合動力風機產品獲獎, 佔全部獲獎風電場的16.7%。

本集團分公司赤峰風電是本集團風光發電運營企業, 2019年累計風力和光伏發電35,922.99萬千瓦時, 相當於減排二氧化碳30.21萬噸, 二氧化硫71.84噸, 氮氧化物68.25噸, 顆粒物14.36噸¹。

¹ 可公開獲取的最新權威數據: 中電聯中國電力行業年度發展報告(2019), 2018年全國6,000千瓦及以上火電廠供電標準煤耗307.6克/千瓦時, 二氧化碳、顆粒物、二氧化硫和氮氧化物排放量分別為841、0.04、0.20和0.19克/千瓦時。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

2.1.3 International Development

Based on the well-known brand effect, scientific project management and good quality reputation, the Group has sped up its entry into the international market. The plasma ignition devices of the company have entered the markets of South Korea, Russia, Indonesia, Turkey and Zimbabwe, etc. The wind turbine equipment of the company has entered the markets of the United States and South Africa. The company's seawater desulfurization business has entered the markets of Sri Lanka, Philippines, Cambodia, Turkey and Indonesian, etc., and environmentally friendly equipment entered the markets of Vietnam, Indonesia, Bangladesh and Pakistan, etc. Its automatic control systems and engineering services have entered the markets of India, Indonesia and Africa.

2.2 Reduce Resource Consumption Adhere to the Concept of Resource Saving

It is the significant responsibility of the Group to reduce the use of non-renewable resources and make rational and efficient use of them, to build a conservation-oriented enterprise and promote sustainable development. The Group adheres to the concepts of green development, strictly implements China's environmental protection laws and regulations, and adheres to the coordinated development between the company's interest and energy conservation & environmental protection. With "Energy Conservation, Consumption Reduction, Emission Reduction, Efficiency Increase" as the goal, the Group strengthens the scientific management and scientific utilization of energy and constantly improves the energy utilization rate, so as to make the Group a conservation-oriented and technology-based enterprise.

2.1.3 國際化發展

本集團憑藉着知名的品牌效應、科學的項目管理及良好的質量信譽加快向國際市場邁進的步伐。等離子體點火裝置進入韓國、俄羅斯、印尼、土耳其及津巴布韋等市場。風機設備進入美國及南非市場。海水脫硫進入斯里蘭卡、菲律賓、柬埔寨、土耳其及印尼等市場，環保設備進入越南、印尼、孟加拉及巴基斯坦等市場。自動化控制系統及工程服務進入印度、印尼及非洲市場。

2.2 減少資源消耗奉行節約理念

本集團將減少不可再生資源的使用和合理高效利用，建設節約型企業作為本集團對社會及環境的重要責任。本集團秉承綠色發展理念，嚴格遵照我國環境保護相關法律法規執行，堅持公司利益與節能環保協同發展，以「節能、降耗、減排、增效」為目標，加強能源的科學管理，科學利用，不斷提高能源利用率，使本集團成為節約型、科技型企業。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



As an advanced environmental protection service company, the Group, except for attaching great importance to energy conservation services in the Group's own business operation, also takes very seriously of resource saving in its production and operation processes, and strictly abides by the Environmental Protection Law of the People's Republic of China, the Water Law of the People's Republic of China, Energy Conservation Law of the People's Republic of China and other laws and regulations, requires all subsidiaries to use energy reasonably and effectively, to reduce costs, improve comprehensive benefits, and to formulate energy conservation management systems based on their own business characteristics. Under the call of the Group, United Power has formulated the "Energy Conservation and Consumption Reduction Management System", Chifeng Wind Power has formulated the "Resources and Energy Economical Use Management System", Longwei Power Generation Technology Service Co., Ltd., an affiliate of Longyuan Energy Conservation, has formulated the "Energy Conservation and Consumption Reduction Management Regulations", Longyuan Technology has formulated the "Energy and Resource Control Procedure", which cover management measures including energy saving, fuel saving and water saving. The Group also implemented energy conservation and consumption reduction management in accordance with the requirements of Health, Safety, and Environment Three-in-one Management System (the "**HSE Management System**"). By establishing and reinforcing the applicable rules and regulations, the Group has effectively stimulated saving actions, restrained waste, and continuously optimized the external and internal environment for the construction of a conservation-oriented enterprise, thus forming a long-term mechanism for resource conservation and ensuring continuous deepening of the construction of a conservation-oriented enterprise.

本集團作為先進的環保服務企業，除了在經營業務中提供節能服務外，在本集團自身的生產運營過程中也非常重視節約資源，嚴格遵守《中華人民共和國環境保護法》、《中華人民共和國水法》、《中華人民共和國節約能源法》等法律法規，要求各附屬公司合理、有效地利用能源，降低成本，提高綜合效益，並結合自身業務特點制定節能管理制度。在本集團的號召下，聯合動力制定了《節能降耗管理制度》，赤峰風電制訂了《資源及能源節約使用管理制度》，節能公司附屬公司北京龍威發電技術有限公司制定了《節能降耗管理規定》，龍源技術制定了《能資源控制程序》，內容涵蓋節電、節油、節水等管理措施。本集團還根據健康、安全、環境三位一體管理體系（「**HSE管理體系**」）要求實施節能降耗管理。本集團通過制定和執行有關制度，有效地激勵節約，遏止浪費，不斷優化建設節約型企業的外部 and 內部環境，從而形成節約資源的長效機制，保證節約型企業建設工作持續深入開展。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)

2.2.1 Energy Management

The Group's energy consumption in the production and operation processes mainly includes: electricity, gasoline, diesel and natural gas, etc. Power consumption mainly comes from the production processes of wind turbines, blades, desulfurization catalysts and other products; the debugging of large automation systems and other equipment; the running of project construction lighting system, motors and welding machines; the operation of the wind farm equipment and office power supply, etc. The gasoline consumption mainly comes from the use and maintenance of commercial vehicles and equipment inspection and repair vehicles. Diesel consumption mainly comes from the product transport vehicles for wind turbines, blades, desulfurization catalysts and so on, and from the running of power station diesel generators. Natural gas consumption mainly comes from the daily catering of the company dining hall.

2.2.1 能源管理

本集團在生產運營過程中消耗的能源主要包括：電、汽油、柴油和天然氣等。電耗主要來自於風機、葉片及脫硫催化劑等產品生產過程；大型自動化控制系統等設備調試；項目施工照明、電動機和電焊機運轉；風電場設備運行和辦公室用電等。汽油消耗主要來自於商務車和設備檢修車使用和維護。柴油消耗主要來自於風機、葉片及脫硫催化劑等產品運輸車輛和電場柴油發電機運轉。天然氣消耗主要來自於公司食堂日常餐飲使用。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Total power consumption (kwh) 總耗電量(千瓦時)	1,632,184,569.12	1,740,389,855.43	1,605,840,620.94
Total office area power consumption (kwh) 辦公室總耗電量(千瓦時)	8,071,269.62	7,669,114.43	9,195,821.45
Total productive process power consumption (kwh) 生產過程耗電(千瓦時)	1,624,113,299.50	1,732,720,741.00	1,596,644,799.49
Power consumption per MW product (kwh/MW) 每兆瓦產品耗電強度(千瓦時/兆瓦)	2,438.62	310.83	350.88
Assembly workshop power consumption (kwh) 整裝車間耗電量(千瓦時)	1,039,184.00	312,690.00	569,646.03
Installed capacity (MW) 兆瓦裝機量(兆瓦)	1,244.50	1,006.00	1,623.50
Power consumption per blade (kwh) ¹ 單支葉片耗電量(千瓦時) ¹	11,341.71	8,837.31	6,148.67
Blade workshop power consumption (kwh) 葉片車間耗電量(千瓦時)	9,050,688.00	8,059,623.00	9,192,261.85
Number of blades (pcs) 葉片支數(支)	798.00	912.00	1,495.00
Gasoline consumption (ton) 汽油消耗量(噸)	1,434.69	887.05	740.71



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Diesel consumption (<i>ton</i>) 柴油消耗量(噸)	48.42	189.69	256.84
Natural gas consumption (<i>normal m³</i>) 天然氣消耗量(標準立方)	162,307.00	431,379.00	364,310.07
Heating power outsourced for the office building of HQ ² (<i>GJ</i>) 本部辦公室外購熱力量(千兆焦耳) ²	20,885.61	4,532,396.28	7,711.20
Comprehensive energy consumption (<i>thousand kwh</i>) 綜合能源消耗量(千個千瓦時)	1,651,691.69	1,757,928.46	–
Comprehensive energy consumption intensity (<i>kwh/10,000 yuan of revenue</i>) 綜合能源消耗強度(千瓦時/萬元營收)	1,304.76	1,540.45	–
Total greenhouse gas emissions (<i>tCO₂e</i>) 溫室氣體總排放量(噸二氧化碳當量)	1,000,699.75	1,066,082.55	984,388.94
Direct greenhouse gas emissions (<i>tCO₂e</i>) ³ 直接溫室氣體排放量(噸二氧化碳當量) ³	4,903.95	4,270.15	3,891.08
Indirect greenhouse gas emissions (<i>tCO₂e</i>) ⁴ 間接溫室氣體排放量(噸二氧化碳當量) ⁴	995,795.81	1,061,812.40	980,497.86
Greenhouse gas emission intensity (<i>tCO₂e/10,000 yuan of revenue</i>) 溫室氣體排放強度(噸二氧化碳當量/萬元營收)	0.79	0.93	0.84



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

- ¹ In 2018, United Power replaced the heating equipment that burns natural gas in the blade workshop with electric heating equipment, therefore, the power consumption of the single blade increased.
- ² In 2019, the heat purchased for the production and administration of the company's headquarters building, Longyuan Technology, Lucency and Longyuan Environmental is included.
- ³ Basis of calculation: The gasoline, diesel and natural gas consumed by the Company.
- ⁴ Basis of calculation: The total power consumption of the Company and the outsourced heat.

Each affiliate to the Group, in order to strictly implement the energy management system, has established a relevant responsible department to manage energy and developed its energy management plan according to the concrete conditions.

In order to ensure the rational use of its resources and energy, Longyuan Energy Conservation has kept their indicators of consumption of resources and energy to a minimum and has formulated the Regulations for the Management of Energy Conservation and Consumption Reduction. It requires the whole company to carry out staff publicity and education, and to enhance staff awareness of economy through the posting of publicity boards, meetings, documents, board newspapers and other forms. At the same time, the company is required to select limited energy-saving lamps, and the office lamps shall be turned off and electric appliances shall be shut off when people leave the office, etc. Moreover, the company carries out the supervision and inspection on the energy conservation and consumption reduction every quarter, and implements rectification measures for the problems discovered.

- ¹ 2018年度，聯合動力將葉片車間燃燒天然氣的加熱設備更換成電力加熱設備，因此單支葉片耗電量有所增加。
- ² 2019年數據包含本公司本部大樓、龍源技術、朗新明、龍源環保生產及辦公所購熱力。
- ³ 計算依據：根據本公司消耗汽油，柴油，天然氣計算得出。
- ⁴ 計算依據：根據本公司總耗電量以及外購熱力計算得出。

為嚴格執行能源管理制度，各附屬公司均設立相關責任部門進行能源管理工作，並根據具體情況制定管理方案。

節能公司為保證公司資源、能源的合理使用，將資源、能源消耗指標控制到最低，制定有《節能降耗管理規定》。要求在全公司範圍內，開展員工宣傳教育，通過張貼宣傳牌、會議、文件、板報等形式提升員工節約意識。同時，要求公司有限選用節能照明燈具，辦公室照明燈做到人走隨手關燈，電器人走關機斷電斷閘等。同時，公司每季度對節能降耗情況進行監督檢查，並對發現的問題進行實施整改。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)



United Power has formulated the Energy and Resource Management Control Procedures to manage the use of energy and resources. To save power, the company uses air-source heat pumps for plant heating and sub-regional heating. Each area adjusts the working condition of the heating unit flexibly according to the production condition. The company has formulated specific operating procedures for air-source heat pump units. The bathing hot water system for the workshop staff is transformed from the original electric heating system to the solar energy and electric energy combined heating system. The paint spraying room connects the heating to raise the paint spraying environment temperature and saves the fuel consumption of the diesel heating system in the paint spraying room.

聯合動力制定有《能源與資源管理控制程序》來管理能源資源的使用。為節約用電，使用空氣源熱泵進行廠區供暖，分區域供暖，每區域根據生產情況靈活調節供暖機組的工況，制定了具體的空氣源熱泵機組操作規程；車間員工洗澡熱水系統由原有的電加熱系統改造成太陽能及電加熱混合系統；噴漆房接通暖氣提高噴漆環境溫度，節約噴漆房柴油加熱系統的油耗。

2.2.2 Water Resource Management

The water consumed by the Group and every affiliate thereto is mainly the production water for technological process, equipment cleaning, etc., domestic water for catering, toilets bathroom, etc., and water for lawns and fire control, etc. The Group has not identified significant risks of water shortages in terms of seeking suitable sources of water.

2.2.2 水資源管理

本集團及各附屬公司主要耗水產生在工藝及清洗設備等生產用水，餐飲、廁所及澡堂等生活用水及澆灌草坪和消防用水等。在求取適用水源方面，本集團尚未發現水資源短缺的重大風險。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Total water consumption (m^3) 總耗水量(立方米)	24,246,352.56	28,879,789.01	26,400,357.18
Industrial water consumption (m^3) 工業耗水量(立方米)	23,850,553.00	28,781,078.01	26,258,165.62
Office area water consumption (m^3) 辦公區耗水量(立方米)	212,275.52	98,711.00	142,191.56
Headquarter building water consumption (m^3) 本部辦公樓耗水量(立方米)	42,773.00	40,691.00	39,809.00
Office area water consumption per capita ($m^3/person$) 辦公區人均耗水量(立方米/人)	19.44	20.35	23.98
Number of employees (<i>person</i>) 員工人數(人)	2,200.00	2,000.00	1,660.00
Domestic sewage discharge (m^3)* 生活污水排放量(立方米)*	3,039,732.40	67,345.70	68,391.00

* In 2019, Lucency and Jiangsu Longyuan Catalyst Co., Ltd. was included in the domestic sewage discharge scope for the first time, thus the data was increased.

* 2019年度，生活污水排放量首次將朗新明及江蘇龍源催化劑有限公司納入統計範疇，因此排放量有較大幅度增加。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

According to the requirements of the water resource management system of the Group, the Group Office is responsible for the water resource management of the Group and its duties are as follows: to implement the national laws and regulations on water resource management; to formulate the water resource management system of the Group; to implement responsibilities and supervise the implementation; to work out the water resource management plan and annual plan in conjunction with the relevant departments; to establish and improve water resource metering facilities, management account books; to promote water-saving measures; to promote the application of new water-saving technologies and new technological processes.

In terms of water conservation, the Group mainly takes the following measures: to raise employees' awareness of water conservation through training and publicity; to improve wastewater recycling rate; to strengthen routine maintenance and management of water equipment, repair damaged water supply facilities in time, and regularly check and replace water supply devices such as faucets and pipeline valves and flashing valves. The water flushing and cleaning water of the office building of the Group's headquarters are reclaimed water purchased from the park, which has saved municipal water resources.

根據本公司水資源管理制度的要求，本集團辦公室負責本集團水資源管理工作，其職責包括：執行國家有關水資源管理的法律、法規，制定本集團水資源管理制度，落實責任並監督執行；會同有關部門編製水資源管理規劃和年度計劃；建立和完善水資源計量設施、管理台帳，推行節水措施，推廣應用節水新技術及新工藝等。

在節約用水方面，本集團的主要措施包括：培訓及宣傳提高員工節約用水意識；提高廢水的回收利用率；加強用水設備的日常維護和管理，及時維修損壞的供水設施，定期檢查更換水龍頭、管道閥門及衝水閥等供水器具。本集團總部辦公樓廁所衝水和保潔用水均採購園區中水，節約了市政水資源。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)



2.2.3 Use of Packaging Materials

The packaging waste produced during the operation of the Group includes woven fabric, carton, plastic film, fixed steel supporting structure, wooden box, batten, ceramic fiber product and winding film, etc.

2.2.3 包裝物使用

本集團運營過程中產生的包裝廢棄物包括：編織物、紙箱、塑料薄膜、固定支撐鋼結構、木箱、木方、陶瓷纖維製品及纏繞膜等。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Total weight of packaging materials (ton) 包裝物總重量(噸)	6,515.52	503.80	598.72
Plastic (ton)* 塑料(噸)*	3,067.62	11.40	19.23
Fabric (ton) 織物(噸)	7.10	2.70	2.66
Fixed steel supporting structure (ton) 固定支撐鋼結構(噸)	7.48	3.00	9.66
Wooden box (ton)* 木箱(噸)*	3,390.10	463.38	485.11
Carton (ton) 紙箱(噸)	40.22	22.70	81.76
Others (ton) 其他(噸)	3.00	0.62	0.30
Consumption intensity of packaging (kg/10,000 yuan of revenue) 耗用包裝物密度(千克/萬元營收)	5.15	0.44	—

* In 2019, Jiangsu Longyuan Catalyst Co., Ltd. was included in the packaging materials scope for the first time, thus the data was increased.

* 2019年度，包裝物使用量首次將江蘇龍源催化劑有限公司納入統計範疇，因此使用量有較大幅度增加。

Every affiliate to the Group, in respect of the management of packaging materials, has established relevant management rules and regulations. For example, United Power has developed the Regulations Governing Packaging Materials, Longyuan Electrical has developed the Regulations Governing the Use of Packages, etc., covering procurement management, goods warehousing acceptance, storage and keeping, material requisition and replacement of old production consumables with the new ones. A number of subsidiaries of the Group cooperated with packaging companies that are responsible for the management of packaging materials.

本集團各附屬公司針對包裝材料的管理，制定了相關管理制度，如聯合動力制定的《包裝材料管理制度》，龍源電氣制定的《包裝使用管理制度》等，內容包括採購管理、物品入庫驗收、倉庫保管、物料領用及生產耗材的以舊換新等制度。本集團多家附屬公司與包裝公司合作，並由包裝公司負責包裝材料的管理。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In order to save the use of packaging materials and reduce the amount of packaging waste generated, the Group's subsidiaries have adopted a series of management measures, which can be divided into procurement and use:

- In terms of procurement, the subsidiaries strictly follow the national and industrial regulations such as "Frame Wooden Box" (GB/T7284-1998), "Single and Double Corrugated Boxes for Transport Packages" (GB/T6543-2008), and purchase packaging materials that meet the requirements and are less harmful to the environment.
- In terms of the use of packaging materials, the company uses the original packaging for the packaging of some products whose volume has not changed, changes some models from independent packaging to integrated packaging, which reduces the amount of packaging materials. Under the premise of meeting the requirements of packaging strength, the packaging size and materials of all products of the company are used in the minimum amount. Through the optimization of packaging process, the company reduces the amount of packaging materials. At the same time, the company also picked out the recyclable packaging boxes for the delivery of spare parts, and returned some of the relatively intact packaging materials to the manufacturers for reuse. For example, for the packaging materials management, when delivering goods, United Power requires the using section of each branch other than the warehousing and logistics department to unpack the goods. The used packaging materials will be uniformly transported to the fixed storage area of the site, and then recycler will recycle all kinds of packaging materials as required by the company. In addition, the company requires recycling the whole machine gear boxes and motor packing boxes for the packaging of distribution cabinets.

為節約包裝材料的使用和減少包裝廢棄物的產生量，本集團各附屬公司採取了一系列管理措施，具體可分為採購和使用兩方面：

- 在採購方面，附屬公司嚴格按照《框架木箱》(GB/T7284-1998)、《運輸包裝用單瓦楞紙箱和雙瓦楞紙箱》(GB/T6543-2008)等國家、行業相關規定，採購符合要求且對環境危害小的包裝材料。
- 在包裝材料的使用方面，公司對於部分體積未發生改變的產品使用原包裝箱進行包裝，部分機型產品由獨立包裝改為一體式包裝，降低了包裝材料用量；在滿足包裝強度要求的前提下，對所有產品的包裝尺寸、用料都採用了最小的用量；通過包裝工藝的優化，減少包裝材料用量。同時公司還將可循環利用的包裝箱篩選出來，用於備件的發貨，將部分較完好的包裝材料，返還給廠家以重複利用等。以聯合動力為例，針對包裝材料管理，聯合動力要求倉儲物流部發貨時不拆包裝，由分廠各使用工段拆除，產生的包裝物統一倒運至廠區內固定存放區域，回收商按公司要求進行回收各類包裝物。此外，要求對整機齒箱、電機包裝箱進行回收利用，用於配電櫃包裝。



2.3 Reduce Pollution Emissions, Implement Scientific Management

The Group strictly abode by the Environmental Protection Law of the People's Republic of China, the Law on the Prevention and Control of Environmental Pollution by Solid Wastes of the People's Republic of China, the Air Pollution Prevention and Control Law of the People's Republic of China, guided by the 13th Five-Year Plan for Ecological Environment Protection and the 13th Five-Year Plan for Energy Conservation and Emission Reduction, the Group strove to reduce the impact of various kinds of waste on the environment, strictly regulated waste emission management, and reasonably carried out recycling and utilization and safe disposal of waste with the ultimate goal of reducing waste emission. In 2019, there were no environmental violations that had a significant impact on the Group.

2.3 降低污染排放施行科學管理

本集團嚴格遵守《中華人民共和國環境保護法》、《中華人民共和國固體廢物污染環境防治法》、《中華人民共和國大氣污染防治法》等法規，以國家《「十三五」生態環境保護規劃》及《「十三五」節能減排綜合工作方案》為指導，高度重視各類廢棄物對環境的影響，嚴格規範廢棄物的排放管理，以減少廢棄物排放為最終目標，合理開展廢物回收利用和安全處置工作，2019年，未發生對本集團有重大影響的環境違規事件。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)

2.3.1 Hazardous Waste Management

The main hazardous waste produced in the production and operation of the Group includes waste lubricant, grease, hydraulic oil, organic solvent etc., and office generated waste toner, ink cartridge and scrapped office electronics, etc.

2.3.1 有害廢棄物管理

本集團在生產運營中產生的主要有害廢棄物包括：廢潤滑油、潤滑脂、液壓油、有機溶劑等及辦公產生的廢硒鼓、墨盒、報廢的辦公電子產品等。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Total weight of hazardous waste (ton) 有害廢棄物產生總重量(噸)	89.66	75.10	19.73
Waste lubricant (ton) 廢潤滑油(噸)	1.48	8.14	0.30
Grease (ton) 潤滑脂(噸)	0.66	0.92	0.18
Hydraulic oil, etc. (ton) 液壓油等(噸)	0.26	5.41	0.75
HW06 organic solvent waste (ton) HW06有機溶劑廢物(噸)	0.00	4.81	8.53
HW13 organic resin waste (ton) HW13有機樹脂類廢物(噸)	12.58	4.85	7.18
Collected hazardous dust 收集含有害廢物粉塵(噸)	16.41	–	–
Other hazardous waste* (ton) 其他有害廢棄物*(噸)	58.27	50.97	2.79
Hazardous waste generation intensity (tons/10,000 yuan of revenue) 有害廢棄物產生強度(噸/萬元營收)	0.07	0.07	0.02

* Waste cutting fluid, HW12 waste paint thinner, paint slag, HW13 uncured one-component mold clamping glue, HW49 waste paint bucket, waste activated carbon filter cotton, waste chemical packaging, etc.

* 廢切削液、HW12廢棄油漆稀釋劑、漆渣、HW13未固化單組份合模膠、HW49廢油漆桶、廢棄活性炭濾棉、廢化學品包裝物等。

For hazardous wastes, the Group's subsidiaries have established relevant management systems and methods, and the relevant departments of each affiliate are responsible for the specific management of waste. In future, the Group will also strengthen the management of hazardous waste minimization.

針對有害廢棄物，本集團各附屬公司建立相關的管理制度和辦法，並由各附屬公司相關部門負責廢棄物的具體管理。未來，本集團還將加強對有害廢棄物減量化管理。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The main hazardous waste produced in the production and operation of Longyuan Engineering includes office generated waste toner, ink cartridge and scrapped office electronics, etc. For the above hazardous wastes, Longyuan Engineering has strictly implemented relevant regulations and established relevant management systems and measures, such as the Measures for Waste Control and Management, and the general manager's work department is responsible for the specific management of waste. For waste selenium drum, ink cartridge, scrap office electronic products and other wastes, Longyuan Engineering designates a specific department for the unified and centralized collection and disposal of such wastes. Dedicated personnel are appointed to take charge of the collection of waste selenium drum, ink cartridges, and scrap office electronic products. A separate storage is provided in a fixed place; records are properly made; wastes are clearly marked and classified in order to strictly prevent hazardous waste from direct discharge into water or soil at will. In respect of the centralized disposal of hazardous waste, Longyuan Engineering will appoint a qualified disposal unit for the centralized disposal; and the office waste toner cartridge would be reclaimed, reused or disposed by the seller. Waste computers, displays, etc., are collectively disposed by a qualified professional unit as per the applicable regulations.

龍源工程在生產運營中產生的主要有害廢棄物包括：辦公產生的廢硒鼓、墨盒、報廢的辦公電子產品等。針對以上有害廢棄物，龍源工程嚴格執行有關規定，建立相關的管理制度和辦法，如《廢棄物管理控制辦法》，並由總經理工作部統籌負責廢棄物的具體管理。龍源工程針對廢硒鼓、墨盒、報廢的辦公電子產品等廢棄物均由指定部門統一集中收集和集中處置，專人負責收集廢硒鼓、墨盒、報廢的辦公電子產品，在固定場所分類存放並做好記錄，清晰的標識和分類標識，嚴防有害廢棄物不經收集隨意排入水體或土壤。對於有害廢棄物集中處置，龍源工程由專門有資質的處置單位進行集中處置；辦公廢棄物硒鼓由銷售單位進行回收再利用或處置。針對廢計算機、顯示器等，按照有關規定，由有資質的專業單位進行集中處置。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

United Power has formulated the Procedures for Environmental Protection and Management and the Measures for the Disposal and Management of Hazardous Wastes, clarifying the environmental protection responsibilities of the production, safety and environmental protection departments and other departments. In 2019, in order to fully strengthen environmental management and meet environmental protection policy requirements, United Power took a number of measures as follows:

- Communicated fully with the local environmental protection authorities to understand and master the local environmental protection policy trends and context in a timely manner.
 - Improved the solid waste supervision platform, formulated the hazardous waste management plan for 2019, and declared the amount of hazardous waste monthly.
 - Reconstructed the hazardous waste storage sites and took the measures such as enclosure, leakage prevention tank, leakage pit and so on.
 - Entrusted a third party company in time to dispose of and transfer hazardous waste to ensure that it will not cause environmental pollution accidents. In 2019, the total of hazardous waste transferred was about 161.36 tons.
 - In the future, blades will be rolled with water-based paint to reduce the production of hazardous waste in a large quantity.
- 聯合動力制定《環境保護管理程序》、《危險廢棄物處置管理辦法》，明確生產部門、安全環保部門及其他部門的環保職責。同時，2019年為充分加強環境管理，應對環保政策要求，聯合動力開展多項舉措：
- 與當地環保局充分溝通，及時了解及掌握當地環保的政策傾向及趨勢。
 - 完善固體廢物監管平台，制定2019年有害廢物管理計劃，每月申報有害廢物產生量。
 - 對有害廢物儲存場所進行改造，增加圍擋、防泄漏槽、泄漏坑等措施。
 - 對產生的有害廢棄物及時委託第三方公司進行處置及轉運，確保不會造成環境污染事故。2019年度，累計轉移有害廢棄物161.36噸左右。
 - 後續葉片使用水性漆輥塗作業，將大批量減少有害廢物的產生。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED)

環境、社會及管治報告(續)



2.3.2 Non-hazardous Waste Management

The non-hazardous waste produced in the operation of the Group includes domestic waste, sludge produced in the production process of sewage treatment plants, steel scrap and iron chip produced by mechanical processing, packaging waste and industrial sewage pollutant from the production of catalysts.

2.3.2 無害廢棄物管理

本集團在運行過程中產生的無害廢棄物包括：生活垃圾、污水處理廠生產過程中產生的污泥、鋼材下腳料和機械加工產生的鐵屑、包裝廢棄物及催化劑生產的工業污水污染物。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 2017年度
Total weight of non-hazardous waste (ton) 無害廢棄物產生總重量(噸)	238,760.63	217,213.58	212,001.93
Sludge from domestic sewage treatment plants (ton) 生活污水處理廠產生污泥(噸)	237,000.10	217,000.00	212,000.00
Industrial sewage pollutant COD (ton) 工業廢水污染物COD(噸)	0.77	4.39	1.79
Industrial sewage pollutant ammonia nitrogen (ton) 工業廢水污染物氨氮(噸)	0.05	0.30	0.14
Dust collected (ton) 收集粉塵(噸)	139.80	3.12	–
Scraps cut (ton) 切割邊角料(噸)	1,282.70	47.15	–
Domestic garbage (ton) 生活垃圾(噸)	260.80	155.30	–
Paper (ton) 紙張(噸)	4.90	2.62	–
Non-hazardous waste generation intensity (ton/10,000 yuan of revenue) 無害廢棄物產生強度(噸/萬元營收)	0.19	0.19	0.18



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The non-hazardous waste produced by Longyuan Engineering in the process of production and operation includes: office waste, construction waste; among them, construction waste includes: steel scrap, and iron chips packaging produced by processing and so on. Longyuan Engineering has strictly implemented the relevant provisions on the disposal of non-hazardous waste, classified office waste and construction waste, divided them into recyclable and non-recyclable waste, and classified and collected them, and finally transferred them to a cleaning company for further disposal. In order to reduce the amount of office waste such as paper, the Company advocates that the employees should use paper on both sides and also advocates paperless office operation. With regard to construction waste generated by construction projects, each project has set up a designated area for the storage of construction waste, appointed special persons to manage it, and regularly handed it over to the local unit with the qualification of recycling and disposal for recycling and reuse.

The non-hazardous waste produced in the operation of Longyuan Technology mainly includes waste packaging materials and plastics. Longyuan Technology effectively controls the disposal of non-hazardous waste through the Solid Waste Control Procedures, and each waste generating department is responsible for sorting, collecting and transferring the waste generated during work to the storage place. The general manager's work department is responsible for managing non-hazardous waste and handing it over to the qualified processor for disposal. As of the end of 2019, Longyuan Technology has not had any non-compliance event.

In future, the Group will further strengthen the management of solid waste, take measures to reduce the generation of waste from the root causes, and improve the recycling of wastes that can be recycled and reused, so as to reduce the number of waste and their impact on the environment as much as possible.

龍源工程在生產運營過程中產生的無害廢棄物包括：辦公垃圾，施工建築垃圾；其中施工建築垃圾有：鋼材下腳料和加工產生的鐵屑、包裝等。龍源工程嚴格執行有關無害廢棄物處置規定，對辦公垃圾和施工建築垃圾無害廢棄物進行分類，分為可回收、不可回收垃圾，並分類收集交由保潔公司處理。辦公垃圾中如紙張等，為了減少這部分垃圾的產生量，本公司提倡員工雙面用紙，倡導無紙化辦公。關於工程建設項目產生的建築垃圾，各項目均設置建築垃圾存放指定區域，設專人管理，定期交由當地具有回收處置資質的單位進行回收再利用。

龍源技術運營過程中產生的無害廢棄物主要有廢包裝物、塑料等。龍源技術通過《固體廢棄物控制程序》對無害廢棄物的處置進行有效管控，各廢棄物產生部門負責對本部門工作過程中產生的廢棄物進行分類、收集，並送往貯存場所。總經理工作部負責對無害廢棄物進行管理，並交有資格的處理商處理。截止2019年底龍源技術未出現過不合规的事件。

未來本集團仍將進一步加強固體廢棄物的管理，從根源上採取措施減少廢棄物的產生，對於可回收再利用的廢棄物，加大循環再利用的程度，以此來更大程度的減少廢棄物的數量及對環境造成的影響。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



2.3.3 Exhaust Gas Management

The Group will generate a small amount of waste gas during its operation, including: sulfur dioxide, nitrogen oxides and particulate matter, which is mainly from the gasoline and diesel burned by the company's official vehicles, as well as emissions from part of the production processes.

2.3.3 廢氣管理

本集團在運營過程中會產生少量的廢氣，包括：二氧化硫、氮氧化物和顆粒物，這主要是來自於公司公務用車燃燒汽油和柴油，部分生產過程中排放的廢氣。

Performance Indicators 績效指標	Year 2019 2019年度	Year 2018 2018年度	Year 2017 ¹ 2017年度 ¹
Sulfur dioxide emissions (ton) 二氧化硫排放量(噸)	0.12	0.39	0.02
Nitrogen oxides emissions (ton) 氮氧化物排放量(噸)	23.00	5.54 ²	1.94
Particulate matters emissions (ton) 顆粒物排放量(噸)	3.97	2.61	5.36

¹ The number of kilometres of vehicles travel could not be calculated for the year. Therefore, the amount of emission arising from the travel of vehicles are not included.

² Not including emission arising from using joint motor vehicles.

¹ 本年度無法統計車輛行駛公里數，因此不包含有機動車行駛導致的廢氣排放量。

² 未包含聯合動力車輛使用導致的廢氣排放。

The Group generates little waste gas during its operation which has limited impact on the environment. In 2019, in order to reduce its exhaust gas emissions, some plants of United Power used air-source heat pump for heating, which produces no exhaust gas and nitrogen oxides. In view of the organized exhaust gas produced in the production process of engine room hood, it was discharged up to standard after dry dust removal and activated carbon adsorption by plasma purifier and photocatalytic purifier. Non-methane total hydrocarbons, nitrogen oxides and particulate matter were detected by qualified third-party environmental inspection agencies in the production plant area, and the emissions decreased year on year, and the emission of exhaust gas was all up to standard.

本集團在運營過程中所產生的廢氣較少，對環境影響較小。聯合動力為了降低公司廢氣排放，2019年部分廠區使用空氣源熱泵進行供暖，不產生廢氣及氮氧化物。針對機艙罩生產過程當中產生的有組織廢氣，經過等離子淨化器結合光氧催化淨化器，經乾式除塵和活性炭吸附後達標排放。由有資質的第三方環境檢測機構對生產廠區非甲烷總烴、氮氧化物、顆粒物進行了檢測，排放量同比下降，廢氣排放全部達標。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

2.4 Focus on Ecology and Pursue Sustainable Development

The Group integrates the environmental protection idea of harmonious symbiosis with nature into every stage of production and management and strives to develop business without burdening the ecological environment.

2.4.1 Wind Power Generation

The United Power Kangbao Zhongyi Phase I Wind Farm is located in Zhongyi Township, Kangbao County, Hebei Province, which is rich in wind resources. The power station is mainly equipped with twenty-three 2,000 kW and one 4,500 kW capacity wind turbines, and a new 220 kV booster station has been built, which has a main transformer capacity of 100 MVA. During the construction period of the project, the company pays attention to the impact of various types of emissions mentioned above on the local environment, and also keeps a watchful eye on the impact of noise and soil erosion on the ecological environment. The company has taken effective preventive measures to avoid and reduce these adverse effects. The company has hired a professional third-party organization to conduct detailed environmental impact assessments for the project from the aspects of engineering analysis, environmental impact analysis, environmental protection measures, major pollutant generation and emissions, etc.

2.4 關注生態健康推動持續發展

本集團將與自然和諧共生的環保理念融入到生產經營的各個階段，力求在業務發展的同時不為生態環境帶來負擔。

2.4.1 風力發電

聯合動力康保忠義一期風電場位於河北省康保縣忠義鄉，該地區風力資源豐富，電場中主要安裝23台2,000千瓦、1台4,500千瓦容量風力發電機組，並新建1座220千伏升壓站，主變容量為100兆伏安。在該項目在施工期間，公司除了關注前文所述的各類排放物對周圍局部環境的影響，同時也非常關注噪聲、水土流失等對生態環境影響。公司採取了有效的防治措施，以避免並減少這些不利影響。公司聘請了專業的第三方機構，為該項目從工程分析、環境影響分析、環境保護措施、主要污染物產生及排放情況等方面進行了詳細環境影響評價。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



In addition to dust, wastewater discharge, and solid waste discharge, the company has monitored the noise impact and ecological maintenance or adopted relevant management measures therefor:

In terms of noise, after attenuation of the noise generated during the construction, the noise level of the construction machinery outside the range of 20 meters stays within the daytime noise limit specified in the Environmental Noise Emission Standard for Construction Site Boundary (GB12523-2011), and that outside 90 meters within night noise limit. The silent environmental protection target within 200 meters of the construction site and the noise impact characteristics of the project are both short-term and temporary, and the construction noise will end as the construction activity ends. The main noise source during the operation period of the power station is the noise generated by the operation of the booster station and the rotation of the wind turbines, which can reach the Class 1 Standard requirements of the "Environmental Noise Emission Standard for Industrial Enterprises Boundary" (GB12348-2008) after the effective control through the adoption of low-noise equipment, having less impact on the surrounding acoustic environment.

In terms of ecological maintenance, the impact of the project construction period and operation period on the ecological environment is mainly reflected in the destruction of vegetation and soil erosion, and so on. By rationally planning the construction site operations and formulating post-construction ecological restoration programs, the company can reduce its disturbance to local vegetation, water, soil and birds, and has limited impact on the natural ecology. At the same time, the amount of pollutants generated during the operation is small, and all pollutants can meet the discharge standard after adopting corresponding treatment measures. The project has achieved energy conservation and consumption reduction, and reduced the impact of pollutant emissions on the surrounding environment.

除揚塵、廢水排放、固體廢棄物排放方面，公司還針對噪聲影響和生態維護方面進行了監測或採取了相關管理措施：

噪聲方面，施工階段產生的噪聲經衰減後，施工機械作業噪聲在20米範圍外噪聲值可以達到《建築施工場界環境噪聲排放標準》(GB12523-2011)規定的晝間噪聲限值，90米範圍外可以達到夜間噪聲限值。該項目施工現場200米範圍內無聲環境保護目標，噪聲影響特點為短期性、暫時性，施工活動結束，施工噪聲也就隨之結束。電場運營期主要噪聲源為升壓站運行過程及風機風輪旋轉產生的噪聲，在採取低噪聲設備等有效控制後能達到《工業企業廠界環境噪聲排放標準》(GB12348-2008)中的1類標準的要求，對周圍聲環境影響較小。

生態維護方面，項目施工期、運行期對生態環境的影響主要表現在破壞植被、水土流失等。公司通過合理規劃施工現場作業以及制定施工後生態修復方案等方式，能夠減低對當地植被、水土、鳥類的干擾，對自然生態的影響較小。同時，運營期間污染物產生量較少，各污染物經採取相應治理措施後均能達標排放，項目做到了節能降耗、減少污染物排放對周圍環境的影響。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

2.4.2 Biogas Power Generation

The comprehensive utilization of livestock and poultry waste fermentation for biogas power generation is a new type of circular economy project for waste reclamation + environmental protection + clean energy production.

Dezhou Suihe Biotechnology Co. Ltd., an affiliate of Longyuan Environmental, relies on Vision Animal Husbandry Ranch in Lunzhen Town, Yucheng City for dairy manure treatment and biogas power generation. The project adopts medium temperature anaerobic fermentation technology to produce clean biogas energy. Biogas is used for power generation, biogas residue is used to produce bedding, and biogas slurry is reused in farmland. The virtuous cycle mode of complementary eco-agriculture is adopted to promote high-efficiency conversion of material and energy, improve resource utilization, and produce energy and promote planting industry, so as to realize the sustainable circular development of modern agriculture.

Since the project was successfully connected to the grid in September 2019. As of 31 December 2019, the total on-grid energy has been 2,160,510 kwh, 1,236.936 tons bog slags have been sold and 1,807 tons waste water has been treated.

2.4.2 沼氣發電

畜禽廢棄物綜合利用發酵產生沼氣後發電，屬於廢物資源化利用+環保+清潔能源生產的新型循環經濟項目。

龍源環保附屬公司德州燧禾生物科技有限公司依託禹城倫鎮視界牧業牧場進行奶牛糞污處理及沼氣發電。該項目採用中溫厭氧發酵技術，生產清潔能源沼氣。沼氣用於發電，沼渣用於生產墊料，沼液回用於農田，採用互補型生態農業良性循環模式，促進物質高效轉化和能源高效循環，提高資源利用率，並使其上產能源、下促種植業，實現現代農業可持續循環發展。

該項目於2019年9月成功發電並網以來，截止2019年12月31日上網電量合計216.051萬千瓦時，沼渣銷售1,236.936噸，處理廢水1,807噸。

3 PEOPLE-ORIENTED, COMMON GROWTH

3.1 Legitimate Employment and Welfare Protection

Overview

In accordance with the applicable laws and regulations and its internal regulations, the Group has established more than 40 clear and transparent human resource rules and regulations, including the Interim Provisions on Labor Employment Management, the Interim Measures Governing Total Salary, the Interim Measures Governing the Remuneration of Headquarters and the Measures Governing the Education and Training of the Employees of the Headquarters.

In 2019, the Group had no violations in terms of employee employment, remuneration, working hours, equal opportunities, anti-discrimination and other benefits, etc.

3 以人為本共同成長

3.1 依法僱傭及福利保障

基本情況

依據相關法律法規及內部規定，本集團建立了清晰透明的人力資源制度，包括《勞動用工管理暫行規定》、《工資總額管理暫行辦法》、《本部薪酬管理暫行辦法》、《本部員工教育培訓管理辦法》等40餘項。

2019年，本集團在員工僱傭、薪酬待遇、工作時間、平等機會、反歧視及其他待遇福利等方面未發生違規事項。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



Employment according to Law

In terms of employment, the Group insists on the principle of employment according to law. In accordance with the Labor Law of the People's Republic of China, the Labor Contract Law of the People's Republic of China and other applicable laws and regulations, the Group has strictly managed employment, and has established and implemented such rules and regulations as the Measures Governing Employment and Appointment (Tentative), etc., so as to practically protect the legal rights and interests of the employees.

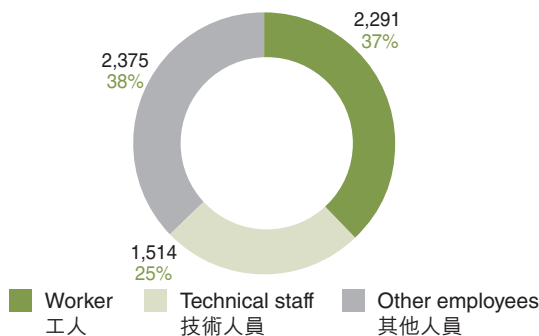
In 2019, the workforce of the Group totaled 6,180, including 2,291 workers, 1,514 technicians and 2,375 other staff; in which 4,404 were male employees, accounting for 71%, and 1,776 female employees, accounting for 29%; among the management, women accounted for 22%, which is similar to the staff ratio; 3,170 employees aged 35 and below, accounting for 51% of the total number of employees, 1,879 employees aged 36–45, accounting for 31%, and 942 employees aged 46–55, accounting for 15%, 189 employees are over the age of 55, accounting for 3%; except for one employee working in the Hong Kong office, the remaining 6,179 employees are all working in mainland China.

依法僱傭

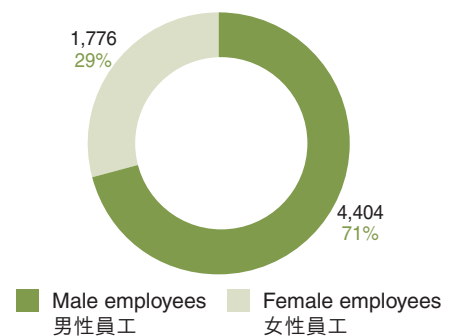
本集團在員工僱傭方面堅持依法僱傭的原則，按照《中華人民共和國勞動法》及《中華人民共和國勞動合同法》等相關法律法規的要求，施行嚴格的僱傭管理，制訂並實施《用人用工管理辦法(試行)》等條例，切實保障員工的合法權益。

2019年本集團全體員工人數為6,180人，工人2,291人，技術人員1,514人，其他人員2,375人；男性員工4,404人，佔71%，女性員工1,776人，佔29%；管理層中，女性佔22%，與員工比例相近；35歲及以下員工3,170人，佔員工總數的51%，36–45歲員工1,879人，佔31%，46–55歲員工942人，佔15%，55歲以上員工189人，佔3%；除1位員工在中國香港辦公室外，其餘6,179名員工均在中國大陸。

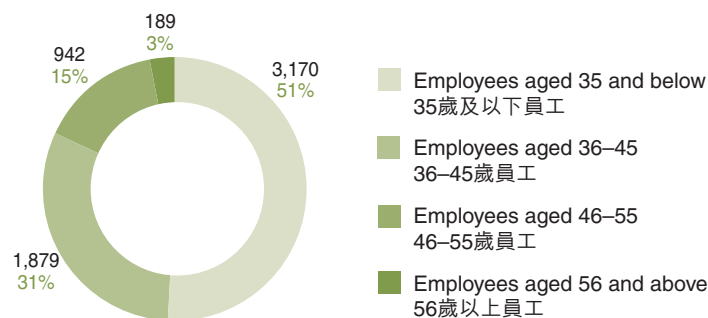
Number and proportion of employees by employment type
按僱傭類型劃分的員工人數及比例



Number and proportion of employees by gender
按性別劃分的員工人數及比例



Number and proportion of employees by age group
按年齡組別劃分的員工人數及比例





ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

The total number of employees who resigned voluntarily in 2019 was 384, all of whom were mainland Chinese employees. The total staff turnover rate was 5.69%. Among them, the male employees account for 72%, female employees account for 28%; employees aged 35 and below account for 62%, employees aged 36–45 account for 23%, employees aged 46–55 account for 8%, and employees aged 55 and above account for 7%. The staff turnover rate is within a reasonable range.

In terms of avoiding child workers and forced workers, the Group perfects staff employment system and eliminates entirely illegal employment according to the applicable national rules and regulations, for example, it checks the identity information of staff according to the national Regulations Forbidding the Use of Child Workers, effectively avoiding child workers; the Employment Contract entered into with staff sets forth “Fixed-time work system is implemented; the average weekly working hours shall not be more than 40 and the daily working hours shall not be more than 8 hours”, effectively protecting the legal rights and interests of the staff and avoiding the phenomenon of forced work. At the same time, the Group advocates equal employment policy and provides equal employment opportunities and labor security for employees of different nationalities, races, genders, religious beliefs and cultural backgrounds.

In 2019, the Group had no labor disputes caused by illegal use of labor, nor cases of child labor or forced labor.

2019年，因主動辭職而流失的的員工共計384人，均為中國大陸員工，員工總流失率為5.69%。其中男性員工佔72%，女性員工佔28%；35歲及以下員工佔62%，36-45歲員工佔23%，46-55歲員工佔8%，55歲及以上員工佔7%。員工流失率在合理範圍內。

在防止僱傭童工和強制勞工方面，本集團依據國家相關規定，完善用工制度，從源頭上消除違規隱患：嚴格按照國家《禁止使用童工規定》的要求，核定員工身份信息，有效地避免了童工問題；在與員工簽訂的《勞動合同書》中，約定實施定時工作制，即平均每周工作不超過四十小時，每天工作不超過八小時，有效地保障了員工合法權益，避免出現強制勞動現象。同時，本集團倡導平等用工政策，為不同國籍、種族、性別、宗教信仰和文化背景的員工提供平等的就業機會和勞動保障。

2019年，本集團未發生因違法違規引起的勞動糾紛，亦未發生僱傭童工或強制勞工情況。



Remuneration Management

The Group has established and perfected the income distribution management system orienting market value and based on performance evaluation. In 2019, based on the actual situation, the Group revised four rules and regulations, i.e. the Interim Measures Governing Total Salary, the Interim Measures for the Management of Rewards and Incentives, the Interim Measures for the Management of Assessments of the HD Departments, and the Measures for the Comprehensive Assessment and Evaluation of Leaders and Officers.

The remuneration management of the Group adheres to four principles, namely:

- Highlight benefit orientation and encourage downsizing for efficiency;
- Strictly control the per-capita wage increase;
- Strengthen the incentives for core employees and frontline and allow reasonable income gap; and
- Strengthen the support to the pilot enterprises for market-oriented reform.

Every affiliate of the Group has established its own management measures according to the above principles and then formulated corresponding management measures for each company and reported them to the Company for filing according to the regulations and rules of the Head Office.

Welfare System

The Group has established various systems in respect of social insurance, housing fund, enterprise annuity and supplementary medical insurance in strict accordance with the applicable policies and regulations of the State and local governments to ensure employees to be treated equally in terms of endowment, medical treatment, and work-related injury, unemployment and birth and other aspects in accordance with the law. In 2019, the Group has not occurred social security violations and defaults of payment.

In accordance with the “Provisions of the State Council on Home Visit Subsidies”, the Group has pushed forward the “Interim Measures of the Head Office Governing Staff Attendance and Leave”, implemented a paid annual leave system, appropriately solved the problem of visiting relatives for those live far from their families, to legally protect employees’ rights to take on leave.

薪酬管理

本集團建立和完善了以市場價值為導向、以績效考核為基礎的收入分配管理體系。2019年結合實際情況，本集團新修訂了《工資總額管理暫行辦法》、《表彰獎勵管理暫行辦法》、《本部部門考核管理暫行辦法》及《領導班子和領導人員綜合考核評價辦法》等四項制度。

在薪酬管理方面，本集團始終堅持四大原則：

- 突出效益導向，鼓勵減員增效；
- 嚴格控制人均工資增幅；
- 加強核心崗位及一線人員激勵力度，合理拉開收入差距；及
- 加大對市場化改革試點企業支持力度。

本集團附屬公司依據上述原則，參照本公司規定制定各公司相應管理辦法並報本集團備案。

福利制度

本集團嚴格按照國家和地方政府有關政策法規建立了各項社會保險、住房公積金、企業年金和補充醫療保險制度，確保員工在養老、醫療、工傷、失業及生育等方面依法享有平等的權利。2019年，本集團未發生任何社會保險違規及欠繳現象。

本集團依照《國務院關於職工探親待遇的規定》，推行《本部員工考勤與休假管理暫行辦法》，實施帶薪年假制度，適當解決員工同親屬長期遠居兩地的探親問題，合法保障員工行使休假權利。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

3.2 Safety Production and Occupational Health

The Group always regards the safety protection and occupational health of employees as the top priority, and always strictly enforces the applicable laws and regulations, such as the Work Safety Law of the People's Republic of China and the Law of the People's Republic of China on the Prevention and Control of Occupational Diseases, etc., and continuously improves and perfects the work environment management and occupational health and safety management system. The Group adheres to the policy of "Safety First, Prevention Foremost and Comprehensive Treatment" and requires the subsidiaries to clearly define their safety and occupational health management systems. All subsidiaries have established their Safety Production Management Committees and Occupational Disease Prevention Leading Groups to supervise the implementation of systems and measures for safety production and occupational disease prevention.

Safety Production Protection

Safety production is the foundation for the healthy development of a company. Strengthening enterprise safety production management and establishing intrinsically safe production can provide a safe, stable and orderly operation order and environment for the enterprise, enhance employees' sense of security and belonging, and win good corporate reputation.

In 2019, the number of job-related deaths of the Group's employees was 0, there were no major safety accidents, and the number of work days lost due to work injury was 0. The overall security situation in the year was smooth and steady, and the security management was within and under control. During the Reporting Period, the Group completed the addition and revision of 34 safety management systems, covering 13 management units such as "system management, risk management, safety education and training", through the stages of early planning, special session, subordinate unit research, expert argumentation, etc. in six months. In the system form and content, the Group reached the unification with the management systems newly issued by China Energy, improved the systematicness, perfectness, enforceability and applicability of the management systems. At present, it has officially promulgated and implemented such systems.

3.2 安全生產及職業健康

本集團始終將員工的安全保障和職業健康視為重中之重，一貫嚴格執行《中華人民共和國安全生產法》及《中華人民共和國職業病防治法》等相關法律法規，不斷健全和完善工作環境管理和職業健康安全管理体系。本集團堅持「安全第一、預防為主、綜合治理」的方針，要求各附屬公司細化安全和職業健康管理制度。各附屬公司均成立了安全生產管理委員會及職業病防治領導小組，督促落實安全生產和職業病防治等方面制度與措施。

安全生產保障

安全生產是企業健康發展的基礎。加強企業安全生產管理，建立本質安全型生產企業，能為生產經營提供安全、穩定、有序的經營秩序和環境，增強員工的安全感和歸屬感，贏得良好的企業聲譽。

2019年，本集團因公死亡員工人數為零，未出現重大安全事故，工傷損失工作日數為零。全年安全形勢平穩，安全管理可控、在控。在報告期內，本集團經前期籌劃、專題會討論、下屬單位調研、專家論證等階段，耗時六個月完成了34項安全管理制度的新增和修訂工作，覆蓋了「系統管理、風險管理、安全教育培訓」等13個管理單元。在制度形式、制度內容上達到了與國家能源集團新頒佈管理制度的統一，提高了管理制度的系統性、完善性、可執行性、適用性，現已正式頒佈執行。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



In order to improve the level of work safety, during the Reporting Period, the companies of the Group carried out major safety inspections and special safety inspections in spring, autumn, winter, such as “Work Safety Month”, “Major Event Period”, “Flood Prevention”, “Limited Space”, “Aerial Operation”, “Hazardous Products”, etc. After the inspection, the Group made safety inspection records, issued problem rectification notices, and effectively implemented rectification plans, so as to achieve the investigation and closed-loop management of potential safety hazards. In addition, according to the actual conditions, some subsidiaries organized daily and monthly safety inspections and removed potential safety hazards. In 2019, the Group carried out a comprehensive potential safety hazard investigation on 39 projects of its 10 companies, and issued a detailed inspection notice on 818 problems identified, and has now completed the closed-loop rectification of such problems.

In order to enhance employees' safety awareness, the Group has carried out a number of all staff safety education and training activities:

- The Group provided safety training for capital construction site project managers. In August 2019, the Group organized a training course for the capital construction project managers of the subsidiaries and conducted a one-week safety training for 117 project managers of its 12 branches and subsidiaries.
- The Group provided safety education for all the manufacturing enterprises under it. In November 2019, the Group held a training course for manufacturing safety managers, with a total of 60 participants.
- The Group provided safety responsibility training for the officers at each level. In July 2019, the Group provided a safety responsibility training for its leadership, explaining and publicizing the typical accident cases of China Energy and further classifying the safety responsibility of the leaders at all levels. At the training, Chen Dongqing, Party Secretary and Chairman of the Group, gave instructions personally, with a total of more than 40 leaders participated.
- In safety inspection, specific safety education was implemented. In line with the concept of combining inspection with education, the Group embedded safety training into 39 safety inspections and potential safety hazard investigations in 2019. Special training was carried out on recurring, dangerous and neglected problems found in the inspection process.

為提高安全生產水平，在報告期內，本集團各級公司均開展了「春、秋、冬季」、「安全生產月」、「重大事件期間」、「防洪度汛」、「受限空間」、「高處作業」、「危化品」等多項安全大檢查及專項檢查活動。在檢查後，集團形成安全檢查記錄，全部下發問題整改通知單，有效落實整改計劃，做到隱患排查閉環管理。此外，部分附屬公司結合實際，組織日常、月度安全檢查，並對安全隱患加以整改。2019年，本集團共對所屬10個公司的39個項目進行了全面的隱患排查工作，並對查出的818項問題出具了詳細的檢查通報，目前已全部完成整改閉環。

為提高員工安全意識，本集團開展了多項全員安全教育培訓活動：

- 對基建現場項目經理進行安全培訓。本集團於2019年8月組織了附屬公司基建項目經理的培訓班，對所屬12家分子公司117名項目經理開展為期一周的安全培訓。
- 對所屬製造企業進行安全教育。本集團於2019年11月舉辦了製造業安全管理人員培訓班，共60人參加了培訓班。
- 對各級領導人員開展安全責任培訓。本集團於2019年7月開展了領導人員安全責任培訓，針對國家能源集團發生的典型事故案例進行宣講，進一步明確了各級領導人員的安全責任。此次培訓由本集團黨委書記、董事長陳冬青親自授課，共計40多名領導人員參加。
- 在安全檢查中落實專項安全教育。本集團本着檢查與教育相結合的理念，將安全培訓滲透於2019年的39次安全檢查和隱患排查工作中。針對檢查過程中發現的重複、危險、易忽視的問題展開了專項培訓。



ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)

In 2019, the Group's subsidiaries conducted a total of 144 times safety training sessions.

Occupational Health Protection

Because welding smoke, carbon monoxide, ozone, hydrogen sulfide, chlorine, methanol, manganese and their compounds, noise, arc welding, etc. may cause pneumoconiosis, manganese pneumoconiosis, pulmonary fibrosis, chronic respiratory inflammation, chemical poisoning, tinnitus and deafness, and other occupational diseases, the Group attaches great importance to the management of occupational disease hazards, adheres to the core value of "people-oriented" scientific outlook on development, and effectively creates a healthy and safe working environment for all employees.

The Group has carried out a comprehensive occupational disease investigation of its subsidiaries. After investigation, a total of 5 enterprises under the Group have occupational disease hazards, namely Longyuan Environmental, United Power, Longyuan Technology, Tianren Company and Longyuan Energy Conservation. They all belong to the enterprises with general occupational disease hazards. The above companies have 1,985 workers exposed to occupational disease hazards. All health examinations for exposure to occupational diseases were conducted in 2019, with a medical examination rate of 100%. All the above companies have completed the declaration and regular inspection of occupational disease hazards, and both the declaration and inspection rates are 100%. So far, the Group has not had any new occupational disease accident.

In addition, the Group has adopted certain occupational health protection measures:

- Establish occupational health management organizations to provide full-time or part-time occupational health management personnel;
- Establish a list of occupational disease hazard factors in the workplace and a list of workers exposed to occupational disease hazard factors;
- Indicate occupational disease hazards and their consequences, occupational disease protection measures and so on in the labor contract and at the eye-catching position of the work site;

2019年，本集團附屬公司開展安全培訓共144次。

職業健康保護

由於生產運營中產生的電焊煙塵、一氧化碳、臭氧、硫化氫、氯氣、甲醇、錳及其化合物、噪聲、電焊弧光等可能會造成塵肺、錳塵肺、肺纖維化、慢性呼吸道炎症、化學物質中毒、耳鳴耳聾等職業病，本集團高度重視職業病危害管理問題，堅持「以人為本」的核心科學發展觀，切實為全體員工營造健康、安全的工作環境。

本集團對附屬公司開展了全面的職業病排查工作，經過排查本集團共有5家存在職業病危害的企業，分別是龍源環保、聯合動力、龍源技術、天仁公司和節能公司，均屬於一般職業病危害企業。上述公司現有接觸職業病危害員工1,985人，2019年全部進行了接觸職業病健康體檢，體檢率達到100%。上述公司全部完成了職業病危害申報和職業病危害定期檢測，申報率和檢測率均為100%。截止到目前，本集團未發生一起新增職業病事故。

此外，本集團採取了一定職業健康保護措施：

- 建立職業健康管理機構，按規定配備專職或兼職職業健康管理人員；
- 建立工作場所職業病危害因素清單及接觸職業病危害因素的作業人員清單；
- 在勞動合同中及工作現場的醒目位置進行告知職業病危害及其後果、職業病防護措施等內容；

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- Put up warning signs and warning instructions at the eye-catching position of workplaces, operation posts, equipment and facilities where occupational disease hazards may arise;
 - Provide occupational hazard notification cards at the eye-catching position of posts where high toxic substances are present or produced;
 - Strictly require the employees exposed to occupational disease hazards to receive pre-job, on-the-job and post-job occupational health examinations and emergency occupational health examination, and inform the employees of examination results in writing; and
 - Make sure that the workers exposed to occupational disease hazards are provided with corresponding labor protective articles, special ledger is made for the distribution of labor protective articles, and the workers are trained in the use of labor protective articles.
- 在可能產生職業病危害的工作場所、作業崗位、設備、設施的醒目位置設置了警示標識和警示說明；
 - 在存在或產生高毒物品的崗位的醒目位置設置了職業危害告知卡；
 - 嚴格要求接觸職業病危害因素的員工接受崗前職業健康檢查、在崗職業健康檢查、離崗職業健康檢查和應急職業健康檢查，並將檢查結果書面告知員工；及
 - 對接觸職業病危害因素的作業人員配備相應的勞動防護用品，建立勞動防護用品發放台賬，對作業人員進行勞動防護用品使用培訓。

Outsourcing and Construction Safety Management

The management of subcontracting teams has always been the focus and difficulty of the Group's safety and environmental protection work. The Group strictly abides by and implements the Safety Management Standards for Outsourcing Projects (Tentative) formulated by China Energy, and develops relevant outsourcing and subcontracting safety management systems based on its own situations.

In 2019, the Group insisted on reviewing the qualification, ability, business, etc. of subcontracting teams, set up stricter access conditions, strengthened the management and control of subcontracting teams, strictly implemented the rules, specifications and related standards, enhanced safety education for construction personnel, conscientiously carried out the disclosure of key operations, and reinforced the management and control of subcontracting teams. In terms of tender, the Group implemented the "one-vote veto" system for the subcontracting team with bad credit records in work safety, resolutely cleared and replaced the construction companies with poor site management, and blacklisted the construction companies responsible for accidents.

In 2020, based on strengthening safety supervision and assessment, the Group will implement safety management through comprehensive review of safety management files, self-checking and self-correcting safety and other basic safety management work and on-site management work.

外包及施工安全管理

分包隊伍的管理一直是本集團安全環保工作的重點和難點。本集團嚴格遵守並執行國家能源集團的《外包項目安全管理標準(試行)》，並針對自身實際制定並落實相關外包、分包安全管理制度。

2019年，本集團堅持對分包隊伍的資質、能力、業務等進行審查，提高準入條件，強化分包隊伍管控力度，嚴格執行規程、規範和相關標準，加強施工人員安全教育，認真開展重點作業交底，強化分包隊伍管控力度。在招標環節，本集團對存在安全生產不良信用記錄的分包隊伍實行「一票否決」制，堅決清退、更換現場管理差的施工公司，並將負有事故責任的施工公司列入黑名單。

2020年，本集團將以加強安全監督考核為抓手，通過全面梳理安全管理檔案，自查自糾安全基礎管理工作及現場管理工作，落實安全管理工作。



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3.3 Training and Career Development Mechanism

The Group attaches great importance to the cultivation, selection and development of talents, and concentrates all kinds of dominant resources on high-potential and high-performance employees.

Education and Training System

The Group earnestly implements the spirit of the Central Enterprise Talent Work Conference of the SASAC. The core development strategy of China Energy and its requirements on the human resources system aim at cultivating and building a team of highly qualified and specialized talents and building a talent echelon with reasonable structure, so as to establish a quality training system of source training, tracking training and whole course training, and provide a strong talent guarantee for enterprise healthy development.

In 2019, the Group organized special training courses on special salon activities, discipline inspection and supervision, Party spirit education, financial management, scientific and technological R&D, procurement, work safety, quality management, etc., with 4,886 people or 16,492 person-times trained throughout the year and a training rate up to 77.16%:

- The Group conscientiously did a good job in the education and training of Party members, strengthened the education and training of Xi Jinping's socialist ideology with Chinese characteristics in the new era, the Party's principles, policies, situation and tasks, professional knowledge, job skills, etc., guided Party members to strengthen their ideals and beliefs, and constantly improved their comprehensive quality and ability to carry out their duties;
- The Group insisted on carrying out the "Rainbow" talent plan, firmly grasped the four key links of talent selection and retention, established the talent work system, promoted the talent selection system, perfected the talent application system, optimized the talent training system, and implemented the talent incentive and retention system;
- The Group steadily advanced the training of graduates. In 2019, it received a total of 71 graduates, and organized a one-week induction course for new employees;
- The Group made great efforts to strengthen the building of the "Innovate & Share" salon brand, gradually improved the ranks of internal trainers at all levels of the enterprises, and innovatively promoted the brand building of the "Innovate & Share" salon brand; and

3.3 教育培訓及發展機制

本集團高度重視人才的培養、選拔和發展工作，集中各類優勢資源向高潛力、高績效員工傾斜。

教育培訓體系

本集團認真貫徹落實國資委中央企業人才工作會議精神。國家能源集團的核心發展戰略與國家能源集團人力資源制度要求，以培養打造高素質專業化人才隊伍、建設結構合理的人才梯隊為目標，建立源頭培養、跟蹤培養、全程培養的素質培養體系，為企業健康發展提供有力人才保障。

2019年，本集團組織開展專題沙龍活動、紀檢監察、黨性教育、財務管理、科技研發、採購、安全生產、質量管理等專題培訓班次，全年培訓4,886人，16,492人次，培訓率達77.16%：

- 認真做好黨員教育培訓工作，加強習近平新時代中國特色社會主義思想、黨的方針政策和形勢任務、業務知識和職務技能等方面的教育培訓，引導黨員堅定理想信念，不斷提高綜合素質和履職能力；
- 堅持落實「彩虹」人才計劃，牢牢抓住人才選用育留四個關鍵環節，建立人才工作體系、推行人才選拔體系、完善人才使用體系、優化人才培養體系、落實人才激勵與保留體系；
- 穩步推進畢業生培訓工作，2019年共接收畢業生71名，並組織開展為期一周的新員工入職培訓班；
- 大力加強「創·享」沙龍品牌建設，逐步健全各層級企業內訓師隊伍，創新推進「創·享」沙龍品牌建設；及

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- The Group opened up and innovated the working ideas of the training of grass-roots units, promoted the construction of "Internal Trainer" brand steadily in the form of pilot first, carried out various business training, and improved the staff's business ability.

For the next step, the Group is to unswervingly serve the Company's development strategy, further consolidate the enterprise's talent development foundation, properly implement plans and promote various pilot work; unswervingly promote enterprise market-oriented reform, combine with the central task of market-oriented reform, establish a flexible and open talent development mechanism; continue to unswervingly implement the "Rainbow" talent plan, firmly grasp the four key links of talent selection, use, cultivation and education, form a complete talent work system; unswervingly improve the HR work mechanism, improve the level of HR, and provide organizational guarantee for the implementation of the "Rainbow" talent plan.

Selection and Promotion Mechanism

In order to meet the needs of human resources in the development strategy of the Group and construct a talent selection and promotion mechanism suitable for the transformation and upgrading of the enterprise, the Group has successively issued relevant rules and regulations including the Career Development Channel Management Measures, the Measures Governing Officer Assessment, the Measures Governing Professional Training and On-the-Job Placement Training, the Guiding Opinions on Strengthening Cultivating, Using and Stimulating Young Talents (Trial), etc.

For the promotion of management personnel, the Group strengthens the competitive selection mechanism, makes full use of the results of performance evaluation and democratic evaluation and forms a talent selection mechanism allowing the smooth circulation of talents. For the promotion of technicians, the Group has established the full-caliber and full-process career development route and promotion direction considering both "Professional Technique and Professional Skill". It has established a promotion sequence at five levels to unify the pays at each level. Moreover, on the basis of the work characteristics of technical R&D talents, the Group has developed corresponding promotion and evaluation mechanisms to pave the way for the development of its personnel, clarify their growth path, fully stimulate the working enthusiasm of technical R&D talents, and comprehensively broaden the range of career possibilities.

- 開拓創新基層單位培訓的工作思路，以試點先行的形式穩步推進「內訓師」品牌建設，開展多方面業務培訓，提高員工業務能力。

下一階段，本集團將堅定不移的服務於公司發展戰略，進一步夯實企業人才發展工基礎，做好規劃的落實與試點工作的推廣；堅定不移的推動企業市場化改革，與市場化改革的中心任務相結合，建立靈活、開放的人才發展機制；堅定不移的繼續落實「彩虹」人才計劃，牢牢抓住人才選用育留四個關鍵環節，形成完整的人才工作體系；堅定不移的健全完善人力資源工作機制，提高人力資源隊伍水平，為「彩虹」人才計劃落實提供組織保障。

選拔晉升機制

為滿足本集團發展戰略對人力資源的需求，構築與公司轉型升級相適應的人才選拔晉升機制，本集團相繼出台了《職業發展通道管理辦法》、《領導幹部考核管理辦法》、《專業培養及掛職鍛煉管理辦法》以及《關於加強青年英才培養使用激勵工作的指導意見(試行)》等相關制度。

在管理人員的晉升方面，本集團強化競爭選拔機制，充分利用績效考核和民主測評結果，形成能上能下的人才選用機制；在技術人員的晉升方面，本集團確立「專業技術和專業技能」並行的全口徑、全過程職業發展路線和晉升方向，設立五大層級的晉升序列，統一各層級的薪酬待遇水平。同時，根據技術研發人才的工作特點，本集團制定了相應的晉升機制和考評機制，打通發展通道，明晰成長路徑，充分激發技術研發人才的工作積極性，全面拓寬職業晉升的空間和高度。



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In 2019, the Group particularly supervises and urges the subsidiaries to achieve full coverage of the assessment system, increase the leverage effect of performance appraisal, and link the assessment results with post promotion, excellent staff selection, post adjustment, and career development channel rating to promote fair and reasonable income and make backbone employees better paid.

3.4 Employee Care and Team Building

The Group always adheres to the people-oriented management concept, eliminates the worries for the employees and provides care for the employees in order to promote the stable and healthy development of the enterprise.

The Group thoroughly implemented the Law of the People's Republic of China on the Protection of Rights and Interests of Women and the Regulations on Labor Protection for Female Staff, actively safeguarded women's rights and interests, revised collective labor contracts to increase contents regarding the protection of female staff's rights and interests. The Group thoroughly implemented the Law of the People's Republic of China on the Protection of Rights and Interests of Women and the Regulations on Labor Protection for Female Staff, actively safeguarded women's rights and interests, revised collective labor contracts to increase contents regarding the protection of female staff's rights and interests. Moreover, the actively participated in the "Women's Meritorious Service" evaluation and recognition program organized by China Energy. In 2019, the Company held a total of 18 women's special health knowledge lectures and other special activities with more than 1,000 participants, greatly inspiring the spirit of the majority of female workers to make progress and contribute to their work.

The trade union of the Group puts the interests of employees in the first place and effectively implemented the "People-benefit Project" to benefit the employees:

- It has extensively carried out poverty alleviation, serious illness relief, children education aid, etc. In 2019, in addition to the special relief funds of China Energy, the Group issued a total of RMB115,000 funds to help 34 needy workers;
- The Group widely carried out "send warmth in winter, send cool in summer" and other condolence activities for the frontline workers. In 2019, the Group sent condolences to 1,180 person-times, and sent the care of the organization to the staff who were hospitalized, holding weddings and funerals, in a timely manner;

2019年，本集團督導附屬公司實現考核體系全覆蓋，加大績效考核槓桿效應，將考核結果與崗位晉升、優秀評選、職務調整、職業發展通道等級評定等方面掛鉤，促進收入公平、合理、向骨幹員工傾斜。

3.4 員工關懷及團隊建設

本集團始終堅持以人為本的管理理念，為員工解憂、為職員送關愛，促進企業的穩定健康發展。

本集團深入貫徹落實《中華人民共和國婦女權益保障法》、《女職工勞動保護規定》，積極維護婦女權益，修訂集體勞動合同，增加女職工權益保護內容。深入貫徹落實《婦女權益保障法》《女職工勞動保護規定》，積極維護婦女權益，修訂集體勞動合同，增加女職工權益保護內容；積極參加國家能源集團開展的「巾幗建功」評選表彰活動。2019年，本公司共舉辦18次女性專題健康知識講座等特色活動，參加人數1,000餘名，極大的激發廣大女職工奮發向上、為崗位建功的精神。

本集團工會將職工利益放到第一位，有效落實「惠民工程」，使職工真正受益：

- 廣泛開展扶貧幫困、大病救助、子女助學等工作。2019年，除國家能源集團專項救助資金外，本集團共發放幫扶資金人民幣11.5萬元，幫扶困難職工34人；
- 廣泛開展「冬送溫暖、夏送清涼」等一線慰問工作。2019年本集團共慰問一線職工1,180餘人次，對生病住院、婚喪嫁娶的職工及時送去組織的關懷；



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- In addition, the Group implemented staff welfare and let the staff share the development results of the enterprise. The Group guarantees staff welfare according to laws and applications, sends care to employees on traditional festivals, and actively procures on the platform of “Public Welfare China” to fulfill the responsibility as large enterprises and transmit the warm from a central enterprise; and
- The Group organized special warm-hearted activities to enhance workers’ sense of acquisition and happiness. The Group built “Love Room for Mothers and Children” to solve the actual difficulty of female workers; carried out “Waste Classification”, “Green Run” and other parent-child activities for workers to advocate the green environmental protection idea; and held “Children’s Day” special sale meeting activity to benefit all the workers.

The trade unions of the Group care about the physical and mental health of employees, closely follow the actual situation of the Group, and organize various forms of mass cultural and sports activities based on the needs of employees:

- The Group carried out the concept of “happy sports, happy work, healthy life” to constantly improve the service quality of sports associations; The Group carried out badminton, swimming, yoga, dance and other daily activities to enrich the amateur cultural life of the staff;
- The Group actively assisted the Production and Construction Management Department in building the “Safety in My Heart” speech contest, so as to stimulate the staff and workers’ spirit of love, dedication, due diligence, responsibility; and
- The Group carried out “My Motherland and I”, “Hello! New Era” calligraphy and painting photography exhibition and theme essay, as well as staff badminton competition, table tennis competition, football competition and other mass sports activities under the theme of “70th Anniversary of the Founding of the People’s Republic of China”.

- 落實職工福利，使職工共享企業發展成果。本集團依法、合規保障員工福利，在傳統節日為職工送關懷，並積極在「公益中國」平台採購，傳遞大企責任和央企溫度；及
- 舉辦特色暖心活動，增強職工獲得感、幸福感。本集團打造「愛心母嬰室」，解決女職工實際困難；開展「垃圾分類」、「綠跑」等職工親子活動，倡導綠色環保理念；舉辦「六一」特賣會活動，使廣大職工得到實惠。

本集團工會關心職工身心健康，緊貼集團實際，立足職工需求，組織形式多樣的群眾性文化體育活動：

- 貫徹「享受運動、快樂工作、健康生活」理念，不斷提升各體育協會服務質量。開展羽毛球、游泳、瑜伽、舞蹈等日常活動，豐富了員工業餘文化生活；
- 積極協助生產建設管理部，精心打造「安全在我心中」演講比賽，激發廣大職工愛崗、敬業、盡職、守責精神；及
- 開展「我和我的祖國」、「你好新時代」書畫攝影展、主題徵文，及「建國70週年主題」職工羽毛球比賽、乒乓球比賽、足球比賽等群眾性文體活動。



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4 COMPLIANCE MANAGEMENT AND QUALITY SERVICE

4.1 Fight Corruption and Promote Incorruptible Employment according to Law

In 2019, the Group firmly built up the “Spirit of Contract” and the concept of operation according to law, constantly improved the clean governance and operation system with scientific decision-making, perfect mechanism and strong supervision, seriously carried out anti-corruption activities, and formed a good atmosphere of honest practice. The Group strictly complies with the laws and regulations on bribery, extortion, fraud and money laundering. In 2019, there were no violations having major impact.

In order to standardize employees' vocational behavior and prevent corruption, in 2019, the Group successively formulated and printed and distributed two rules and regulations, i.e. the “Measures for the Implementation of General Secretary Xi Jinping's ‘Three-Distinguish’ Significant Idea” and the “Measures for the Application of Inspection Results”, and revised four rules and regulations, such as the “Implementation Rules for Seven Expenses”, the “Measures for the Management of Duty Performance Treatments and Business Expenses of Company Officers”, etc. to further improve its institutional system.

The Discipline Inspection and Supervision Department of the Group is responsible for letter (e-mail) reading, visiting reception and telephone answering, and is responsible for the recording, arrangement, registration, sorting and screening of the materials. An incoming letter not within the acceptance scope of the Discipline Inspection and Supervision Department will be delivered to the relevant department for handling after being registered. An incoming letter within the acceptance scope of the Discipline Inspection and Supervision Department, depending on the content and object reflected therein, will be handled in the form of self-handling, reporting, transferring, or preserving, etc. After the petition letter is handled, if the letter has the name of the petitioner, the handling result will be notified of the petitioner in the written or oral form.

4 合規經營品質服務

4.1 依法依規廉潔從業

2019年，本集團牢固樹立「契約精神」和依法經營理念，不斷健全決策科學、機制完善及監督有力的廉政運行體系，認真開展反貪反腐活動，形成廉潔從業的良好氛圍。本集團嚴格遵守有關賄賂、勒索、欺詐及洗黑錢的法律法規，2019年未發生有重大影響的違規事件。

為規範員工的職業行為，預防腐敗發生，本集團於2019年先後制定印發《貫徹落實習近平總書記「三個區分開來」重要思想的實施辦法》及《巡察成果運用辦法》2項制度，修訂《七項費用實施細則》、《公司負責人履職待遇、業務支出管理辦法》等4項制度，進一步完善了制度體系。

本集團由紀檢監察部負責來信(電子郵件)閱讀、來訪接待及來電接聽工作，並進行記錄、整理、登記、分類和篩選。對不屬於紀檢監察部受理範圍的來信，登記後轉有關部門辦理，屬於紀檢監察部受理的信件，根據反映的內容和對象，區別輕重緩急，分別按自辦、交辦、轉辦及留存等方式辦理。信訪處理完結後，對署名舉報信訪件，將處理結果以書面或口頭的形式告知信訪人。

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORT (CONTINUED) 環境、社會及管治報告(續)



At the same time, the Group has organized a series of “9-Honesty” education activities such as “Clarify Honesty” at significant festivals, “Push Honesty” on new media, etc., and 100% of its employees have received such education, and the Group has continued to build a clean governance education model. The Group has organized two groups of Party members, leaders and officers of its head office to visit the warning education base and take the case as a warning so that they keep disciplines in mind at all times and stick to honesty and incorruptibility. The Group carries on clean governance special topic education training to the newly recruited university graduates and provides them with the first clean governance class through the massive detailed case explanation. In addition, the Group has determined each September and October as the anti-corruption publicity months and it has organized and carried out 7 special education activities to further create a cultural atmosphere of doing everything in clean and honest manner. Longyuan Engineering went to 7 project departments at Xingyang, Huai’an, Jianbi, etc. to carry out “Clean Governance Tour” education and propaganda activities, continuing to strengthen the anti-corruption awareness of project staff.

In addition, the Group focused on the five key tasks of political construction, carried out nine special supervision and inspection programs in respect of the spirit of the “Eight-point Rules” and key areas of the Central Committee of CPC, and organized subsidiaries to revise and improve the manual on risk prevention and control of clean governance, continuously deepened the treatment of both symptoms and root causes and enhanced the efficiency of corporate governance. The Group strictly implemented the “four-in-one” before-post inspection system, i.e. clean governance inspection, reply to letters of clean governance, clean governance examination and conversation of clean governance, and put an end to the cadres’ “promotion with problem”, “taking up post with problem” and “praise with problem”.

United Power organized the owners and suppliers to evaluate the integrity of the company’s market and material procurement, and signed the Letter of Responsibility for Clean Business with suppliers. Longyuan Engineering organized cadre employees to sign personal clean practice commitment and clean files, implemented the double signing system of “Project Contract” and “Honesty and Integrity Agreement” in order to promote the sense of responsibility into the basic level and achieve full coverage of the Party style and clean governance construction.

In 2019, the Group had no corruption cases filed and concluded against the Group and its employees.

同時，本集團組織開展重要節日「明」廉、新媒體「送」廉等「九廉」教育系列活動，員工受教育率100%，持續打造廉政教育示範標桿；分2批組織公司本部黨員領導幹部參觀警示教育基地，以案為鑒，引導黨員幹部時刻緊繃紀律之弦，堅守廉潔底線；對新入職大學生進行專題廉政教育培訓，通過大量詳實的案例講解，為新入職大學生上好廉潔從業第一課；並將9月和10月定為反腐倡廉宣傳教育月，組織開展7項專題教育活動，進一步營造了幹事創業、風清氣正的文化氛圍。龍源工程赴荊陽、懷安、諫壁等7個項目部開展「廉政清風萬里行」廉政教育宣講活動，持續強化工程項目工作人員拒腐防變意識。

此外，本集團圍繞政治建設五項重點任務、落實中央「八項規定」精神、關鍵領域等開展專項監督檢查9項，並組織附屬公司修訂完善廉政風險防控手冊，不斷深化標本兼治，提升企業治理效能。嚴格執行廉政考察、廉政回函、廉政考試、廉政談話的「四位一體」任前廉政體檢制度，杜絕幹部「帶病提拔」「帶病上崗」「帶病表揚」。

聯合動力組織業主、供應商對公司市場、物資採購方面進行廉潔情況測評，並與供應商簽訂《廉潔從業責任書》。龍源工程組織幹部員工簽訂個人廉潔從業承諾書和廉潔檔案，實行「工程合同」和「廉潔協議」雙簽制，推動責任意識觸角入基層，實現黨風廉政建設全覆蓋。

2019年，本集團未發生對本集團及員工提出並已審結的貪污訴訟案件。



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4.2 Take Responsibility for Product and Place Quality in the First Place

The Group is well aware that providing quality products for customers is the most basic responsibility, so it attaches great importance to product quality. The Group fully guides the implementation of quality management by means of overall management and accountability at various levels according to the “Guidance of the Central Committee of the Communist Party of China on Quality Improvement Action” and the “Opinions on the Implementation of Quality Improvement Action by Central Enterprises” issued by SASAC, the “Implementation Plan for Quality Improvement Action” issued by China Energy and the “Measures for the Quality Management of Guodian Technology & Environment Group Corporation Limited”. In 2019, the quality level of the Group was generally stable and good, and the quality objectives had been successfully achieved:

- There were no major manufacturing, engineering, operation and maintenance quality problems and major equipment damage accidents;
- The pass rate of quality inspection met the requirements of the Group, the construction installation quality met the design requirements, and all product delivery quality met the standards and achieved customer satisfaction;
- Strictly implemented the national quality standards and quality technical requirements, carried out refined quality control throughout the construction of the project, and all project quality acceptances have reached the eligibility criteria; and
- The main quality indicators have reached the advanced level compared with similar projects and products. The acceptance rate of construction project acceptance was 100%, the excellence rate of acceptance of installation engineering was 100%, the excellence rate of engineering commissioning test was 100%, and the one-time success rate of entire system startup was 100%.

The Group has established a full lifecycle quality management system covering all aspects of design, production, construction and operation and maintenance, continuously promoted product structure optimization and upgrading, ensured continuous improvement of product quality, further enhanced the quality awareness of all employees, and has always been taking quality assurance as the lifeline of enterprise development.

4.2 產品責任質量為先

本集團深知為客戶提供優質產品是最基本的責任，因此高度重視產品質量。根據《中共中央國務院關於開展質量提升行動的指導意見》和國務院國資委《關於中央企業開展質量提升行動的實施意見》，國家能源集團制定印發的《質量提升行動實施方案》，以及《國電科技環保集團股份有限公司質量管理辦法》，統籌管理，分級負責，全面指導開展質量管理工作，2019年本集團質量水平總體穩中向好，各項質量目標圓滿達成：

- 未發生重大製造、工程、運維質量問題和重大設備損壞事故；
- 質量檢驗合格率達到集團要求，建築安裝質量滿足設計要求，所有產品交付質量符合標準並達到客戶滿意；
- 嚴格貫徹國家質量標準、和質量技術要求，對工程項目施工全過程實施精細化質量控制，所有工程質量驗收達到合格標準；及
- 主要質量指標達到同類項目和產品的先進水平。建築工程驗收合格率100%，安裝工程驗收優良率100%，工程調試試運項目驗收優良率100%，整套啓動一次成功率100%。

本集團已建立起了覆蓋設計、生產、施工及運維各業務單元的全生命週期質量管理體系，不斷推進產品結構優化升級，確保產品質量持續提升，進一步增強全員質量意識，把保障質量作為企業發展的生命線。



4.3 Innovation, Efficiency, and Scientific Advancement

As the practitioner of green energy reform, the Group inherits the gene of innovative culture, fully exerts the inherent power of market-oriented scientific and technological innovation, and has established a strong and powerful technology research and development system with rational division of labor and clear architecture.

Talent team: The Group faces the frontier of energy science and technology, faces the market development demand, faces the production management, aims at the international cutting-edge technology, and focuses on cultivating a science and technology talent team leading at home and abroad and with rational structure.

Equal emphasis on production and research: The Group cultivates technologies cultivation, equally emphasizes production and research, adheres to the combination of market orientation and its actual need and strives to cultivate the core competitiveness in various business sectors.

Intellectual property: The Group pays attention to innovation incentive and intellectual property protection, requires each branch or affiliate to formulate relevant intellectual property management and protection measures and sign NDA with technical personnel with intellectual property owned by the enterprise, reward the technical personnel in respect of intellectual property, thus not only protecting the technology, but also arousing the enthusiasm of the staff in invention and creation. During the reporting period, the Group has obtained a total of 370 patents, including 42 national invention patents. The Group has cumulatively obtained 2,234 patents in its history, including 537 invention patents.

Achievement transformation: As of the end of 2019, around the core business, the Group had created a total of 89 items of mature technologies. In the past three years, 48 items of new technologies industrialization realized operating revenues of more than RMB10 billion, and scientific and technological innovation has provided the source and motive force for the sustainable development of the Group.

4.3 創新增效科學進步

作為能源綠色變革的踐行者，本集團傳承創新文化基因，充分發揮以市場為導向的科技創新內在動力，建立堅強有力、分工合理、層次清晰的技術研發體系。

人才隊伍：面向能源科技前沿、面向市場發展需求、面向生產管理一線，瞄準國際尖端技術，着力培育一支國內領先、國際一流、結構合理的科技人才隊伍。

產研並重：技術培育產研並重，堅持市場導向與本集團實際需求相結合，着力培育各業務分部的核心競爭能力。

知識產權：本集團注重創新激勵和知識產權保護，要求各分、附屬公司制定相關的知識產權管理及保護辦法，與技術人員簽訂保密協議，知識產權歸屬權為企業所有，同時對技術人員進行相應的知識產權獎勵，在保護技術的同時加大了員工發明創造的積極性。報告期內累計獲得專利370項，其中國家發明專利42件。本集團歷史累計獲得專利2,234件，其中發明專利537件。

成果轉化：截至2019年底，本集團圍繞核心業務共形成了89項成熟技術。近三年來形成的48項新技術產業化實現營業收入超過百億元，科技創新為本集團的持續發展提供了源泉和動力。



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In future, while maintaining its technical advantages in the traditional business areas, the Group will actively develop intelligent thermal power and intelligent wind power integrated solutions, accelerate the application promotion of mature technologies in overseas markets, explore the technical application in coal mining, coal chemical industry, traffic and transportation, nuclear power, PV power generation, fuel gas power generation, urban heat supply, industrial boiler, metallurgical environmental protection, etc., pay attention to the technological development of shale gas, hydrogen energy, energy storage, and distributed energy, strengthen the synergy of internal innovative resources and carry out application research and development in due time so as to provide a new growth point for the development of the Company.

5 SHARING DEVELOPMENT, CONTRIBUTING TO THE SOCIETY

5.1 Supplier Cooperation and Management

The Group utilizes the unified procurement platform of China Energy and adheres to the “four unified” requirements for group procurement: unified planning, unified standards, unified processes, and unified platforms. During the procurement process, the third-party companies within China Energy are responsible for the organization of bid evaluation committee and the evaluation group, and shall implement the relevant confidentiality discipline and application challenge regulations of China Energy. The procurement supervision shall be designated by China Energy or the Group company as required and the procurement process shall be supervised, and the supplier shall be determined based on the results of the evaluation. The procurement document templates shall strictly implement the “Law of the People's Republic of China on Tenders and Bids” and the “Regulation on the Implementation of the Law of the People's Republic of China on Bid Invitation and Bidding”, and clarify the qualifications of qualified suppliers (such as quality, environment, occupational health certification, and safety production, 3C and other national mandatory requirements) in the procurement documents according to the specific conditions of the subject matter. In the future work, the Group will continue to strengthen the management of supplier social responsibility. In 2019, the Group had totally 1,450 suppliers, all of which are enterprises in Mainland China.

未來，本集團將在傳統業務領域保持技術優勢的同時積極研發智慧火電、智慧風電整體解決方案；加快成熟技術在海外市場應用推廣；開拓煤炭開採、煤化工、交通運輸、核電、光伏發電、燃氣發電、城市供熱、工業鍋爐及冶金環保等領域的技術應用；關注頁巖氣、氫能、儲能及分佈式能源的技術發展，不斷加強內部創新資源協同，適時開展應用研發，為公司發展提供新的增長點。

5 共享發展奉獻社會

5.1 供應商合作與管理

本集團利用國家能源集團的統一採購平台，堅持集團採購工作的四個統一要求：統一計劃、統一標準、統一流程、統一平台。採購過程由國家能源集團內的第三方公司負責評標委員會、評審小組成員組建，並執行國家能源集團相關保密紀律和申請迴避規定。採購監督按規定由國家能源集團或本集團公司派出並對採購過程監督，依據評審結果確定供應商。採購文件範本嚴格執行《中華人民共和國招標投標法》、《中華人民共和國招標投標法實施條例》，依據標的物具體情況在採購文件中明確合格供應商資格條件(例質量、環境、職業健康認證以及安全生產、3C等國家強制要求)。在今後的工作中將持續加強供應商社會責任管理工作。2019年，本集團合作的供應商總計1,450家，全部為中國大陸企業。



5.2 Establish Good Customer Relationship

The Group's main customers are thermal power and wind power generation units, and some coal and chemical enterprises, as well as some local governments with municipal water operation needs. The Group packs and marks products strictly according to the applicable national standards; and it strictly observes the Advertising Law of the People's Republic of China in publicity in order to ensure authentic contents and protect the legal rights and interests of customers. If necessary, both parties shall abide by the confidentiality provisions as stipulated in the contract. In 2019, the Group conducted a survey of customer satisfaction through a variety of ways, and the survey results showed that the overall customer satisfaction was generally high. The Group opened various channels to facilitate customer feedback and respond to the feedback in time. With the efforts of all the departments of the Group, the normalized problem feedback and resolution mechanism was also improved.

In 2019, the Group did not have any customer complaint regarding serious problems in relation to the safety production. The percentage of products or items sold or delivered that had to be recalled for safety or health reasons was 0%.

Customer Satisfaction

The Group's goal of customer satisfaction is to continuously improve customer satisfaction to keep customer satisfaction over 90%. At present, on one hand, the Group continues to organize customer satisfaction surveys on a quarterly basis through combined methods of third-party survey platforms, WeChat, mail and letters; on the other hand, the Group carries out the on-site project problem collection work frequently, and follows up problem handling in time until they are solved to achieve the whole life cycle marketing services. The problem closed-loop rate of the year is 95%, which well improved the customer experience and increased customer satisfaction. All through the year, the Group received a total of 136 customer letters of appreciation.

Customer Complaint Mechanism

The Group has established a two-level complaint mechanism for the Head Office and subsidiaries. Customers can complain via site feedback, or by mail, call, fax, etc., to the Head Office or the in-charge departments of the subsidiaries. All kinds of customer complaints are received and handled by special personnel, and such special personnel are responsible for closed-loop tracking.

5.2 構建良好客戶關係

本集團主要客戶為從事火電、風電業務的發電企業，和部分煤炭、化工企業，以及有市政水務運營需求的部分地方政府。本集團嚴格按照國家標準進行包裝、標識，在宣傳中嚴守《中華人民共和國廣告法》要求，確保內容真實，保護客戶合法權益。如需要，雙方按照合同約定遵守保密相關條例。2019年集團通過多種方式對客戶滿意度進行調查，調查結果顯示客戶整體滿意度評價較好。集團開通各種各樣的渠道以方便客戶反饋問題並及時做出回應。通過本集團上下各部門的努力，常態化的問題反饋和解決機制也更加完善。

2019年，本集團未發生性質嚴重、影響用戶安全生產的客戶投訴，已售或已交付的產品或項目中因安全或健康原因而須回收的百分比為0%。

客戶滿意度

本集團對客戶滿意方面的目標為持續提高客戶滿意度，使客戶滿意度不低於90%。目前本集團一方面繼續按季度組織客戶滿意度調查工作，通過第三方調查平台、微信、郵件以及信函等方式聯合開展；另一方面高頻次地開展現場項目問題收集工作，並及時跟進問題處理，直至問題閉環，以實現全壽命週期營銷服務。全年問題閉環率達95%，較好地改善了客戶體驗，提高了客戶滿意度。全年本集團共收到客戶表揚信136份。

客戶投訴機制

本集團具有本部和附屬公司兩級投訴機制，客戶可通過現場反饋，也可向本部或附屬公司歸口管理部門通過郵件、電話或傳真等渠道投訴。各類客戶投訴均由專人負責接待和處理，並負責閉環跟蹤。



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In 2019, the Group actively collected 134 feedback from project owners via the work mechanism of “two-level investigation and three-channel feedback”, among which 128 were confirmed resolved within the Reporting Period by the owners via telephone or interview. The timeliness of user complaint handling and the satisfaction of customers with the results of complaint handling during the year continued to increase. The problem feedback and closed-loop processing mechanism on a regular basis promoted the continuous improvement of the performance, safety, quality and service of the Group’s products, and played an important role in enhancing the brand image.

5.3 Fulfilling Corporate Social Responsibility

The Group actively participated in the local government-enterprise co-construction, science, education, health, donation and other social public welfare activities and thus promoted the social harmony of the region where it was located.

The Group held an internal purchase meeting for poverty alleviation products in Nierong County, Tibet, which brought incomes nearly RMB100,000 to the region.

The Group has established the “Green Ribbon” Youth Volunteer Association, which has gradually established three series of volunteer service brands, namely the “Energy Knowledge into the Campus”, “Uniting Love Sowing Love” and “The Ubiquitous Green Ribbon Super Hero”, revealing the spirit of young and striving, as well as passing through the positive energy of youth, and the good image of fulfilling social responsibility of central enterprises of the Group.

In the past three years, the “Green Ribbon” Volunteer Association has inspired the Group’s staff to donate more than RMB400,000 of materials to 3,000 poor families in Chifeng, Inner Mongolia.

In future, the “Green Ribbon” Volunteer Association will always incorporate the Youth Poverty Alleviation and Assistance Action into the four-dimensional work pattern of “Consolidating Youth, Serving the Overall Situation, Serving as the Bridge, and Strictly Managing the Group”, and continue to spread the excellent Chinese traditional culture including the concepts of unity, harmony, relief from distress, etc., constantly hold the “Youth Lightening Small Wishes” activity, “One-to-One” student aid, caring empty nesters, constructing love book houses, “Learning from Lei Feng” youth activity and other activities.

2019年本集團通過「兩級調查、三個渠道反饋」的工作機制主動收集項目業主反饋問題134個，其中業主已於報告期內通過電話或口頭確認滿意解決的項目問題有128個。本年度用戶投訴處理的及時性以及客戶對投訴處理結果的滿意度均持續提高。常態化的問題反饋和閉環處理機制促進了本集團產品的性能、安全、質量和服務持續提高，對品牌形象的提升發揮重要作用。

5.3 踐行企業社會責任

本集團積極參與所在地區的地企共建、科教衛生、捐資助學等社會公益活動，促進了所在地區的社會和諧。

舉辦西藏聶榮縣扶貧產品內購會，為該地區帶來收入約人民幣10餘萬元。

本集團成立有「綠絲帶」青年志願者協會，協會逐步建立了「能源知識進校園」、「團聚愛播種愛」、「無處不在的綠絲帶超體」三大系列志願服務品牌，展現了本集團青年向上的精神，以及傳遞青春正能量，履行央企社會責任的良好風貌。

近三年來，「綠絲帶」志願者協會發動本集團全體員工為內蒙古赤峰市地區3,000名建檔立卡貧困家庭青少年捐贈物資累計人民幣40餘萬元。

未來，「綠絲帶」志願者協會將一直把青春扶貧助力行動納入「凝聚青年、服務大局、當好橋樑、從嚴治團」四維工作格局，傳播以團結和睦、扶危濟困等觀念為核心的中華優秀傳統文化，持續開展「青春點亮微心願」、「一對一」助學、關愛空巢老人、建立愛心書屋及學雷鋒青年行等系列活動。



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附錄－香港交易所的環境、社會及管治(ESG)內容索引

Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容	
Subject Areas A. Environment 主要範疇A.環境			
Aspect A1: Emissions 層面A1：排放物			
A1	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste. 一般披露 有關廢氣及溫室氣體排放、向水及土地的排污、有害及無害廢棄物的產生等的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	2.3	Reduce Pollution Emissions Implement Scientific Management 降低污染排放 施行科學管理
A1.1	The types of emissions and respective emissions data. 排放物種類及相關排放數據。	2.2.2 2.3.3	Water Resource Management 水資源管理 Exhaust Gas Management 廢氣管理
A1.2	Direct (Scope 1) and energy indirect greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 直接(範圍1)及能源間接溫室氣體總排放量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	2.2.1	Energy Management 能源管理
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 所產生有害廢棄物總量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	2.3.1	Hazardous Waste Management 有害廢棄物管理
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility). 所產生無害廢棄物總量(以噸計算)及(如適用)密度(如以每產量單位、每項設施計算)。	2.3.2	Non-hazardous Waste Management 無害廢棄物管理
A1.5	Describe the emission targets set and the steps taken to achieve them. 描述所訂立的排放目標及為達到這些目標所採取的步驟。	2.3.3 2.1.1	Exhaust Gas Management 廢氣管理 Segment of Environmental Protection and Energy Conservation Solutions 環保與節能解決方案分部



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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容	
A1.6	Describe the methods used to treat hazardous and non-hazardous waste and describe the waste reduction targets set and the steps taken to achieve them. 描述處理有害及無害廢棄物的方法，及描述所訂立的減廢目標及為達到這些目標所採取的步驟。	2.3.1	Hazardous Waste Management 有害廢棄物管理
		2.3.2	Non-hazardous Waste Management 無害廢棄物管理
		2.1.1	Segment of Environmental Protection and Energy Conservation Solutions 環保與節能解決方案分部
Aspect A2: Use of Resources 層面A2：資源使用			
A2	General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials. 一般披露 有效使用資源(包括能源、水及其他原材料)的政策。	2.2	Reduce Resource Consumption Adhere to the Concept of Resource Saving 減少資源消耗奉行節約理念
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kwh in '000s) and intensity (e.g. per unit of production volume, per facility). 按類型劃分的直接及/或間接能源(如電、氣或油)總耗量(以千個千瓦時計算)及密度(如以每產量單位、每項設施計算)。	2.2.1	Energy Management 能源管理
A2.2	Total water consumption and intensity (e.g. per unit of production volume, per facility). 總耗水量及密度(如以每產量單位、每項設施計算)。	2.2.2	Water Resource Management 水資源管理
A2.3	Describe the energy efficiency targets set and the steps taken to achieve them. 描述所訂立的能源使用效益目標及為達到這些目標所採取的步驟。	2.2	Reduce Resource Consumption Adhere to the Concept of Resource Saving 減少資源消耗奉行節約理念
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose water efficiency initiatives and result achieved. 描述求取適用水源上可有任何問題，以及提升用水效益計劃及所得成果。	2.2.2	Water Resource Management 水資源管理
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced. 製成品所用包裝材料的總量(以噸計算)及(如適用)每生產單位佔量。	2.2.3	Use of Packaging Materials 包裝物使用

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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容
Aspect A3: The Environment and Natural Resources 層面A3：環境及天然資源		
A3	General Disclosure Policies on minimizing the issuer's significant impact on the environment and natural resources. 一般披露 減低發行人對環境及天然資源造成重大影響的政策。	2 Practicing the Concept of Green Development 踐行綠色發展理念
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them. 描述業務活動對環境及天然資源的重大影響及已採取管理有關影響的行動。	2 Practicing the Concept of Green Development 踐行綠色發展理念
Subject Areas B. Society 主要範疇B.社會		
Employment and Labor Practices 僱傭及勞工常規		
Aspect B1: Employment 層面B1：僱傭		
B1	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare. 一般披露 有關薪酬及解僱、招聘及晉升、工作時數、假期、平等機會、多元化、反歧視以及其他待遇及福利的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	3.1 Legitimate Employment and Welfare Protection 依法僱傭及福利保障
B1.1	Total work force by gender, employment type (e.g. full-time or part-time), age group and geographical region. 按性別、僱傭類型(如全職或兼職)、年齡組別及地區劃分的僱員總數。	3.1 Legitimate Employment and Welfare Protection 依法僱傭及福利保障
B1.2	Employee turnover attrition rate by gender, age group and geographical region. 按性別、年齡組別及地區劃分的僱員流失比率。	3.1 Legitimate Employment and Welfare Protection 依法僱傭及福利保障



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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容	
Aspect B2: Health and Safety 層面B2：健康與安全			
B2	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards. 一般披露 有關提供安全工作環境及保障僱員避免職業性危害的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	3.2	Safety production and occupational health 安全生產及職業健康
B2.1	Number and rate of job-related deaths in the previous three years (including the reporting year). 過去三年(包括匯報年度)每年因工亡故的人數及比率。	3.2	Safety production and occupational health 安全生產及職業健康
B2.2	Number of job lost due to job-related injury. 因工傷損失工作數。	3.2	Safety production and occupational health 安全生產及職業健康
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored. 描述所採納的職業健康與安全措施，以及相關執行及監察方法。	3.2	Safety production and occupational health 安全生產及職業健康
Aspect B3: Development and Training 層面B3：發展及培訓			
B3	General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. 一般披露 有關提升僱員履行工作職責的知識及技能的政策。描述培訓活動。	3.3	Employee Training and Career Development Mechanism 教育培訓及發展機制
B3.1	Percentage of the trained employees by gender and type (such as senior management, medium management). 按性別及僱員類別(如高級管理層、中層管理層)劃分的受訓僱員百分比。	3.3	Employee Training and Career Development Mechanism 教育培訓及發展機制
B3.2	The average hours of employees trained by gender and employee category. 按性別及僱員類別劃分，每名僱員完成受訓的平均時數。	3.3	Employee Training and Career Development Mechanism 教育培訓及發展機制

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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》	Report content 報告內容
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Aspect B4: Labor Standards

層面B4：勞工準則

B4	<p>General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labor. 一般披露 有關防止童工或強制勞工的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。</p>	3.1	<p>Legitimate Employment and Welfare Protection 依法僱傭及福利保障</p>
B4.1	<p>Description of measures to review employment practices to avoid child and forced labor. 描述檢討招聘慣例的措施以避免童工及強制勞工。</p>	3.1	<p>Legitimate Employment and Welfare Protection 依法僱傭及福利保障</p>
B4.2	<p>Description of steps taken to eliminate such practices when discovered. 描述在發現違規情況時消除有關情況所採取的步驟。</p>	3.1	<p>Legitimate Employment and Welfare Protection 依法僱傭及福利保障</p>

Operating Practices

營運慣例

Aspect B5: Supply Chain Management

層面B5：供應鏈管理

B5	<p>General Disclosure Policies on managing environmental and social risks of the supply chain. 一般披露 管理供應鏈的環境及社會風險政策。</p>	5.1	<p>Supplier Cooperation and Management 供應商合作與管理</p>
B5.1	<p>Number of suppliers by geographical region. 按地區劃分的供應商數目。</p>	5.1	<p>Supplier Cooperation and Management 供應商合作與管理</p>
B5.2	<p>Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored. 描述有關聘用供應商的慣例，向其執行有關慣例的供應商數目、以及有關慣例的執行及監察方法。</p>	5.1	<p>Supplier Cooperation and Management 供應商合作與管理</p>



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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容	
Aspect B6: Product Responsibility 層面B6：產品責任			
B6	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labeling and privacy matters relating to products and services provided and methods of redress. 一般披露 有關所提供產品和服務的健康與安全、廣告、標籤及私隱事宜以及補救方法的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	4.2	Take responsibility for product and place quality in the first place 產品責任 質量為先
		5.2	Establish Good Customer Relationship 構建良好客戶關係
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons. 已售或已運送產品總數中因安全與健康理由而須回收的百分比。	5.2	Establish Good Customer Relationship 構建良好客戶關係
B6.2	Number of products and service related complaints received and how they are dealt with. 接獲關於產品及服務的投訴數目以及應對方法。	5.2	Establish Good Customer Relationship 構建良好客戶關係
B6.3	Description of practices relating to observing and protecting intellectual property rights. 描述與維護及保障知識產權有關的慣例。	4.3	Innovation, efficiency, and scientific advancement 創新增效科學進步
B6.4	Description of quality assurance process and product recall procedures. 描述質量檢定過程及產品回收程序。	4.2	Take responsibility for product and place quality in the first place 產品責任質量為先
B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored. 描述消費者資料保障及隱私政策，以及相關執行及監察方法。	4.3	Not involved 不涉及

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Environmental, Social and Governance Report Guide 《環境、社會及管治報告指引》		Report content 報告內容	
Aspect B7: Anti-corruption 層面B7：反貪污			
B7	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering. 一般披露 有關防止賄賂、勒索、欺詐及洗黑錢的： (a) 政策；及 (b) 遵守對發行人有重大影響的相關法律及規例的資料。	4.1	Fight Corruption and Promote Incorruptible Employment according to Law 依法依規廉潔從業
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases. 於匯報期內對發行人或其雇員提出並已審結的貪污訴訟案件的數目及訴訟結果。	4.1	Fight Corruption and Promote Incorruptible Employment according to Law 依法依規 廉潔從業
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored. 描述防範措施及舉報程序，以及相關執行及監察方法	4.1	Fight Corruption and Promote Incorruptible Employment according to Law 依法依規 廉潔從業
Community 社區			
Aspect B8: Community Investment 層面B8：社區投資			
B8	General Disclosure Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests. 一般披露 有關以社區參與來瞭解營運所在社區需要和確保其業務活動會考慮社區利益的政策。	5.3	Fulfilling Corporate Social Responsibility 踐行企業社會責任
B8.1	Focus areas of contribution (e.g. education, environmental issues, labor needs, health, culture, sports). 專注貢獻範疇(如教育、環境事宜、勞工需求、健康、文化、體育)。	5.3	Fulfilling Corporate Social Responsibility 踐行企業社會責任
B8.2	Resources contributed (e.g. money or time) to the focus area. 在專注範疇所動用資源(如金錢或時間)。	5.3	Fulfilling Corporate Social Responsibility 踐行企業社會責任



INDEPENDENT AUDITOR'S REPORT

獨立核數師報告



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To the shareholders of Guodian Technology & Environment Group Corporation Limited

(Incorporated in the People's Republic of China with limited liability)

致國電科技環保集團股份有限公司股東

(於中華人民共和國註冊成立的股份有限公司)

OPINION

We have audited the consolidated financial statements of Guodian Technology & Environment Group Corporation Limited (the “**Company**”) and its subsidiaries (the “**Group**”) set out on pages 177 to 353, which comprise the consolidated statement of financial position as at 31 December 2019, the consolidated statement of profit or loss, the consolidated statement of profit or loss and other comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2019, and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (“**IFRSs**”) issued by the International Accounting Standards Board (“**IASB**”) and have been properly prepared in compliance with the disclosure requirements of the Hong Kong Companies Ordinance.

BASIS FOR OPINION

We conducted our audit in accordance with Hong Kong Standards on Auditing (“**HKSAs**”) issued by the Hong Kong Institute of Certified Public Accountants (“**HKICPA**”). Our responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the consolidated financial statements* section of our report. We are independent of the Group in accordance with the HKICPA's Code of Ethics for Professional Accountants (the “**Code**”), and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

意見

我們已審核刊於第177至353頁的國電科技環保集團股份有限公司(以下簡稱「**貴公司**」)及其附屬公司(以下統稱「**貴集團**」)的合併財務報表，包括於2019年12月31日的合併財務狀況表與截至該日止年度的合併損益表、合併損益及其他綜合收益表、合併權益變動表和合併現金流量表，以及合併財務報表附註，包括主要會計政策概要。

我們認為，該等合併財務報表已根據國際會計準則理事會頒佈的《國際財務報告準則》真實而公平地反映貴集團於2019年12月31日的合併財務狀況及截至該日止年度的合併財務業績及合併現金流量，並已按照香港《公司條例》的披露要求妥為編製。

意見的基礎

我們已根據香港會計師公會頒佈的《香港核數準則》進行審核。我們在該等準則下承擔的責任已在本報告「核數師就審核合併財務報表須承擔的責任」部分中作進一步闡述。根據香港會計師公會頒佈的《職業會計師道德守則》(以下簡稱「**守則**」)以及與中華人民共和國合併財務報表審核相關的道德要求，我們獨立於貴集團，並已履行該等道德要求以及守則中的其他專業道德責任。我們相信，我們所獲得的審核憑證能充足及適當地為我們的審核意見提供基礎。

INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

KEY AUDIT MATTERS

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. For each matter below, our description of how our audit addressed the matter is provided in that context.

We have fulfilled the responsibilities described in the *Auditor's responsibilities for the audit of the consolidated financial statements* section of our report, including in relation to these matters. Accordingly, our audit included the performance of procedures designed to respond to our assessment of the risks of material misstatement of the consolidated financial statements. The results of our audit procedures, including the procedures performed to address the matters below, provide the basis for our audit opinion on the accompanying consolidated financial statements.

Key audit matter How our audit addressed the key audit matter

Loss allowance for trade receivables and contract assets

At 31 December 2019, the Group's trade receivables and contract assets totalled RMB13,864 million after deduction of an allowance for expected credit losses of RMB2,212 million.

Management estimates the loss allowance at an amount equal to lifetime expected credit loss for trade receivables and contract assets that do not contain a significant financing component with assessments of expected credit losses and estimated loss rates based on the ageing of balances for groupings of various customer segments with similar loss patterns, repayment histories of individual debtors, existing customer-specific and market conditions and forward-looking information. For the trade receivables and contract assets that contain a significant financing component, management estimates the loss allowance using the general approach with different stages by assessing whether the credit risk has increased significantly since initial recognition. Such assessment involves a significant degree of judgement.

Our audit procedures to assess the loss allowance for trade receivables and contract assets included the following:

- obtaining an understanding of and assessing the design, implementation and operation of key internal controls over the credit control, the receivables collection process and the process of making loss allowances for trade receivables and contract assets;
- obtaining an understanding on the key data and assumptions of the expected credit loss model adopted by management, including the historical default data, ageing of debtor balances, credit terms, recent settlement patterns and forecast of future economic conditions;
- assessing management's estimates on loss allowance by examining the information used by management, including testing the accuracy of the historical default data and evaluating whether the historical loss rates were appropriately adjusted based on current economic conditions and forward-looking information considering the future economic conditions, such as checking the subsequent settlements and obtaining the signed detailed settlement arrangement with the customers;

關鍵審計事項

關鍵審核事項是根據我們專業判斷，認為對本期間綜合財務報表的審計最為重要的該等事項。該等事項於我們審核整份合併財務報表以達致我們的意見時予以處理，我們不會對該等事項出具單獨意見。就以下各項事項而言，我們在文中闡述我們於審核時如何處理該事項。

我們已履行本報告「核數師就審核合併財務報表須承擔的責任」一節所述的責任，包括與該等事項相關者。因此，我們的審核包括執行對合併財務報表重大失實陳述風險的評估作出響應而設的程序。審計程序(包括為處理以下事項進行的程序)得出的結論為我們對隨附合併財務報表作出審核意見提供基礎。

關鍵審計事項 審計事項如何解決

應收賬款及合同資產壞賬撥備

於二零一九年十二月三十一日，貴集團應收賬款及合同資產扣除按照預期信用損失確認的減值虧損人民幣2,212百萬元後的淨值合計約為人民幣13,864百萬元。

管理層根據預計信用損失模型估計不含重大融資成分的應收賬款及合同資產整個存續期間的預期信用損失，並根據具有相似損失類型的不同分部客戶的逾期應收款項的賬齡、每個債務人的歷史還款記錄、已存在的客戶的特定性和市場條件以及前瞻性信息評估信用損失率。對於包含重大融資成分的應收賬款及合同資產，管理層通過評估信用風險自初始確認以來是否顯著增加，在一般方法下評估不同階段下的壞賬撥備。該項評估涉及重大的主觀判斷。

我們對應收賬款及合同資產壞賬準備實施的審計程序包括以下內容：

- 了解並評估應收賬款及合同資產的信用管控、收款流程以及計提壞賬準備的關鍵內部控制的設計、執行及其運行有效性；
- 了解管理層採用的預期信用損失模型的關鍵數據和假設，包括歷史違約資料，債務人賬齡，信用條款，近期結算方式以及對未來經濟狀況的預測；
- 通過檢查管理層用於形成上述判斷的信息，評估管理層對壞賬撥備估計的合理性，包括測試歷史違約資料的準確性，評估歷史損失率是否根據當前經濟狀況和考慮了未來經濟狀況的前瞻性信息進行了適當調整，如核對後續的結算，並取得與客戶簽訂的詳細的結算安排。



INDEPENDENT AUDITOR'S REPORT (CONTINUED)

獨立核數師報告(續)

KEY AUDIT MATTERS (CONTINUED)

Key audit matter (Continued)

How our audit addressed the key audit matter (Continued)

Loss allowance for trade receivables and contract assets (Continued)

We identified the loss allowance for trade receivables and contract assets as a key audit matter because of the inherent uncertainty in assessing if trade receivables and contract assets will be recovered in full and because the assessment of expected credit losses requires the exercise of significant management judgement.

The accounting policy, significant accounting judgements and estimates and disclosures about the amount of loss allowance and the balances of trade receivables and contract assets are included in notes 2(p), 4(b), 23, 25 and 26 to the consolidated financial statements.

- assessing the ageing report by comparing a sample of individual items with the relevant underlying documentation;
- assessing the assumptions and estimates made by management for the assessment of loss allowances for trade receivables and contract assets by performing a retrospective review of the historical accuracy of these assumptions and estimates, including historical default data and estimated loss rates;
- checking, on a sample basis, cash receipts from debtors to bank-in slips and actual billings to customers subsequent to the year end relating to the balances of trade receivables and contract assets at 31 December 2019; and
- assessing the disclosures in the consolidated financial statements in relation to the loss allowances for trade receivables and contract assets with reference to the requirements of the prevailing accounting standards.

關鍵審計事項(續)

關鍵審計事項(續)

審計事項如何解決(續)

應收賬款及合同資產壞賬撥備(續)

我們將應收賬款及合同資產的壞賬撥備作為關鍵審計事項，是由於應收賬款、合同資產的可回收性具有固有不確定性，且預期信用損失的確認需要管理層作出重大判斷。

應收賬款及合同資產減值虧損及淨值相關會計政策、會計判斷和估計及披露載於合併財務報表附註2(p)、4(b)、23、25及26。

- 通過對比單個項目樣本和相關基礎檔案，評估應收款項及合同資產賬齡報告；
- 通過對應收賬款及合同資產的壞賬撥備的假設和估計(包括歷史違約數據及預期損失率)的歷史準確性執行回溯性審閱，以評估管理層採用的假設及估計是否合理；
- 以抽樣方式對截止2019年12月31日應收賬款及合同資產的回款情況、開具的發票與銀行對賬單進行檢查；及
- 評估應收款項和合同資產的壞賬準備是否根據現行會計準則於合併財務報表中進行了適當披露。

INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

KEY AUDIT MATTERS (CONTINUED)

關鍵審計事項(續)

Key audit matter	How our audit addressed the key audit matter	關鍵審計事項	審計事項如何解決
<p>Assessing potential impairment of certain property, plant and equipment and intangible assets</p> <p>At 31 December 2019, the Group's property, plant and equipment ("PPE") and intangible assets were RMB4,586 million and RMB864 million, respectively. Certain subsidiaries of the Group were loss-making or suspended production due to various market and economic factors, which included severe market competition, rising in cost of raw materials, delays in operations influenced by government policies and decreases in market demand.</p> <p>Management considered the above events and circumstances indicated that PPE and intangible assets associated with these subsidiaries might be impaired and performed impairment assessments of these assets, or the cash-generating units ("CGUs") to which these assets were allocated, to determine their recoverable amounts. Management determined the recoverable amounts by using the value in use model or fair value less costs of disposal model. The impairment assessment involves significant degree of management judgement, particularly in relation to the key assumptions adopted, including revenue growth rates, gross profit margins, long-term growth rates, inflation rates, the discount rate applied in the discounted cash flow forecast, and the key assumptions adopted in the fair value less costs of disposal model, including the remaining useful economic lives of the relevant assets and the comparable transactions.</p>	<p>Our audit procedures to assess potential impairment of PPE and intangible assets held by certain subsidiaries of the Group included the following:</p> <ul style="list-style-type: none"> • assessing the Group's impairment assessment model, which included assessing the impairment indicators identified by management, the identification of CGUs and the allocation of assets to those CGUs and evaluating the methodology adopted by management in the preparation of impairment assessments with reference to the requirements of the prevailing accounting standards; • comparing the data in the discounted cash flow forecasts used for the impairment assessments with the relevant data of the Group's financial budget which was approved by the directors; • assessing the reliability of management's cash flow forecasting process by comparing the previous year's forecasts with the current year's results, discussing significant variances with management and considering the effect of such variances on the current year's forecasts; 	<p>於2019年12月31日，貴集團物業、廠房及設備及無形資產餘額分別為人民幣4,586百萬元與人民幣864百萬元。由於市場競爭激烈，原材料價格上漲，受政府政策原因延遲開展運營，以及市場需求下降等各種市場經濟因素，貴集團某些附屬公司出現虧損或停產。</p> <p>鑑於此，管理層認為這些附屬公司的固定資產和無形資產存在減值跡象，並對其固定資產和無形資產或相關資產所屬的現金產單元進行減值測試，以計算其可回收金額。管理層採用使用價值法或公允價值減處置費用法，確定其可變現淨值。該減值評估涉及重大的管理層判斷，尤其是採用的關鍵假設，包括預計的收入增長率、毛利率、長期增長率、通脹率、折現現金流預測使用的折現率；以及在公允價值減處置費用法中採用的關鍵假設，包括相關資產的剩餘可使用經濟年限和可比交易。</p>	<p>我們就評估貴集團某些附屬持有的物業、廠房及設備及無形資產的潛在減值的審計程序包括以下程序：</p> <ul style="list-style-type: none"> • 對貴集團減值測試模型進行評價，評估管理層識別出的減值跡象、現金產生單元的劃分及其對應資產的分配，覆核管理層進行減值準備評估時採用的方法是否符合現行會計準則的要求； • 將用作減值評估的經折現現金流量預測中使用的數據與貴集團經董事會批准的財務預算進行對比； • 通過對比以前年度預測和當前年度的實際結果，評估管理層編製現金流量預測過程的可靠性，對於重大差異與管理層進行討論並考慮該差異對於當前年度的財務影響；



INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

KEY AUDIT MATTERS (CONTINUED)

Key audit matter (Continued)

Assessing potential impairment of certain property, plant and equipment and intangible assets (Continued)

We identified assessing potential impairment of PPE and intangible assets held by certain subsidiaries of the Group as a key audit matter because the impairment assessments included a number of assumptions and estimates which required the exercise of significant management judgement and they were inherently uncertain.

The accounting policy, significant accounting judgements and estimates and disclosures about the amount of provision and the balances of PPE and intangible assets are included in notes 2(m), 4(a), 15 and 18 to the consolidated financial statements.

How our audit addressed the key audit matter (Continued)

- comparing the key assumptions adopted by management in the discounted cash flow forecasts with externally available information in relation to key inputs, which included revenue growth rates, gross profit margins, long-term growth rates and inflation rates; assessing the key assumptions adopted in the calculation of the fair value less costs of disposal of related assets, including the remaining economic useful lives by assessing whether the key assumptions were within the range adopted by other companies in the same industry or performing recalculations by using market and other external available information derived from similar industries;
- comparing the discount rates applied in the discounted cash flow forecasts with those of the comparable companies in the same industry;
- involving our internal valuation specialists to assist us in evaluating the methodology and the discount rates used in the calculation of the recoverable amounts;
- discussing with management on the key assumptions to which the outcome of the impairment assessment was most sensitive, including those relating to forecast revenue and forecast profit margins, and reviewing the sensitivity analysis; and
- assessing the disclosures in the consolidated financial statements in respect of the impairment assessment with reference to the requirements of the prevailing accounting standards.

關鍵審計事項(續)

關鍵審計事項(續)

評估部分物業、廠房及設備以及無形資產的潛在減值(續)

我們把評估貴集團某些附屬公司持有的物業、廠房及設備以及無形資產的潛在減值列為關鍵審計事項，因為這些減值測試涉及眾多需要重大的管理層判斷的假設和估計，可能存在固有的不確定性。

物業、廠房及設備以及無形資產減值虧損及淨值相關會計政策、會計判斷和估計及披露載於合併財務報表附註2(m)、4(a)、15及18。

審計事項如何解決(續)

- 將管理層編製折現現金流量預測時採用的關鍵假設與外部可獲得的關鍵輸入值相關的信息進行比較，包括收入增長率、毛利率、長期增長率以及通脹率；評估計算公允價值減相關資產處置成本所採納的假設，包括剩餘的經濟使用壽命，評估這些關鍵假設是否在同一行業其他公司採用的範圍內或通過使用市場及類似行業的其他外部可用資訊進行重新計算；
- 將經折現的現金流量預測表中採用的折現率與同行業可比公司採用的折現率進行對比；
- 聘請我們的內部估值專家來協助我們評估可收回金額的計算方法和折現率；
- 與管理層討論對減值測試結果變動最敏感的關鍵假設，包括關於收入預測和毛利率預測的假設，復核敏感性分析；及
- 評估減值評估在合併財務報表中的披露是否滿足現行會計準則披露。



INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

OTHER INFORMATION INCLUDED IN THE ANNUAL REPORT

The directors of the Company are responsible for the other information. The other information comprises the information included in the Annual Report, other than the consolidated financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

年報內刊載的其他信息

貴公司董事需對其他信息負責。其他信息包括刊載於年報內的信息，但不包括合併財務報表及我們的核數師報告。

我們對合併財務報表的意見並不涵蓋其他信息，我們亦不對該等其他信息發表任何形式的鑑證結論。

結合我們對合併財務報表的審計，我們的責任是閱讀其他信息及，在此過程中，考慮其他信息是否與合併財務報表或我們在審計過程中所了解的情況存在重大抵觸或者似乎存在重大錯誤陳述的情況。基於我們已執行的工作，如果我們認為其他信息存在重大錯誤陳述，我們需要報告該事實。我們就此並無須報告事項。



INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

RESPONSIBILITIES OF THE DIRECTORS FOR THE CONSOLIDATED FINANCIAL STATEMENTS

The directors of the Company are responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with IFRSs issued by the IASB and the disclosure requirements of the Hong Kong Companies Ordinance, and for such internal control as the directors determine is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the directors of the Company are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors of the Company either intend to liquidate the Group or to cease operations or have no realistic alternative but to do so.

The directors of the Company are assisted by the Audit Committee in discharging their responsibilities for overseeing the Group's financial reporting process.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Our report is made solely to you, as a body, and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report.

Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with HKSA's will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

董事就合併財務報表須承擔的責任

董事須負責根據國際會計準則理事會頒佈的《國際財務報告準則》及香港《公司條例》有關披露要求編製及真實而公平地列報該等合併財務報表，並負責董事認為編製合併財務報表所必需的有關內部監控，以確保有關合併財務報表不存在由於欺詐或錯誤而導致的重大錯誤陳述。

在編製合併財務報表時，董事須負責評估貴集團持續經營的能力，並披露與持續經營有關的事項（如適用）。除非董事有意將貴集團清盤，或停止營運，或除此之外並無其他實際的可行的辦法，否則董事須採用以持續經營為基礎的會計法。

審計委員會協助董事履行監督貴集團的財務報告流程的責任。

核數師就審計合併財務報表承擔的責任

我們的目標是對合併財務報表整體是否不存在由於欺詐或錯誤而導致的重大錯誤陳述取得合理保證，並出具包括我們意見的核數師報告。我們僅向整體成員報告。除此以外，我們的報告不可用作其他用途。我們概不就本報告的內容，對任何其他人士負責或承擔法律責任。

合理保證是高水平的保證，但不能保證按照《香港審計準則》進行的審計，在某一重大錯誤陳述存在時總能發現。錯誤陳述可以由欺詐或錯誤引起，如果合理預期它們單獨或匯總起來可能影響合併財務報表使用者依賴財務報表所作出的經濟決定，則有關的錯誤陳述可被視作重大。



INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

As part of an audit in accordance with HKSA's, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

核數師就審計合併財務報表承擔的責任(續)

作為根據《香港會計準則》進行審計的一部分，我們在整個審計過程中運用職業判斷並保持職業懷疑。我們還：

- 識別和評估由於欺詐或錯誤而導致合併財務報表存在重大錯誤陳述的風險，設計及執行審計程序以應對這些風險，以及獲取充足和適當的審計憑證，作為我們意見的基礎。由於欺詐可能涉及串謀、偽造、蓄意遺漏、虛假陳述，或凌駕於內部控制之上，因此未能發現因欺詐而導致的重大錯誤陳述的風險高於未能發現因錯誤而導致的重大錯誤陳述的風險。
- 了解與審計相關的內部控制，以設計適當的審計程序，但目的並非對貴集團內部控制的有效性發表意見。
- 評價董事所採用會計政策的恰當性及作出會計估計和相關披露的合理性。
- 對董事採用持續經營會計基礎的恰當性作出結論。根據所獲取的審計憑證，確定是否存在與事項或情況有關的重大不確定性，從而可能導致對貴集團的持續經營能力產生重大疑慮。如果我們認為存在重大不確定性，則有必要在核數師報告中提請使用者注意合併財務報表中的相關披露。假若有關的披露不足，則我們應當發表非無保留意見。我們的結論是基於核數師報告日止所取得的審計憑證。然而，未來事項或情況可能導致貴集團不能持續經營。
- 評價合併財務報表的整體列報方式、結構和內容，包括披露，以及合併財務報表是否中肯反映相關交易和事項。
- 就貴集團內各實體或業務活動的財務資料獲得充足、適當的審核憑證，以就合併財務報表發表意見。我們須負責指導、監督和執行貴集團的審核工作。我們須為我們的審核意見承擔全部責任。



INDEPENDENT AUDITOR'S REPORT (CONTINUED) 獨立核數師報告(續)

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Audit Committee with a statement that we have complied with relevant ethical requirements regarding independence and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Bennett S.H. Wai.

Ernst & Young
Certified Public Accountants

Hong Kong
17 April 2020

核數師就審計合併財務報表承擔的責任(續)

我們就審核工作的計劃範圍和時間、在審核過程中的主要發現(包括內部控制的任何重大缺失)及其他事項與審計委員會進行溝通。

我們亦向審計委員會作出聲明，確認我們已遵守有關獨立性的道德要求，並就所有被合理認為可能影響核數師獨立性的關係和其他事宜以及相關保障措施(如適用)，與審計委員會進行溝通。

我們通過與審計委員會溝通，確定哪些是本期合併財務報表審核工作的最重要事項，即關鍵審核事項。除非法律或法規不容許公開披露此等事項或在極罕有的情況下，我們認為披露此等事項可合理預期的不良後果將超過公眾知悉此等事項的利益而不應在報告中予以披露，否則我們會在核數師報告中描述此等事項。

負責簽發獨立核數師報告的項目合伙人為章少雄。

安永會計師事務所
執業會計師

香港
2020年4月17日

CONSOLIDATED STATEMENT OF PROFIT OR LOSS

合併損益表

For the year ended 31 December 2019 (Amounts expressed in Renminbi ("RMB") unless otherwise stated)
截至2019年12月31日止年度(除非另有說明,以人民幣列示)

		Notes 附註	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Continuing operations	持續經營業務			
Revenue	收入	6	11,691,038	11,411,780
Cost of sales	銷售成本		(9,102,840)	(8,743,788)
Gross profit	毛利		2,588,198	2,667,992
Other revenue	其他收入	7	323,064	331,668
Other net income	其他收益淨額	7	155,915	42,278
Selling and distribution expenses	銷售及分銷開支		(1,184,562)	(653,816)
Administrative expenses	行政開支		(1,485,061)	(1,929,154)
Profit from operations	經營利潤		397,554	458,968
Finance costs	財務成本	8	(592,937)	(580,062)
Share of profits less losses of associates	應佔聯營公司利潤減虧損		45,868	61,433
Loss before taxation from continuing operations	來自持續經營業務之稅前虧損	9	(149,515)	(59,661)
Income tax	所得稅	10	(297,537)	16,965
Loss for the year from continuing operations	本年來自持續經營業務之虧損		(447,052)	(42,696)
Discontinued operation	已終止經營業務			
Profit for the year from discontinued operation	本年來自已終止經營之業務利潤	13	–	155,059
(Loss)/profit for the year	本年(虧損)/利潤		(447,052)	112,363
Attributable to:	歸屬於:			
– Equity shareholders of the Company	– 本公司權益股東		(289,688)	114,087
– Non-controlling interests	– 非控股權益		(157,364)	(1,724)
(Loss)/profit for the year	本年(虧損)/利潤		(447,052)	112,363
Basic and diluted (loss)/earnings per share (expressed in RMB cent)	每股基本及攤薄(虧損)/盈利 (以人民幣分列示)	14		
– Continuing and discontinued operations	– 持續經營業務和已終止經營業務		(4.78)	1.88
– Continuing operations	– 持續經營業務		(4.78)	(0.68)
– Discontinued operation	– 已終止經營業務		–	2.56

CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

合併損益及其他綜合收益表

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明，以人民幣列示)

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
(Loss)/profit for the year	本年(虧損)/利潤	(447,052)	112,363
Other comprehensive income for the year	本年其他綜合收益		
Items that will not be reclassified to profit or loss:	不會重分類計入損益的項目：		
– equity investments at fair value through other comprehensive income (“FVOCI”):	– 以公允價值計量且其變動計入其他綜合收益的股權投資：		
– changes in fair value	– 公允價值變動	372,785	(44,414)
– income tax effect	– 所得稅影響	(85,705)	–
Items that may be reclassified subsequently to profit or loss:	其後將重分類計入損益的項目：		
– Exchange differences on translation of financial statements of operations outside the People’s Republic of China (the “PRC”)	– 換算中華人民共和國(「中國」)境外業務財務報表產生的匯兌差額	377	1,126
Other comprehensive income for the year, net of tax	本年其他綜合收益，稅後淨額	287,457	(43,288)
Total comprehensive income for the year	本年綜合收益總額	(159,595)	69,075
Attributable to:	歸屬於：		
Equity shareholders of the Company	本公司權益股東	(2,231)	70,799
Non-controlling interests	非控股權益	(157,364)	(1,724)
Total comprehensive income for the year	本年綜合收益總額	(159,595)	69,075

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

合併財務狀況表

As at 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
於2019年12月31日止年度(除非另有說明,以人民幣列示)

	Notes 附註	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元 (Note) (附註)
Non-current assets			
Property, plant and equipment	15	4,586,390	4,250,821
Investment properties	16	218,205	226,281
Lease prepayments	17	–	302,033
Intangible assets	18	864,193	1,177,482
Goodwill	19	57,591	57,591
Interests in associates	21	444,539	396,682
Other equity investments	22	1,229,800	858,415
Restricted deposits	28	14,578	–
Other non-current assets	23	3,828,725	3,353,611
Deferred tax assets	34(b)	686,097	911,188
Total non-current assets		11,930,118	11,534,104
Current assets			
Inventories	24	4,147,852	3,017,407
Contract assets	25	2,284,957	2,090,735
Trade and bills receivables	26	9,809,267	11,915,446
Deposits, prepayments and other receivables	27	1,617,680	1,700,827
Tax recoverable	34(a)	220,952	176,299
Restricted deposits	28	615,564	274,830
Cash at bank and in hand	29	4,186,922	3,436,459
Assets held for sale		–	11,307
Total current assets		22,883,194	22,623,310
Current liabilities			
Borrowings	30(b)	6,318,173	8,035,414
Trade and bills payables	31	9,941,038	9,770,747
Other payables and accruals	32	1,469,945	1,600,928
Contract liabilities	33	2,174,643	1,608,155
Income tax payable	34(a)	52,636	48,565
Provision for warranty	35	320,736	92,597
Total current liabilities		20,277,171	21,156,406
Net current assets		2,606,023	1,466,904
Total assets less current liabilities		14,536,141	13,001,008

Note: Certain comparative numbers have been reclassified to conform with current year's presentation.

附註: 為與本年列報一致,對部分比較數據進行重分類。



CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED) 合併財務狀況表(續)

As at 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
於2019年12月31日止年度(除非另有說明,以人民幣列示)

		Notes 附註	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元 (Note) (附註)
Non-current liabilities	非流動負債			
Borrowings	借款	30(a)	5,401,057	3,693,318
Deferred income	遞延收益	36	293,602	318,933
Deferred tax liabilities	遞延稅項負債	34(b)	215,742	153,949
Lease liabilities	租賃負債	17	98,003	–
Provision for warranty	質保金撥備	35	271,863	574,744
Other non-current liabilities	其他非流動負債	37	694,156	516,892
Total non-current liabilities	非流動負債總額		6,974,423	5,257,836
NET ASSETS	資產淨額		7,561,718	7,743,172
CAPITAL AND RESERVES	資本及儲備			
Share capital	股本	38(c)	6,063,770	6,063,770
Reserves	儲備		(1,297,656)	(1,294,286)
Total equity attributable to equity shareholders of the Company	歸屬於本公司權益股東的權益總額		4,766,114	4,769,484
Non-controlling interests	非控股權益	20(iii)	2,795,604	2,973,688
TOTAL EQUITY	權益總額		7,561,718	7,743,172

Note: Certain comparative numbers have been reclassified to conform with current year's presentation.

附註: 為與本年列報一致,對部分比較數據進行重分類。

Approved and authorised for issue by the board of directors on 17 April 2020.

董事會於2020年4月17日批准及授權刊發。

CHEN Dongqing 陳冬青
Executive Director 執行董事

TANG Chaoxiong 唐超雄
Executive Director 執行董事

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

合併權益變動表

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明,以人民幣列示)

		Attributable to equity shareholders of the Company							Non-controlling interests	
		歸屬本公司權益股東								
		Share capital	Capital reserve	PRC statutory reserve	Exchange reserve	Fair value reserve (non-recycling)	Accumulated losses	Sub-total		Total equity
		股本	資本儲備	中國法定公積	匯兌儲備	(不重新計入)	累計虧損	小計	非控股權益	權益總額
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
		Note 38(c)	Note 38(d)(i)	Note 38(d)(ii)	Note 38(d)(iii)	Note 38(d)(iv)				
		附註38(c)	附註38(d)(i)	附註38(d)(ii)	附註38(d)(iii)	附註38(d)(iv)				
Balance at 31 December 2018 and 1 January 2019	2018年12月31日及2019年1月1日結餘	6,063,770	1,053,550	129,332	2,121	(32,932)	(2,446,357)	4,769,484	2,973,688	7,743,172
Changes in equity for 2019:	2019年權益變動:									
Loss for the year	本年虧損	-	-	-	-	-	(289,688)	(289,688)	(157,364)	(447,052)
Other comprehensive income	其他綜合收益	-	-	-	377	287,080	-	287,457	-	287,457
Total comprehensive income	綜合收益總額	-	-	-	377	287,080	(289,688)	(2,231)	(157,364)	(159,595)
Capital injection from non-controlling interest	非控股股東注資	-	-	-	-	-	-	-	11,495	11,495
Disposal of subsidiaries	處置附屬公司	-	-	-	-	-	-	-	(1,983)	(1,983)
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權益所有者支付股息	-	-	-	-	-	-	-	(27,661)	(27,661)
Acquisition of a non-controlling interest in a subsidiary	收購子公司的少數股權	-	-	-	-	-	-	-	(2,571)	(2,571)
Loss on disposal of an equity investment at FVOCI	處置以公允價值計量且其變動計入其他綜合收益的股權投資的損失	-	-	-	-	-	(1,139)	(1,139)	-	(1,139)
Balance at 31 December 2019	2019年12月31日結餘	6,063,770	1,053,550	129,332	2,498	254,148	(2,737,184)	4,766,114	2,795,604	7,561,718



CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

合併權益變動表(續)

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明,以人民幣列示)

		Attributable to equity shareholders of the Company 歸屬本公司權益股東									
		Share capital	Capital reserve	PRC statutory reserve	Exchange reserve	Fair value reserve (non-recycling)	Accumulated losses	Sub-total	Non-controlling interests	Total equity	
		股本	資本儲備	中國法定公積	匯兌儲備	公允價值儲備 (不重新計入)	累計虧損	小計	非控股權益	權益總額	
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	
		Note 38(c)	Note 38(d)(i)	Note 38(d)(ii)	Note 38(d)(iii)	Note 38(d)(iv)					
		附註38(c)	附註38(d)(i)	附註38(d)(ii)	附註38(d)(iii)	附註38(d)(iv)					
Balance at 1 January 2018	2018年1月1日結餘	6,063,770	1,053,550	129,332	995	11,482	(2,511,059)	4,748,070	3,040,445	7,788,515	
Changes in equity for 2018:	2018年權益變動:										
Profit/(loss) for the year	本年利潤/(虧損)	-	-	-	-	-	114,087	114,087	(1,724)	112,363	
Other comprehensive income	其他綜合收益	-	-	-	1,126	(44,414)	-	(43,288)	-	(43,288)	
Total comprehensive income	綜合收益總額	-	-	-	1,126	(44,414)	114,087	70,799	(1,724)	69,075	
Disposal of subsidiaries	處置附屬公司	-	-	-	-	-	-	-	(22,478)	(22,478)	
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權益所有者支付股息	-	-	-	-	-	-	-	(91,940)	(91,940)	
Acquisition of non-controlling interests in subsidiaries	收購非同一控制下附屬公司	-	-	-	-	-	(49,385)	(49,385)	49,385	-	
Balance at 31 December 2018	2018年12月31日結餘	6,063,770	1,053,550	129,332	2,121	(32,932)	(2,446,357)	4,769,484	2,973,688	7,743,172	

CONSOLIDATED STATEMENT OF CASH FLOWS

合併現金流量表

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明,以人民幣列示)

			2019	2018
		Notes	RMB'000	RMB'000
		附註	人民幣千元	人民幣千元
Cash flows from operating activities	來自經營活動的現金流			
(Loss)/profit before taxation	稅前(虧損)/利潤		(149,515)	95,398
– Continuing operations	– 持續經營業務		(149,515)	(59,661)
– Discontinued operation	– 已終止經營業務		–	155,059
Adjustments for:	調整為:			
Depreciation	折舊	9	430,151	421,845
Amortisation	攤銷	9	82,964	83,061
Net gain on disposals of property, plant and equipment and intangible assets	出售物業、廠房及設備、無形資產收益淨額	7	(147,112)	(1,301)
Impairment loss on trade and other receivables and contract assets	應收賬款、其他應收款項及合同資產減值虧損	9	28,366	213,360
Impairment loss on property, plant and equipment and intangible assets	物業、廠房、設備及無形資產減值虧損	9	21,314	145,114
Impairment loss/(reversal of impairment) of other non-current assets	其他非流動資產減值損失/(減值轉回)	9	4,473	(112,919)
Write-down of inventories	存貨撇減	24	53	30,256
Finance costs	財務成本	8	592,937	584,778
Interest income	利息收入	7	(114,287)	(97,052)
Government grants	政府補助		(20,110)	(55,683)
Dividend income from equity securities	非上市權益證券的股息收入	7	(20,393)	(18,115)
Net gain on disposals of subsidiaries and interest in an associate	處置附屬公司及投資聯營公司淨收益	7	–	(8,453)
Share of profits less losses of associates	應佔聯營公司利潤減虧損		(45,868)	(61,433)
Changes in working capital:	營運資金的變化:			
(Increase)/decrease in inventories	存貨(增加)/減少		(1,130,498)	96,067
Increase in contract assets	合同資產的增加		(779,508)	(231,940)
Decrease in trade and bills receivables	應收賬款及票據的減少		2,760,583	174,277
Decrease in deposits, prepayments and other receivables	按金、預付款項和其他應收款的減少		26,627	228,986
(Increase)/decrease in other non-current assets	其他非流動資產的(增加)/減少		(392,661)	199,981
Increase/(decrease) in trade and bills payables	應付帳款及票據的(增加)/(減少)		741,652	(515,476)
(Decrease)/increase in other payables	其他應付款項的(減少)/增加		(1,511,559)	48,154
Increase/(decrease) in contract liabilities	合同負債的(增加)/(減少)		1,508,655	(256,610)
Decrease in provision for warranty	質保金撥備的減少		(74,741)	(208,783)
Cash generated from operations	經營中產生的現金		1,811,523	753,422
Income tax paid	已付所得稅		(136,940)	(222,921)
Net cash generated from operating activities	經營活動產生的淨現金		1,674,583	530,501



CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

合併現金流量表(續)

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明，以人民幣列示)

	<i>Notes</i> <i>附註</i>	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Cash flows from investing activities	投資活動產生的現金流		
Payments for purchase of property, plant and equipment, lease prepayments and intangible assets	採購物業、廠房及設備，預付土地租賃款及無形資產支出	(415,282)	(506,325)
Disposals of subsidiaries, net of cash disposed of	出售附屬公司所處置之現金淨額	-	(13,921)
Payments for advances to related parties	給關聯方的墊款	(464)	(6,028)
Payments for advances to third parties	給第三方的墊款	(34,959)	(371,123)
Proceeds from repayment of advances by related parties	關聯方償還墊款	-	13,180
Proceeds from repayment of advances by third parties	第三方償還墊款	78,421	74,800
Increase in deposits with banks	銀行存款的增加	(2,648,500)	(11,000)
Withdrawal of deposits with banks	銀行存款的提取	1,607,000	322,000
Purchase of short-term investments	購買短期投資	(55,000)	-
Government grants received	收到的政府補助	15,154	6,059
Proceeds from disposals of property, plant and equipment and intangible assets	出售物業、廠房及設備及無形資產所得款項	395,896	3,564
Dividends received	已收股息	88,743	89,119
Interest received	已收利息	1,854	98,915
Payments for acquisition of a subsidiary under common control	支付收購附屬公司款項	-	(18,000)
Proceeds from disposal of equity investments designated at FVOCI	處置指定為以公允價值計量且其變動計入其他綜合收益的股權投資	261	-
Net cash used in investing activities	投資活動使用的淨現金	(966,876)	(318,760)

CONSOLIDATED STATEMENT OF CASH FLOWS (CONTINUED)

合併現金流量表(續)

For the year ended 31 December 2019 (Amounts expressed in RMB unless otherwise stated)
截至2019年12月31日止年度(除非另有說明,以人民幣列示)

		Notes	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
		附註		
Cash flows from financing activities	融資活動產生的現金流			
Proceeds from borrowings	貸款所得款項	29(c)	10,961,980	9,879,000
Proceeds from issuance of corporate bonds	發行公司債券債務融資工具所得款項	29(c)	900,000	-
Proceeds from issuance of private placement notes	發行私人配售債務融資工具所得款項	29(c)	1,000,000	1,000,000
Capital injection from a non-controlling equity owner	非控股權益所有者的注資		11,495	-
Decrease in restricted deposits	受限制存款的減少		865,517	257,969
Increase in restricted deposits	受限制存款的增加		(1,214,817)	(339,964)
Repayment of borrowings	償還貸款	29(c)	(11,435,766)	(9,908,876)
Repayment of private placement notes	償還私人配售債務融資工具	29(c)	(1,400,000)	(1,000,000)
Dividends paid by subsidiaries to non-controlling equity owners	附屬公司向非控股權益所有者支付股息		(27,384)	(82,293)
Payments for acquisition of a non-controlling interest in a subsidiary	支付收購子公司非控股權益		(2,571)	-
Interest paid	已付利息	29(c)	(636,018)	(581,976)
Principal portion of lease payments	支付租賃本金部分	29(c)	(22,930)	-
Net cash used in financing activities	融資活動使用的淨現金		(1,000,494)	(776,140)
Net decrease in cash and cash equivalents	現金及現金等價物的淨減少額		(292,787)	(564,399)
Cash and cash equivalents at 1 January	於1月1日的現金及現金等價物		3,436,459	3,994,074
Effect of foreign exchange rate changes	外匯匯率變化的影響		1,750	6,784
Cash and cash equivalents at 31 December	於12月31日的現金及現金等價物		3,145,422	3,436,459



NOTES TO THE FINANCIAL STATEMENTS

財務報表附註

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

1. PRINCIPAL ACTIVITIES AND ORGANISATION

Guodian Technology & Environment Group Corporation Limited (the “**Company**”) was established on 6 April 2001 in the People’s Republic of China (the “**PRC**”) as a state-owned enterprise with limited liability. The Company was converted to a joint stock company with limited liability in the PRC on 16 May 2011. On 30 December 2011, the Company’s H shares were listed on The Stock Exchange of Hong Kong Limited (the “**Stock Exchange**”). At the extraordinary general meeting held on 23 December 2019, the Company considered and adopted the proposal of the change of its name into CHN Energy Technology & Environment Group Corporation Limited, which is currently in the process of industrial and commercial change registration. The registered office address of the Company is Suite 1101, 11/F, Building 1 Yard 16, W.4th Ring Middle Road, Haidian District, Beijing, PRC.

The Company is an investment holding company. The Company’s subsidiaries are involved in the following principal activities:

- environmental protection
- energy conservation solutions
- wind power products and services
- all others, including wind and solar power generation and sale of other electric power control system related products

The directors consider that the ultimate holding company and parent of the Company is China Energy Investment Corporation Limited (“**China Energy**”), a company registered in the PRC and controlled by State-owned Assets Supervision and Administration Commission.

2. SIGNIFICANT ACCOUNTING POLICIES

(a) Statement of compliance

These financial statements have been prepared in accordance with International Financial Reporting Standards (“**IFRSs**”), which include all applicable International Financial Reporting Standards, International Accounting Standards (“**IASs**”) and interpretations issued by the International Accounting Standards Board (the “**IASB**”) and the disclosure requirements of the Hong Kong Companies Ordinance. These financial statements also comply with the applicable disclosure provisions of the Rules Governing the Listing of Securities on the Stock Exchange. Significant accounting policies adopted by the Group are disclosed below.

The IASB has issued certain new and revised IFRSs that are first effective or available for early adoption for the current accounting period of the Group. Note 3 provides information on any changes in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Group for the current and prior accounting periods reflected in these financial statements.

1. 主營業務及組織

國電科技環保集團股份有限公司(「**本公司**」)前身為國電科技環保集團有限公司，成立於2001年4月6日，為國有有限責任企業。本公司於2011年5月16日轉制為中國股份有限公司。2011年12月30日，本公司的H股在香港聯合交易所有限公司(「**香港聯交所**」)上市。本公司於2019年12月23日召開的臨時股東大會上審議通過有關公司更名事項，擬更名為國家能源科技環保集團股份有限公司，目前正在辦理工商變更登記中。本公司註冊地址為北京市海澱區西四環中路16號院1樓11層1101。

本公司為投資控股公司。本公司的附屬公司主要參與以下業務：

- 環保
- 節能解決方案
- 風電產品及服務
- 所有其他，包括風力和太陽能發電以及其他電力控制系統相關產品的銷售

董事認為本公司的最終控股公司及母公司為國家能源投資集團有限責任公司(「**國家能源集團**」)，一家註冊地在中國並且由國有資產監督管理委員會控制的公司。

2. 主要會計政策

(a) 合規聲明

本財務報表乃根據國際財務報告準則(「**國際財務報告準則**」)編製，包括國際會計準則理事會(「**國際會計準則理事會**」)頒佈的所有適用國際財務報告準則、國際會計準則(「**國際會計準則**」)及詮釋以及香港公司條例的披露規定。本財務報表亦符合香港聯交所《證券上市規則》的適用披露條文。

國際會計準則理事會已頒佈將於本集團當前的會計期間首次生效或可供提早採納的若干新訂及經修訂國際財務報告準則。附註3提供有關首次採用該等變動對任何本集團當前及過往會計期間所導致的會計政策變動於本財務報表的反映。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(b) Basis of preparation of the financial statements

Basis of Consolidation

The consolidated financial statements include the financial statements of the Group for the year ended 31 December 2019. A subsidiary is an entity (including a structured entity), directly or indirectly, controlled by the Company. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee (i.e., existing rights that give the Group the current ability to direct the relevant activities of the investee).

When the Company has, directly or indirectly, less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

- (a) the contractual arrangement with the other vote holders of the investee;
- (b) rights arising from other contractual arrangements; and
- (c) the Group's voting rights and potential voting rights.

The financial statements of the subsidiaries are prepared for the same reporting period as the Company, using consistent accounting policies. The results of subsidiaries are consolidated from the date on which the Group obtains control, and continue to be consolidated until the date that such control ceases.

Profit or loss and each component of other comprehensive income are attributed to the equity shareholders of the Company and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

(b) 財務報表的編製基礎

合併基準

合併財務報表包括本集團截至2019年12月31日止年度的財務報表。附屬公司為本公司直接或間接控制的實體(包括結構性實體)。倘本集團自其參與被投資公司的業務而承受可變回報的風險，或享有可變回報的權利，並有能力透過其對被投資公司的權力影響該等回報(即賦予本集團現有以指導被投資公司的相關業務活動的現有權力)，則取得控制權。

倘本公司直接或間接擁有少於被投資公司大多數投票權或類似權利，則本集團於評估其是否擁有對被投資公司的權力時會考慮以下所有相關事實及情況，包括：

- (a) 與被投資公司其他投票權持有人的合約安排；
- (b) 其他合約安排所產生的權利；及
- (c) 本集團的投票權及潛在投票權。

附屬公司的財務報表乃就與本公司相同的報告期間使用一致的會計政策編製。附屬公司的業績自本集團取得控制權當日合併入賬，並會繼續合併入賬直至該控制權終止當日為止。

損益及其他綜合收益的各組成部分歸屬於本公司權益擁有人及非控股權益，即使其導致非控股權益出現虧絀結餘。所有集團內公司間資產及負債、權益、收入、開支以及與本集團成員公司之間交易有關的現金流量均於合併賬目時悉數抵銷。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(b) Basis of preparation of the financial statements (Continued)

Basis of Consolidation (Continued)

The Group reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control described above. A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

If the Group loses control over a subsidiary, it derecognises (i) the assets (including goodwill) and liabilities of the subsidiary, (ii) the carrying amount of any non-controlling interest and (iii) the cumulative translation differences recorded in equity; and recognises (i) the fair value of the consideration received, (ii) the fair value of any investment retained and (iii) any resulting surplus or deficit in profit or loss. The Group's share of components previously recognised in other comprehensive income is reclassified to profit or loss or retained earnings, as appropriate, on the same basis as would be required if the Group had directly disposed of the related assets or liabilities.

The measurement basis used in the preparation of the financial statements is the historical cost basis except for equity investments (Note 22) and bills receivable (Note 26) which are stated at their fair values.

(c) Functional and presentation currency

These financial statements are presented in RMB, rounded to the nearest thousand, which is the functional currency of the Company and its subsidiaries established in the PRC ("PRC Subsidiaries") carrying on the principal activities of the Group. The functional currencies of the Company's subsidiaries in Hong Kong and United States are Hong Kong dollars ("HKD") and United States dollars ("USD") respectively.

(b) 財務報表的編製基礎(續)

合併基準(續)

倘事實及情況顯示上述三項控制權因素其中一項或多項出現變動，則本集團會重估其是否仍然控制被投資公司。附屬公司擁有權益的變動(並無失去控制權)入賬列作權益交易。

倘本集團喪失附屬公司的控制權，則其終止確認(i)該附屬公司的資產(包括商譽)及負債、(ii)任何非控股權益的賬面價值及(iii)於股權內記錄的累計匯兌差額；並確認(i)已收代價的公允價值、(ii)所保留的任何投資的公允價值及(iii)損益中任何因此產生的盈虧。先前於其他綜合收益確認的本集團應佔部分重新分類至損益或保留盈利(視情況而定)，所採用的基準與本集團直接出售相關資產或負債所規定的基準相同。

編製財務報表所用的計量基準為歷史成本基準。惟若干應收票據(見附註26)及股權投資(見附註22)乃按其公允價值列賬。

(c) 記賬本位幣及列報貨幣

此等財務報表均以本公司及在中國設立的附屬公司(「中國附屬公司」)開展本集團經營活動所採用的功能貨幣人民幣列示，約至最接近的千位。本公司在香港和美國的各附屬公司的功能貨幣分別為港元和美元。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(d) Subsidiaries and non-controlling interests

Subsidiaries are entities controlled by the Group. An investment in a subsidiary is consolidated into the consolidated financial statements from the date that control commences until the date that control ceases. Intra-group balances, transactions and cash flows and any unrealised profits arising from intra-group transactions are eliminated in full in preparing the consolidated financial statements. Unrealised losses resulting from intra-group transactions are eliminated in the same way as unrealised gains but only to the extent that there is no evidence of impairment.

Non-controlling interests represent the equity in a subsidiary not attributable directly or indirectly to the Company, and in respect of which the Group has not agreed any additional terms with the holders of those interests which would result in the Group as a whole having a contractual obligation in respect of those interests that meets the definition of a financial liability. For each business combination, the Group can elect to measure any non-controlling interests either at fair value or at the non-controlling interests' proportionate share of the subsidiary's net identifiable assets.

Non-controlling interests are presented in the consolidated statement of financial position within equity, separately from equity attributable to the equity shareholders of the Company. Non-controlling interests in the results of the Group are presented on the face of the consolidated statement of profit or loss and the consolidated statement of profit or loss and other comprehensive income as an allocation of the total profit or loss and total comprehensive income for the year between non-controlling interests and the equity shareholders of the Company. Loans from holders of non-controlling interests and other contractual obligations towards these holders are presented as financial liabilities in the consolidated statement of financial position depending on the nature of the liability.

(d) 附屬公司及非控股權益

附屬公司是由本集團控制的實體。自控制開始之日起至控制終止之日，將對附屬公司的投資並入合併財務報表中。在編製合併財務報表時，全數抵銷集團內部交易產生的集團內部結餘、交易現金流量以及任何未實現利潤。集團內部交易產生的未實現損失以未實現利潤相同的方式作抵銷，但僅限於沒有減值證據的部份。

非控股權益是指非本公司直接或間接應佔的附屬公司權益，且本集團並無與相關權益持有人另行訂立條款而導致本集團整體須根據其所佔權益承擔符合金融負債定義的合同責任。對於各業務合併而言，本集團可以選擇按公允價值或按本集團佔附屬公司的可識別淨資產的比例而計量任何非控股權益。

非控股權益在合併財務狀況表的權益中列示，惟與本公司權益股東應佔權益分開。非控股權益持有人所佔本集團的業績，會按照該年度的損益總額及其他綜合收益總額在非控股權益持有人與本公司權益股東之間進行分配，並在合併損益表以及合併損益及其他合併綜合收益表呈列。來自非控股權益持有人的借貸及對該持有人的其他合同責任，會視乎負債的性質於合併財務狀況表中呈列為金融負債。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(d) Subsidiaries and non-controlling interests (Continued)

Changes in the Group's interests in a subsidiary that do not result in a loss of control are accounted for as equity transactions, whereby adjustments are made to the amounts of controlling and non-controlling interests within consolidated equity to reflect the change in relative interests, but no adjustments are made to goodwill and no gain or loss is recognised.

In the Company's statement of financial position, an investment in a subsidiary is stated at cost less impairment losses (Note 2(m)), unless the investment is classified as held for sale (or included in a disposal group that is classified as held for sale).

(e) Associates and joint ventures

An associate is an entity in which the Group or Company has significant influence, but not control or joint control, over its management, including participation in the financial and operating policy decisions.

A joint venture is an arrangement whereby the Group or the Company and other parties contractually agree to share control of the arrangement, and have rights to the net assets of the arrangement, which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control.

An investment in an associate or a joint venture is accounted for in the consolidated financial statements under the equity method, unless it is classified as held for sale (or included in a disposal group that is classified as held for sale). Adjustments are made to bring into line any dissimilar accounting policy that may exist. Under the equity method, the investment is initially recorded at cost, adjusted for any excess of the Group's share of the acquisition-date fair values of the investee's identifiable net assets over the cost of the investment (if any). Thereafter, the investment is adjusted for the post acquisition change in the Group's share of the investee's net assets and any impairment loss relating to the investment (Note 2(m)). Any acquisition-date excess over cost, the Group's share of the post-acquisition, post-tax results of the investees and any impairment losses for the year are recognised in profit or loss, whereas the Group's share of the post-acquisition post-tax items of the investees' other comprehensive income is recognised in the consolidated other comprehensive income.

(d) 附屬公司及非控股權益(續)

本集團於附屬公司的權益如發生變動但不會造成喪失控制權，則該變動乃按權益交易的方式入賬，即僅調整在合併權益內的控股及非控股權益金額，以反映其相關權益的變動，但不會調整商譽及不會確認盈虧。

在本公司的財務狀況表中，對附屬公司的投資是按成本減去減值虧損(見附註2(m))後入賬。除非該投資被確認為持有待售(或者包含在一組被歸類為持有待售的處置組中)。

(e) 聯營公司及合營企業

聯營公司是指本集團或本公司可以對其管理層發揮重大影響的實體，包括參與其財務及經營決策，但不是控制或聯合控制管理層。

合營企業是一項安排，據此本集團或本公司與其他方協定分享對此項安排的控制權，並享有此項安排的資產淨值，僅在相關活動要求共同享有控制權的各方作出一致同意之決定時存在。

對聯營公司或合營企業的投資是按權益法記入合併財務報表，但被列作持有作出售的投資(或包含在待出售組別)則除外。對可能存在的會計政策的不同進行調整使其一致。根據權益法，對聯營公司或合營企業的投資以成本初始入賬，並就本集團於收購日所佔被投資公司可辨別資產淨值的公允價值超過投資成本的數額(如有)作出調整，然後就本集團所佔被投資公司資產淨值的收購後變動以及與這些投資有關的任何減值虧損作出調整(參閱附註2(m))。於收購日超過成本的任何數額、本集團本年應佔被投資單位的收購後及稅後業績及任何減值虧損會在損益內確認而本集團應佔被投資單位的收購後及稅後其他綜合收益項目會在合併損益及其他綜合收益表確認。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(e) Associates and joint ventures (Continued)

When the Group's share of losses exceeds its interest in the associate or the joint venture, the Group's interest is reduced to nil and recognition of further losses is discontinued except to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the investee. For this purpose, the Group's interest is the carrying amount of the investment under the equity method together with the Group's long-term interests that in substance form part of the Group's net investment in the associate or the joint venture.

Unrealised profits and losses resulting from transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the investee, except where unrealised losses provide evidence of an impairment of the asset transferred, in which case they are recognised immediately in profit or loss. Goodwill arising from the acquisition of associates or joint ventures is included as part of the Group's investments in associates or joint ventures.

If an investment in an associate becomes an investment in a joint venture or vice versa, retained interest is not remeasured. Instead, the investment continues to be accounted for under the equity method.

In all other cases, when the Group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in that investee, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former investee at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (Note 2(n)).

In the Company's statement of financial position, investments in associates and joint ventures are stated at cost less impairment losses (Note 2(m)), unless classified as held for sale (or included in a disposal group that is classified as held for sale).

(e) 聯營公司及合營企業(續)

當本集團需分擔聯營公司或合營企業的虧損額超過其所佔權益時，本集團所佔權益應減少至零，並且不再確認額外損失，惟本集團須履行法定或推定責任，或須代表被投資單位作出付款則除外。就此而言，本集團的權益為以權益法核算投資的賬面值及本集團的長期權益，而長期權益實質為本集團對聯營公司或合營企業淨投資的一部分。

本集團與聯營公司和合營企業之間交易所產生的未實現損益均按本集團對被投資單位所佔的權益比率抵銷，惟未實現虧損為已轉讓資產的減值提供證據則除外；如屬這種情況，未實現虧損應立即在損益內確認。收購聯營公司或合營企業所產生的商譽納入本集團於聯營公司或合營公司之投資的一部份。

如果於聯營公司的投資變為於合營企業的投資或於合營企業的投資變為於聯營公司的投資，則毋須重新計量保留權益。有關投資繼續以權益法核算。

在所有其他情況下，當本集團不再對聯營公司有重大影響力或對合營企業實施共同控制時，按出售有關被投資公司的全部權益列賬，由此產生的收益或虧損在損益中確認。在喪失重大影響力或共同控制權日期所保留有關前被投資公司的權益，按公允價值確認，此筆金額在初始確認金融資產時當作公允價值(參閱附註2(n))。

在本公司資產負債表，對聯營公司和合營企業的投資是按成本減去減值損失(參閱附註2(m))後入賬，但被列作持有作出售的投資(或包含在待出售組別)則除外。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(f) Business combination under common control

Business combinations arising from transfer of interests in entities that are under the control of the shareholder who controls the Group are accounted for as if the acquisition had occurred at the beginning of the years or, if later, at the date that common control was established. The assets and liabilities acquired are recognised at the carrying amounts recognised previously in the Company's controlling shareholder's consolidated financial statements.

Upon transfer of interest in an entity to another entity that are under the control of the shareholder who controls the Group, any difference between the Group's interest in the carrying value of the assets and liabilities and the cost of transfer of interest in the entity is recognised directly in equity.

(g) Goodwill

Goodwill represents the excess of:

- (i) the aggregate of the fair value of the consideration transferred, the amount of any non-controlling interest in the acquiree and the fair value of the Group's previously held equity interest in the acquiree; over
- (ii) the net fair value of the acquiree's identifiable assets and liabilities measured as at the acquisition date.

When (ii) is greater than (i), then this excess is, after reassessment, recognised immediately in profit or loss as a gain on a bargain purchase.

Goodwill is stated at cost less accumulated impairment losses. Goodwill arising on a business combination is allocated to each cash-generating unit, or groups of cash generating units, that is expected to benefit from the synergies of the combination and is tested annually for impairment (Note 2(m)).

On disposal of a cash-generating unit during the year, any attributable amount of purchased goodwill is included in the calculation of the profit or loss on disposal.

(f) 同一控制下的業務合併

本集團的股東控制的企業間權益互換而發生的企業合併是透過假設該收購自財務報告年度開始發生或自同一控制確立當天(如發生時間較後者)。被收購的資產和負債根據本集團股東合併報表已確認的賬面值予以確認。

倘受本集團的股東控制的企業中，有一家把權益轉讓予另一家，本集團應佔資產和負債的賬面值及轉讓權益成本的差異會直接在權益科目核算。

(g) 商譽

商譽指：

- (i) 已轉讓代價的公允價值、於被收購公司的任何非控制股東權益的金額，以及本集團之前於被收購公司持有的股權的公允價值的總額；超過
- (ii) 於收購日期計量的被收購公司的可識別淨資產的公允價值。

當(ii)較(i)為大時，該超越值實時在損益內確認為議價收購收益。

商譽按成本減累計減值虧損列賬。業務合併產生之商譽分配至預計將會受惠於合併之協同作用之各現金產生單元或現金產生單元組別，並於每年進行減值測試(見附註2(m))。

在當年內出售現金產生單元，任何可歸屬的購入商譽的金額均應包含在計算出售的損益內。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(h) Property, plant and equipment

Property, plant and equipment (included the right-of-use assets which were presented under property, plant and equipment), other than construction in process, are stated at cost less accumulated depreciation and impairment losses (Note 2(m)).

The cost of self-constructed items of property, plant and equipment includes the cost of materials, direct labour, the initial estimate, where relevant, of the costs of dismantling and removing the items and restoring the site on which they are located and borrowing costs (Note 2(aa)).

Gains or losses arising from the retirement or disposal of an item of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the item and are recognised in profit or loss on the date of retirement or disposal.

Expenditure incurred after items of property, plant and equipment have been put into operation, such as repairs and maintenance, is normally charged to profit or loss in the period in which it is incurred. In situations where the recognition criteria are satisfied, the expenditure for a major inspection is capitalised in the carrying amount of the asset as a replacement. Where significant parts of property, plant and equipment are required to be replaced at intervals, the Group recognises such parts as individual assets with specific useful lives and depreciates them accordingly.

Depreciation is calculated to write off the cost of items of property, plant and equipment, less their estimated residual value, if any, using the straight-line method over their estimated useful lives as follows:

– Buildings and structures	20 – 50 years
– Machinery and equipment	3 – 20 years
– Motor vehicles	3 – 10 years
– Furniture, fixtures and others	3 – 10 years

(h) 物業、廠房及設備

物業、廠房及設備(包含在物業、廠房及設備中披露的使用權資產)按成本減累計折舊及減值虧損(見附註2(m))列賬。

自建物業、廠房及設備項目成本包括材料成本、直接勞工成本、拆卸及搬遷有關項目的成本與修復項目所在場地的還原修復費用初步估計成本(如有關)以及借貸成本(見附註2(aa))。

報廢或出售物業、廠房及設備項目產生的收益或虧損為出售所得款項淨額與項目賬面值的差額，於報廢或出售日期在損益中確認。

物業、廠房及設備項目投產後所產生的支出，如維修及保養費用，一般於產生期間在損益表中支銷。於符合確認準則的情況下，用於重大檢測的支出將於該資產的賬面價值中撥充資本，列作重置項目。倘物業、廠房及設備的重要部分需不時更換，則本集團會將該等部分確認為擁有特定可使用年期的個別資產，並予以相應折舊。

物業、廠房和設備項目的折舊是在以下預計可使用期限內以直線法沖銷其成本或估值(已扣除估計殘值(如有))計算：

– 樓宇及建築物	20 – 50年
– 機器及設備	3 – 20年
– 汽車	3 – 10年
– 家具、裝置和其他	3 – 10年



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(h) Property, plant and equipment (Continued)

Where parts of an item of property, plant and equipment have different useful lives, the cost of the item is allocated on a reasonable basis between the parts and each part is depreciated separately. Both the useful life of an asset and its residual value, if any, are reviewed annually.

For the accounting policy of the right-of-use assets, see Note 2(k)(i).

Construction in progress represents property, plant and equipment under construction and installation, which are stated at cost less any impairment losses, and are not depreciated. Cost comprises the direct costs of construction and capitalised borrowing costs on related borrowed funds during the period of construction. Construction in progress is reclassified to the appropriate category of property, plant and equipment when completed and ready for use.

(i) Investment properties

Investment properties are interests in land and/or buildings (including the leasehold property held as a right-of-use asset (2018: leasehold property under an operating lease) which would otherwise meet the definition of an investment property) held to earn rental income and/or for capital appreciation. Investment properties are stated at cost less accumulated depreciation and impairment losses (Note 2(m)). The depreciation policy is the same as that of property, plant and equipment (Note 2(h)). Rental income from investment properties is accounted for as described in Note 2(y).

If a property occupied by the Group as property, plant and equipment becomes an investment property, the Group accounts for such property in accordance with the policy stated under "Property, plant and equipment" for owned property up to the date of change in use. The deemed cost of a property for subsequent accounting is its carrying amount at the date of change in use.

(h) 物業、廠房及設備(續)

如果物業、廠房和設備項目的組成部分有不同的可使用期限，有關項目的成本會按照合理的基礎分配至各個部分，而且每個部分會分開計提折舊。本集團會每年審閱資產的可使用期限和殘值(如有)。

使用權資產相關會計政策，請見附註2(k)(i)。

在建工程指建築工程尚在進行中的樓宇，並按成本減去任何減值虧損入賬，但不會折舊。成本包括建築期間產生之直接建築成本及相關借款的資本化借款成本。在建工程於工程完成後並準備投入使用时，將重新歸入適當類別之物業、廠房及設備。

(i) 投資性物業

投資性物業是以賺取租金收入及／或為資本增值而持有或租用的使用權資產(2018年：經營租賃下的租賃資產)。投資物業按成本減去累計折舊和減值損失(參閱附註2(m))後記入合併資產負債表。折舊政策與物業、廠房及設備政策一致(見附註2(h))。投資物業的租金收入是按照附註2(y)所述方式記賬。

如果本集團擁有的物業變為投資性物業，本集團依據物業、廠房及設備規定的政策對該財產進行會計處理直至變更當天。資產的成本在隨後的核算中為變更當天的賬面價值。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(j) Intangible assets (other than goodwill)

The Group recognises an intangible asset arising from a service concession arrangement when it has a right to charge for usage of the concession infrastructure. An intangible asset received as consideration for providing construction services in a service concession arrangement are measured at fair value upon initial recognition by reference to the fair value of the services provided. Subsequent to initial recognition the intangible asset is measured at cost less accumulated amortisation and impairment losses (Note 2(m)). If the Group is paid for the construction services partly by an intangible asset and partly by a financial asset, then each component of the consideration is accounted for separately and is initially recognised at fair value of the consideration.

Expenditure on research activities is recognised as an expense in the period in which it is incurred. Expenditure on development activities is capitalised if, only if, the Group can demonstrate all of the following: (i) the technical feasibility of completing the intangible asset so that it will be available for use or sale; (ii) its intention to complete the intangible asset and use or sell it; (iii) its ability to use or sell the intangible asset; (iv) how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset; (v) the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and (vi) its ability to measure reliably the expenditure attributable to the intangible asset during its development.

The expenditure capitalised includes the costs of materials, direct labour, and an appropriate proportion of overheads and borrowing costs, where applicable (Note 2(aa)). Capitalised development costs are stated at cost less accumulated amortisation and impairment losses (Note 2(m)). Other development expenditure is recognised as an expense in the period in which it is incurred.

(j) 無形資產(商譽除外)

如果本集團有權就使用特許權基礎設施收費，本集團會確認服務特許權安排產生的無形資產。作為提供服務特許權安排的代建設服務的代價所收取的無形資產，於初始確認時按公允價值計量。在初始確認後，無形資產按成本減去累計攤銷和減值虧損(附註2(m))計量。如果就建造服務支付予本集團的對價部份為無形資產而部份為金融資產，對價的各部份則應分別入賬並初始按對價的公允價值計量。

研究活動開支於其產生期間確認為開支。只有在本集團能證明所有下列各項的情況下，研發活動的開支才會資本化：(i)完成無形資產以供使用或出售的技術可行性；(ii)完成無形資產並使用或出售的意向；(iii)使用或者出售無形資產的能力；(iv)無形資產如何產生未來可能的經濟效益。除其他外，實體可以證明無形資產或無形資產本身的產出存在一個市場，如果要在內部使用，也可以證明無形資產的有用性；(v)是否有足夠的技術、財政和其他資源來完成開發和使用或出售無形資產；(vi)能夠可靠地計量開發過程中歸屬於無形資產的支出。

資本化的開支包括材料成本、直接勞工成本，以及在適當比例的間接成本及借貸成本(如適用)(附註2(aa))。資本化之開發成本按照成本減累計攤銷及減值虧損(附註2(m))列賬。其他開發支出於其產生期間確認為費用。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(j) Intangible assets (other than goodwill) (Continued)

Other intangible assets that are acquired by the Group are stated at cost less accumulated amortisation (where the estimated useful life is finite) and impairment losses (Note 2(m)). Expenditure on internally generated goodwill and brands is recognised as an expense in the period in which it is incurred.

Amortisation of intangible assets with finite useful lives is charged to profit or loss on a straight-line basis over the assets estimated useful lives. The following intangible assets with finite useful lives are amortised from the date they are available for use and their estimated useful lives are as follows:

– Concession assets	20 – 34 years
– Technical know-how	5 – 10 years
– Capitalised development costs	5 – 10 years
– Software and others	3 – 10 years

The estimated useful life of a concession asset in a service concession arrangement is the period from when the Group is able to charge for the use of the infrastructure to the end of the concession period.

Both the period and method of amortisation are reviewed annually.

(j) 無形資產(商譽除外)(續)

本集團收購的其他無形資產以成本減累計攤銷(如果既定的估計可使用期限)和減值虧損(附註2(m))列賬。內部產生的商譽和品牌開支在其產生當期以費用形式確認。

有既定可使用期限的無形資產的攤銷是以直線法於資產的估計可使用期限內計入損益。以下有既定可使用期限的無形資產由可供使用當日起，在估計可使用期限內攤銷：

– 特許權資產	20 – 34年
– 專業技術	5 – 10年
– 資本化開發成本	5 – 10年
– 軟件及其他	3 – 10年

服務特許經營安排中的特許權資產的預計可使用年限於本集團可收取基礎設施使用費開始至特許經營期結束時終止之期間。

攤銷期限及方法均每年進行審閱。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(k) Leases

(i) *Applicable from 1 January 2019*

The Group assesses at contract inception whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Group as a lessee

The Group applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Group recognises lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

(1) Right-of-use assets

The Group recognises right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognised, initial direct costs incurred and lease payments made at or before the commencement date less any lease incentives received. Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognised right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term as follows :

Leasehold land	9 – 50 years
Buildings and structures	2 – 6 years
Motor vehicles	2 – 3 years
Other equipment	2 – 4 years

(k) 租賃

(i) *自2019年1月1日起適用*

就本集團在合同開始時評估該合約是否屬於或包含租賃。倘合約為換取代價而給予在一段時間內控制可識別資產使用的權利，則該合約屬於或包含租賃。

集團作為租賃人

本集團對所有租賃(除短期租賃和低值資產租賃外)採用單一確認及計量方法。本集團確認用於支付租賃付款的租賃負債及使用權資產(指使用相關資產的權利)。

(1) 使用權資產

使用權資產於租賃起始之日(即相關資產可供使用之日)確認。使用權資產按成本減任何累計折舊及任何減值虧損計量，並就租賃負債的任何重新計量作出調整。使用權資產成本包括已確認租賃負債、已產生的初始直接成本及於開始日期或之前作出的任何租賃付款扣除任何已收租賃優惠。除非本集團有合理的把握在租賃期末獲得租賃資產的所有權，已確認使用權資產按資產租賃期和預計使用年限兩者中較短者直線折舊：

租賃土地	9-50年
房屋及建築物	2-6年
汽車	2-3年
其他設備	2-4年



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES 2. 主要會計政策(續) (CONTINUED)

(k) Leases (Continued)

(i) Applicable from 1 January 2019 (Continued)

Group as a lessee (Continued)

(1) Right-of-use assets (Continued)

If ownership of the leased asset transfers to the Group by the end of the lease term or the cost reflects the exercise of a purchase option, depreciation is calculated using the estimated useful life of the asset.

(2) Lease liabilities

Lease liabilities are recognised at the commencement date of the lease at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for termination of a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognised as an expense in the period in which the event or condition that triggers the payment occurs.

(k) 租賃(續)

(i) 自2019年1月1日起適用(續)

集團作為租賃人(續)

(1) 使用權資產(續)

倘已租賃資產的所有權於租賃期結束時轉移至本集團或成本反應行使購買選擇權，則使用資產的預計使用年限計算折舊。

(2) 租賃負債

租賃負債於租賃開始日以及在租賃期內將支付的租賃付款的現值確認。租賃付款包括固定付款(包括實質性的固定付款)減任何應收租賃優惠，取決於指數或利率的可變租賃付款及預根據剩餘價值擔保支付的金額。租賃付款還包括本集團合理確定行使購買選擇權的行權價，及倘租賃條款反應本集團行使終止選擇權，則終止租賃而需支付的罰款。不依賴指數或利率的可變租賃付款在觸發付款的事件或條件發生的期間內確認為費用。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(k) Leases (Continued)

(i) *Applicable from 1 January 2019 (Continued)*

Group as a lessee (Continued)

(2) Lease liabilities (Continued)

In calculating the present value of lease payments, the Group uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in lease payments (e.g., a change to future lease payments resulting from a change in an index or rate) or a change in assessment of an option to purchase the underlying asset.

The Group's lease liabilities are included in lease liabilities and other payables and accruals (current portion).

(3) Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of buildings and structures, motor vehicles and other equipment (that is those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the recognition exemption for leases of low-value assets to leases of office equipment and laptop computers that are considered to be of low value (i.e. below RMB30,000).

Lease payments on short-term leases and leases of low-value assets are recognised as an expense on a straight-line basis over the lease term.

(k) 租賃(續)

(i) *自2019年1月1日起適用(續)*

集團作為租賃人(續)

(2) 租賃負債(續)

倘租賃隱含的利率難以釐定，則本集團會使用租賃開始日期的增量借貸利率計算租賃付款的現值。於開始日期後，租賃負債數額增長以實現利息增加及減少所支付的租賃付款。此外，倘租期發生修改、變動，租賃付款變動(例如：未來租賃付款的指數或利率出現變動而導致的未來租賃付款變動)或購買有關資產的期權評估變更，將對租賃負債的賬面金額進行重新計量。

本集團的租賃負債包括在租賃負債及其他應付款項及應計賬款中(即期部分)。

(3) 短期租賃和低價值資產租賃

集團將短期租賃確認豁免適用於租期為十二個月或少於十二個月且不包含購買選擇權的樓宇及建築物、汽車及其他設備。本條例亦適用具有低值的辦公設備及便攜式計算機低值(低於人民幣30,000元)資產租賃的認可豁免。

短期租賃和低價值資產租賃的租賃付款按直線法被確認為租賃期費用。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(k) Leases (Continued)

(i) *Applicable from 1 January 2019 (Continued)*

Group as a lessor

When the Group acts as a lessor, it classifies at lease inception (or when there is a lease modification) each of its leases as either an operating lease or a finance lease.

Leases in which the Group does not transfer substantially all the risks and rewards incidental to ownership of an asset are classified as operating leases. When a contract contains lease and non-lease components, the Group allocates the consideration in the contract to each component on a relative stand-alone selling price basis. Rental income is accounted for on a straight-line basis over the lease terms and is included in revenue and other revenue in the statement of profit or loss due to its operating nature. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised over the lease term on the same basis as rental income. Contingent rents are recognised as revenue and other revenue in the period in which they are earned.

(ii) *Applicable before 1 January 2019*

An arrangement, comprising a transaction or a series of transactions, is or contains a lease if the Group determines that the arrangement conveys a right to use a specific asset or assets for an agreed period of time in return for a payment or a series of payments. Such a determination is made based on an evaluation of the substance of the arrangement and is regardless of whether the arrangement takes the legal form of a lease.

(k) 租賃(續)

(i) *自2019年1月1日起適用(續)*

集團作為租賃人

當本集團作為租賃人時，它在租賃開始時(或當存在租賃修改時)將其每項租賃劃分為經營租賃或融資租賃。

本集團未將資產所有權所附帶的所有風險和報酬轉移的租賃被歸類為經營租賃。當合同包含租賃和非租賃部分時，集團將合同中的對價按相對獨立的銷售價格分配給每個部分。租金收入按租賃期限以直線方式入帳，並因其經營性質確認為收入和其他收入。在談判和安排經營租賃過程中產生的初始直接成本，計入租賃資產的賬面價值，並在租賃期內按與租金收入相同的基礎予以確認。或有租金乃於取得租金期間確認為收入和其他收入。

(ii) *2019年1月1日前適用*

倘本集團認定一項安排(由一項交易或一系列交易組成)會在協議期間內賦予某項或某些資產的使用權，以換取一筆或多筆付款，則該項安排即屬或包含一項租賃。該判斷乃根據對該項安排的內容進行評估而作出，而不論有關安排是否採取合法的租賃形式。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(k) Leases (Continued)

(ii) Applicable before 1 January 2019 (Continued)

(1) Classification of assets leased to the Group

Assets that are held by the Group under leases which transfer to the Group substantially all the risks and rewards of ownership are classified as being held under finance leases. Leases which do not transfer substantially all the risks and rewards of ownership to the Group are classified as operating leases.

(2) Assets acquired under finance leases

Where the Group acquires the use of assets under finance leases, the amounts representing the fair value of the leased asset, or, if lower, the present value of the minimum lease payments, of such assets are recognised as property, plant and equipment and the corresponding liabilities, net of finance charges, are recorded as obligations under finance leases. Depreciation is provided at rates which write off the cost or valuation of the assets over the term of the relevant lease or, where it is likely the Group will obtain ownership of the asset, the life of the asset, as set out in Note 2(h). Impairment losses are accounted for in accordance with the accounting policy as set out in Note 2(m). Finance charges implicit in the lease payments are charged to profit or loss over the period of the leases so as to produce an approximately constant periodic rate of charge on the remaining balance of the obligations for each accounting period. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

(k) 租賃(續)

(ii) 2019年1月1日前適用(續)

(1) 本集團租入資產的分類

本集團根據租賃持有且所有權的絕大部分風險及回報已轉讓予本集團的資產，分類為融資租賃資產。未將所有權的絕大部分風險及回報轉讓予本集團的租賃被分類為經營租賃資產。

(2) 根據融資租賃獲得的資產

倘本集團根據融資租賃獲得資產的使用權，則將相當於該租賃資產公允價值或該等資產的最低租賃付款的現值(為較低者為準)的金額確認為物業、廠房及設備，而扣除財務費用後的相應負債則作為融資租賃承擔入賬。折舊乃於相關租賃期或(倘本集團很可能取得資產的所有權)如附註2(h)所載的資產年期內，以撇銷有關資產的成本或估值的比率計提。減值損失按照附註2(m)所載的會計政策入賬。租賃付款內包含的財務費用會在租賃期自損益扣除，以近似定期定額的支出於每個會計年度的承擔餘額中扣除。或有租金於產生的會計期間自損益扣除。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(k) Leases (Continued)

(ii) Applicable before 1 January 2019 (Continued)

- (3) Sale and leaseback arrangements resulting in finance leases

A sale and leaseback arrangement which results in a finance lease is a means whereby the lessor provides finance to the lessee with the asset as security. To reflect the substance of the transaction, any excess of sales proceeds over the carrying amount of the asset is deferred and amortised as an adjustment to the depreciation of the asset. If the sales proceeds are less than the carrying amount of the asset which indicates that the asset may be impaired, an impairment loss is recognised if the carrying amount of the asset exceeds its recoverable amount (Note 2(m)). Any deficit of sales proceeds lower than the carrying amount, in the absence of impairment, is also deferred and amortised as an adjustment to the depreciation of the asset.

(l) Fair value measurement

The Group measures its bills receivable (Note 26) and equity investments (Note 22) at fair value at the end of the current reporting period. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either in the principal market for the asset or liability, or in the absence of a principal market, in the most advantageous market for the asset or liability. The principal or the most advantageous market must be accessible by the Group. The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

(k) 租賃(續)

(ii) 2019年1月1日前適用(續)

- (3) 最後變為融資租賃的售後租回安排

最後變為融資租賃的售後租回安排是出租人以資產作為擔保向承租人提供資金的一種方式。為了反映交易的實質，銷售收入超出該資產賬面價值的任何部分都遞延，並作為該資產的折舊調整攤銷。如果銷售收入少於該資產的賬面價值，這表明該資產可能出現減值，則在該資產的賬面價值大於其可收回金額(附註2(m))的情況下確認減值損失。在沒有減值的情況下，銷售收入低於賬面價值的任何逆差也遞延，並作為該資產的折舊調整攤銷。

(l) 公允價值計量

本集團於本報告期末按公允價值計量若干應收賬款及應收票據(附註26)及股權投資(附註22)。公允價值為於計量日期在市場參與者之間進行的有序交易中，就出售資產收取或轉讓負債支付的價格。公允價值計量乃基於假定出售資產或轉讓負債的交易在該資產或負債的主要市場(或在不存在主要市場的情況下，則在對該資產或負債最有利的市場)進行而作出。該主要或最有利的市場須為本集團可進入的市場。資產或負債的公允價值採用市場參與者為資產或負債定價時所用的假設計量，即假設市場參與者按其最佳經濟利益行事。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(I) Fair value measurement (Continued)

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorised within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

Level 1 – based on quoted prices (unadjusted) in active markets for identical assets or liabilities

Level 2 – based on valuation techniques for which the lowest level input that is significant to the fair value measurement is observable, either directly or indirectly

Level 3 – based on valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable

(I) 公允價值計量(續)

非金融資產的公允價值計量須計及市場參與者能自最大限度使用該資產達致最佳用途，或將該資產出售予將最大限度使用該資產達致最佳用途的其他市場參與者，所產生的經濟效益。

本集團採納適用於不同情況且具備充分數據以供計量公允價值的估值方法，以盡量使用相關可觀察輸入數據及盡量減少使用不可觀察輸入數據。

本財務報表中，所有以公允價值計量或披露的資產及負債，已根據對整體公允價值計量而言屬重大的最低層輸入數據，按以下的公允價值等級分類：

第1級－ 基於相同資產或負債於活躍市場的報價(未經調整)

第2級－ 基於對公允價值計量而言屬重大的可觀察(直接或間接)最低層輸入數據的估值方法

第3級－ 基於對公允價值計量而言屬重大的不可觀察最低層輸入數據的估值方法



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(l) Fair value measurement (Continued)

For assets and liabilities that are recognised in the financial statements on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by reassessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

(m) Impairment of non-financial assets

Internal and external sources of information are reviewed at the end of each reporting period to identify indications that the following assets may be impaired or, except in the case of goodwill, an impairment loss previously recognised no longer exists or may have decreased:

- property, plant and equipment;
- investment properties;
- right-of-use assets (included under property, plant and equipment);
- intangible assets;
- goodwill; and
- investments in subsidiaries, associates and joint ventures.

If any such indication exists, the asset's recoverable amount is estimated. In addition, for goodwill, the recoverable amount is estimated annually whether or not there is any indication of impairment.

(l) 公允價值計量(續)

就按經常性基準於財務報表確認的資產及負債而言，本集團透過於各報告期末重新評估分類(根據對整體公允價值計量而言屬重大的最低層輸入數據)確定是否發生不同等級轉移。

(m) 非金融資產的減值

在各個報告期末對內外部信息來源進行審閱，以識別下列資產可能出現減值的跡象或以前確認的減值損失不再存在或可能已經減少(商譽除外)：

- 物業、廠房及設備；
- 投資性物業；
- 使用權資產(已包含在物業、廠房及設備)；
- 無形資產；
- 商譽；及
- 對附屬公司、聯營公司及合營企業的投資。

如果存在任何有關跡象，則估計該資產的可收回金額。此外，對於商譽，每年估計可收回金額，無論是否存在任何減值跡象。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(m) Impairment of non-financial assets (Continued)

- **Calculation of recoverable amount**

The recoverable amount of an asset is the greater of its fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. Where an asset does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the smallest group of assets that generates cash inflows independently (i.e. a cash-generating unit).

- **Recognition of impairment losses**

An impairment loss is recognised in profit or loss if the carrying amount of an asset, or the cash-generating unit to which it belongs, exceeds its recoverable amount. Impairment losses recognised in respect of cash-generating units are allocated first to reduce the carrying amount of any goodwill allocated to the cash-generating unit (or group of units) and then, to reduce the carrying amount of the other assets in the unit (or group of units) on a pro rata basis, except that the carrying value of an asset will not be reduced below its individual fair value less costs of disposal (if measurable) or value in use (if determinable).

- **Reversals of impairment losses**

In respect of assets other than goodwill, an impairment loss is reversed if there has been a favourable change in the estimates used to determine the recoverable amount. An impairment loss in respect of goodwill is not reversed.

A reversal of an impairment loss is limited to the asset's carrying amount that would have been determined had no impairment loss been recognised in prior years. Reversals of impairment losses are credited to profit or loss in the year in which the reversals are recognised.

(m) 非金融資產的減值(續)

- **可收回金額的計算**

資產的可收回金額是其公允價值減處置費用與使用價值的較大者。在評估使用價值時，預計未來現金流量使用稅前貼現率貼現為其現值，該貼現率反映貨幣時間價值的目前市場評估及該資產的特定風險。如果資產不產生在很大程度上獨立於來自其他資產的現金的現金流入，則就獨立產生現金流入的最小資產組(例如現金產生單位)確定可收回金額。

- **減值損失的確認**

如果資產或其所屬的現金產生單位的賬面價值大於可收回金額，則減值損失在損益中確認。就現金產生單位確認的減值損失的分攤，先抵減分攤至該現金產生單位(或單位組)的任何商譽的賬面價值，再按比例抵減該單位(或單位組)中的其他資產的賬面價值，但資產的賬面價值不得抵減到低於其個別公允價值減處置費用(如可計量)或使用價值(如可確定)。

- **減值損失的轉回**

對於除商譽外的資產，如果用於確定可收回金額的估計發生有利變化，則轉回減值損失。商譽減值損失不轉回。

減值損失的轉回限於假定以前年度不確認減值損失的情況下確定的該資產的賬面價值。減值損失轉回在確認轉回的年度記入損益。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(n) Investments and other financial assets

Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortised cost, fair value through other comprehensive income, and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient of not adjusting the effect of a significant financing component, the Group initially measures a financial asset at its fair value plus in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price determined under IFRS 15 in accordance with the policies set out in Note 2(y).

In order for a financial asset to be classified and measured at amortised cost or fair value through other comprehensive income, it needs to give rise to cash flows that are solely payments of principal and interest ("SPPI") on the principal amount outstanding. Financial assets with cash flows that are not SPPI are classified and measured at fair value through profit or loss, irrespective of the business model.

(n) 投資及其他金融資產

初始確認及計量

金融資產於初始確認時分類，其後按攤銷成本、按公允價值計入其他綜合收益及按公允價值計入損益計量。

初始確認時的金融資產分類取決於金融資產的合約現金流量特徵以及本集團管理金融資產的業務模式。除了並不包含重大融資成分或本集團對其採用實際權宜方法不調整重大融資成分影響的應收賬款外，本集團初始按公允價值加上(倘金融資產並非按公允價值計入損益)交易成本計量金融資產。並不包含重大融資成分或本集團對其採用實際權宜方法不調整重大融資成分影響的應收賬款，乃根據國際財務報告準則第15號按附註第2(y)條釐定的交易價格計量。

為使金融資產按攤銷成本或按公允價值計入其他綜合收益進行分類及計量，需就未償還本金產生純粹支付本金及利息的現金流量。現金流量並非純粹支付本金及利息的金融資產，不論其業務模式如何，均按公允價值計入損益分類及計量。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(n) Investments and other financial assets (Continued)

Initial recognition and measurement (Continued)

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both. Financial assets classified and measured at amortised cost are held within a business model with the objective to hold financial assets in order to collect contractual cash flows, while financial assets classified and measured at fair value through other comprehensive income are held within a business model with the objective of both holding to collect contractual cash flows and selling, such as bills receivable, which was held to collect the contractual amount upon the maturity or discounted to banks or endorsed to suppliers before maturity. Financial assets which are not held within the aforementioned business models are classified and measured at fair value through profit or loss.

All regular way purchases and sales of financial assets are recognised on the trade date, that is, the date that the Group commits to purchase or sell the asset. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the period generally established by regulation or convention in the marketplace.

Subsequent measurement

The subsequent measurement of financial assets depends on their classification as follows:

Financial assets at amortised cost (debt instruments)

Financial assets at amortised cost are subsequently measured using the effective interest method and are subject to impairment. Gains and losses are recognised in profit or loss when the asset is derecognised, modified or impaired.

(n) 投資及其他金融資產(續)

初始確認及計量(續)

本集團管理金融資產的業務模式指其如何管理其金融資產以產生現金流量。業務模式確定現金流量是否來自收集合約現金流量、出售金融資產，或兩者兼有。按攤銷成本分類和計量的金融資產，於旨在持有金融資產以收取合約現金流量的業務模式中持有。按公允價值分類和計量其他綜合收益的金融資產，為於旨在持有金融資產以收取合約現金流量及出售金融資產的業務模式中持有的金融資產，例如到期時按合同金額收回，或在到期前貼現給銀行，背書給供應商的應收票據。不屬於上述業務模式的金融資產，按公允價值分類和計入損益。

所有以正常方式進行的金融資產買賣於交易日期(即本集團承諾購買或出售該資產的日期)確認。正常方式買賣指按照一般市場規例或慣例訂定的期間內交付資產的金融資產買賣。

其後計量

金融資產按其分類進行的其後計量如下：

按攤銷成本列賬的金融資產(債務工具)

按攤銷成本列賬的金融資產其後使用實際利率法計量，並可能受減值影響。當資產終止確認、修訂或減值時，收益及虧損於損益中確認。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(n) Investments and other financial assets (Continued)

Financial assets at fair value through other comprehensive income (debt instruments)

For debt instruments at fair value through other comprehensive income, interest income, foreign exchange revaluation and impairment losses or reversals are recognised in profit or loss and computed in the same manner as for financial assets measured at amortised cost. The remaining fair value changes are recognised in other comprehensive income. Upon derecognition, the cumulative fair value change recognised in other comprehensive income is recycled to profit or loss.

Financial assets designated at fair value through other comprehensive income (equity investments)

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity investments designated at fair value through other comprehensive income when they meet the definition of equity under IAS 32 Financial Instruments: Presentation and are not held for trading. The classification is determined on an instrument-by-instrument basis.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognised as other revenue in profit or loss when the right of payment has been established, it is probable that the economic benefits associated with the dividend will flow to the Group and the amount of the dividend can be measured reliably, except when the Group benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in other comprehensive income. Equity investments designated at fair value through other comprehensive income are not subject to impairment assessment.

(n) 投資及其他金融資產(續)

按公允價值計入其他綜合收益的金融資產(債務工具)

就按公允價值計入其他綜合收益的債務工具而言，利息收入、外匯重估及減值損失或撥回於損益中確認，並按與按攤銷成本列賬的金融資產相同的方式列賬。其餘公允價值變動於其他綜合收益中確認。終止確認時，於其他綜合收益中確認的累計公允價值變動將重新計損益內。

指定按公允價值計入其他綜合收益的金融資產(股權投資)

於初始確認時，本集團可選擇於股權投資符合國際會計準則第32號「金融工具：呈報」項下的股權定義且並非持作買賣時，將其股權投資不可撤回地分類為指定按公允價值計入其他綜合收益的股本工具。分類乃按個別工具基準釐定。

該等金融資產的收益及虧損概不會被重新計入損益內。當確立支付權時，股息於損益中確認為其他收入，與股息相關的經濟利益很可能流入本集團，且股息能夠被可靠計量，惟當本集團於作為收回金融資產一部分成本的所得款項中獲益時則除外，於此等情況下，該等收益於其他綜合收益入賬。指定按公允價值計入其他綜合收益的股權投資不受減值評估影響。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(n) Investments and other financial assets (Continued)

Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value recognised in profit or loss.

This category includes derivative instruments and equity investments which the Group had not irrevocably elected to classify at fair value through other comprehensive income. Dividends on equity investments classified as financial assets at fair value through profit or loss are also recognised as other revenue in profit or loss when the right of payment has been established, it is probable that the economic benefits associated with the dividend will flow to the Group and the amount of the dividend can be measured reliably.

(o) Derecognition of financial assets

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognised (i.e., removed from the Group's consolidated statement of financial position) when:

- the rights to receive cash flows from the asset have expired; or
- the Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a "pass-through" arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset.

(n) 投資及其他金融資產(續)

按公允價值計入損益的金融資產

按公允價值計入損益的金融資產按公允價值於財務狀況表列賬，而公允價值變動淨額於損益中確認。

此類別包括本集團並無不可撤回地選擇按公允價值計入其他綜合收益進行分類的衍生工具及股權投資。股權投資的股息在支付權確立時分類為按公允價值計入其他損益的金融資產，亦於損益中確認為其他收入，與股息相關的經濟利益很可能流入本集團，且股息能夠被可靠計量。

(o) 終止確認金融資產

金融資產(或，如適用，部分金融資產或一組同類金融資產的一部分)，在下列情況下開始終止確認(即自本集團合併財務狀況表刪除)：

- 從資產收取現金流量的權利屆滿；或
- 本集團已轉讓從資產收取現金流量的權利，或根據「轉手」安排已承擔向第三方全數支付所收取的現金流量而不會重大延誤的責任；及(a)本集團已轉讓資產的絕大部分風險及回報，或(b)本集團並無轉讓或保留資產的絕大部分風險及回報，但已轉讓資產的控制權。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(o) Derecognition of financial assets (Continued)

When the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risk and rewards of ownership of the asset. When it has neither transferred nor retained substantially all the risks and rewards of the asset nor transferred control of the asset, the Group continues to recognise the transferred asset to the extent of the Group's continuing involvement. In that case, the Group also recognises an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

(p) Impairment of financial assets

The Group recognises an allowance for expected credit losses ("ECLs") for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

General approach

ECLs are recognised in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-month (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

(o) 終止確認金融資產(續)

如本集團已轉讓從資產收取現金流量的權利或已訂立轉手安排，則評估是否保留資產所有權的風險及回報及保留程度。如並無轉讓或保留資產的絕大部分風險及回報，亦未轉讓資產的控制權，則本集團繼續按持續涉及的程度確認所轉讓的資產。在該情況下，本集團亦確認相關負債。已轉讓資產及相關負債按反映本集團已保留權利及責任的基準計量。

以擔保方式繼續參與已轉讓資產之程度，乃按資產原有賬面值與本集團可被要求償還的最高代價金額兩者的較低者計量。

(p) 金融資產減值

本集團確認對並非按公允價值計入損益的所有債務工具預期信貸損失的撥備。預期信貸損失乃基於根據合約到期的合約現金流量與本集團預期收取的所有現金流量之間的差額而釐定，並以原實際利率的近似值貼現。預期現金流量將包括出售所持抵押的現金流量或組成合約條款的其他信貸提升措施。

一般方法

預期信貸損失分兩個階段進行確認。就自初始確認起未有顯著增加的信貸風險而言，會為未來12個月內可能發生違約事件而導致的信貸損失(12個月預期信貸損失)計提預期信貸損失撥備。就自初始確認起已顯著增加的信貸風險而言，不論何時發生違約，須就於餘下風險年限內的預期信貸損失計提損失撥備(存續期內預期信貸損失)。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(p) Impairment of financial assets (Continued)

General approach (Continued)

At each reporting date, the Group assesses whether the credit risk on a financial instrument has increased significantly since initial recognition. When making the assessment, the Group compares the risk of a default occurring on the financial instrument as at the reporting date with the risk of a default occurring on the financial instrument as at the date of initial recognition and considers reasonable and supportable information that is available without undue cost or effort, including historical and forward-looking information.

For the financial instruments including deposits and other receivables, bills receivable, trade receivables and contract assets that contain a significant financing component, they are subject to impairment under the general approach and they are classified within the following stages for measurement of ECLs.

Stage 1 – Financial instruments for which credit risk has not increased significantly since initial recognition and for which the loss allowance is measured at an amount equal to 12-month ECLs

Stage 2 – Financial instruments for which credit risk has increased significantly since initial recognition but that are not credit-impaired financial assets and for which the loss allowance is measured at an amount equal to lifetime ECLs

Stage 3 – Financial assets that are credit-impaired at the reporting date (but that are not purchased or originated credit-impaired) and for which the loss allowance is measured at an amount equal to lifetime ECLs

(p) 金融資產減值(續)

一般方法(續)

本集團於各報告日期評估金融工具的信貸風險是否自初始確認以來顯著增加。在進行該評估時，本集團將於報告日期就金融工具發生之違約風險與初始確認日起金融工具發生之違約風險進行比較，並會考慮無須付出過多成本或努力即可獲得的合理及有左證的數據(包括過往及前瞻性數據)。

對於包含按金及其他應收款、應收票據、應收賬款及合同資產在內具有重大融資成分的金融工具。均按一般方法進行減值，並於下列各階段內分類，計量預期信貸損失。

第一階段—自初始確認以來信貸風險沒有顯著增加及損失撥備以相當於12個月預期信貸損失金額計量的金融工具

第二階段—自初始確認以來信貸風險但顯著增加但並非信貸減值的金融資產及其損失撥備以相當於存續期內預期信貸損失金額計量的金融工具

第三階段—於報告日期為信貸減值(但並非購買或原始信貸減值)且其損失撥備以相當於存續期內預期信貸損失金額計量的金融資產



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(p) Impairment of financial assets (Continued)

POCI assets

Purchased or originated credit impaired (POCI) assets are financial assets that are credit impaired on initial recognition. POCI assets are recorded at fair value at original recognition and interest income is subsequently recognised based on a credit-adjusted effective interest rate (EIR). The ECL allowance is only recognised or released to the extent that there is a subsequent change in the expected credit losses.

Significant increases in credit risk

In assessing whether the credit risk of a financial instrument has increased significantly since initial recognition, the Group compares the risk of default occurring on the financial instrument assessed at the reporting date with that assessed at the date of initial recognition. In making this reassessment, the Group considers that a default event occurs when (i) the borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realising security (if any is held); or (ii) the financial asset is 90 to 365 days past due depending on the segment that it is related to. The Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- failure to make payments of principal or interest on their contractually due dates;
- an actual or expected significant deterioration in a financial instrument's external or internal credit rating (if available);
- an actual or expected significant deterioration in the operating results of the debtor; and
- existing or forecast changes in the technological, market, economic or legal environment that have a significant adverse effect on the debtor's ability to meet its obligation to the Group.

(p) 金融資產減值(續)

初始確認時已減值資產

初始確認時已減值資產是指在初始確認時信貸受損的金融資產。初始確認時已減值資產初始確認時按公允價值入賬，而利息收入則按經信貸調整的實際利率確認。預期信貸損失只會在信貸風險有所改變的情況下才會被確認或沖回。

信貸風險顯著增加

在評估金融工具的信貸風險自首次確認以來是否顯著增加時，本集團將在報告日對金融工具的違約風險與首次確認時的違約風險進行比較。在進行重新評估時，本集團認為當：(i) 借款人不太可能向本集團全數支付其信貸債務，而本集團又沒有追索如兌現證券(如持有證券)等行動時；或(ii) 根據其相關分部，該金融資產已逾期90-365天時，便會發生違約事件。本集團認為，定量和定性的信息都是合理和可支持的，包括歷史經驗和前瞻性的信息，這些信息是不需要付出不必要的成本或努力就可以獲得的。

特別是在評估信貸風險自初步確認以來是否大幅增加時，會考慮下列資料：

- 未能在合約到期日支付本金或利息；
- 某一金融工具的外部或內部信貸評級實際或預期的顯著惡化(如有)；
- 債務人實際或預期的經營業績顯著惡化；和
- 技術、市場、經濟或法律環境中現有的或預期的變化對債務人履行其對集團義務的能力產生重大不利影響。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(p) Impairment of financial assets (Continued)

Significant increases in credit risk (Continued)

Depending on the nature of the financial instruments, the assessment of a significant increase in credit risk is performed on either an individual basis or a collective basis. When the assessment is performed on a collective basis, the financial instruments are grouped based on shared credit risk characteristics, such as past due status and credit risk ratings.

ECLs are remeasured at each reporting date to reflect changes in the financial instrument's credit risk since initial recognition. Any change in the ECL amount is recognised as an impairment gain or loss in profit or loss. The Group recognises an impairment gain or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account.

Simplified approach

For trade receivables and contract assets that do not contain a significant financing component or when the Group applies the practical expedient of not adjusting the effect of a significant financing component, the Group applies the simplified approach in calculating ECLs. Under the simplified approach, the Group does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

(p) 金融資產減值(續)

信貸風險顯著增加(續)

根據金融工具的性質，對信貸風險顯著增加的評估是在個體或集體基礎上進行的。當在集體基礎上進行評估時，將根據共有的信貸風險特徵(如過去的到期狀態和信貸風險評級)對金融工具進行分組。

預期信貸損失在每個報告日期進行重新計量，以反映自初始確認以來金融工具信貸風險的變化。預期信貸損失額的變動將會計入損益表中的減值收益或損失。本集團通過虧損備抵賬戶確認所有金融工具的減值收益或損失並對其賬面金額作出相應調整。

簡化方法

就並無重大融資成分或本集團已應用可行權宜方法不調整重要融資成分影響的貿易應收款項而言，本集團採用簡化的方法計算預期信貸損失。根據該簡化方法，本集團並無追溯信貸風險變動，而是於各報告日期就存續期內預期信貸損失確認損失撥備。本集團已設立根據其過往信貸損失經驗計算之撥備矩陣，並按債務人之特定前瞻性因素及經濟環境作出調整。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(q) Financial liabilities

Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, other payables.

All financial liabilities are recognised initially at fair value and, in the case of loans and borrowings and other payables, net of directly attributable transaction costs.

The Group's financial liabilities include borrowings, lease liabilities, trade and bills payable, and financial liabilities included in other payables and accruals.

Subsequent measurement

The subsequent measurement of financial liabilities depends on their classification as follows:

Loans and borrowings

After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortised cost, using the effective interest rate method unless the effect of discounting would be immaterial, in which case they are stated at cost. Gains and losses are recognised in profit or loss when the liabilities are derecognised as well as through the effective interest rate amortisation process.

Amortised cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate. The effective interest rate amortisation is included in finance costs in profit or loss.

(q) 金融負債

初始確認及計量

金融負債於初始確認時被分類為按公允價值計入損益的金融負債、貸款及借款、其他應付款。

所有金融負債初步按公允價值確認，而如屬貸款及借款以及其他應付款，則扣除直接應佔交易成本。

本集團的金融負債包括借款、租賃負債、應付賬款及應付票據、納入其他應付款項及應計費用的金融負債。

其後計量

金融負債按其如下分類進行其後計量：

貸款及借款

於初始確認後，計息貸款及借款其後採用實際利率法按攤銷成本計量，惟倘貼現的影響不大，則會按成本列賬。終止確認負債及按實際利率法攤銷過程中產生的損益在損益內確認。

於計算攤銷成本時考慮任何收購折讓或溢價以及作為實際利率一部分的費用或成本。實際利率攤銷於損益內列為融資成本。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(q) Financial liabilities (Continued)

Subsequent measurement (Continued)

Financial guarantee contracts

Financial guarantee contracts issued by the Group are those contracts that require a payment to be made to reimburse the holder for a loss it incurs because the specified debtor fails to make a payment when due in accordance with the terms of a debt instrument. A financial guarantee contract is recognised initially as a liability at its fair value, adjusted for transaction costs that are directly attributable to the issuance of the guarantee. Subsequent to initial recognition, the Group measures the financial guarantee contracts at the higher of: (i) the ECL allowance determined in accordance with the policy as set out in "Impairment of financial assets"; and (ii) the amount initially recognised less, when appropriate, the cumulative amount of income recognised.

Derecognition of financial liabilities

A financial liability is derecognised when the obligation under the liability is discharged or cancelled, or expires.

When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and a recognition of a new liability, and the difference between the respective carrying amounts is recognised in profit or loss.

(r) Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the statement of financial position if there is a currently enforceable legal right to offset the recognised amounts and there is an intention to settle on a net basis, or to realise the assets and settle the liabilities simultaneously.

(q) 金融負債(續)

其後計量(續)

財務擔保合同

本集團簽發的財務擔保合同是指規定本集團須就合同持有人因指定債務人到期未能按照債務工具條款進行償付而蒙受的損失向其賠付一筆款項的合同。財務擔保合同初始按公允價值確認為負債，並就直接歸屬於簽發該擔保的交易成本作出調整。初始確認後，本集團按以下兩者中的較高者計量財務擔保合同：(i)根據「金融資產的減值所載政策釐定的預期信貸損失撥備；及(ii)初始確認金額(於適當情況下扣除確認的累計收入額)。

終止確認金融負債

金融負債於其項下責任已解除、註銷或屆滿時終止確認。

當現有金融負債被來自同一放款人的另一項條款迥異的金融負債替換，或現有負債的條款大部分被修訂時，該項替換或修訂會被視作終止確認原有負債及確認新負債，相關各賬面價值之差額於損益內確認。

(r) 抵銷金融工具

倘現時存在一項可執行法定權利，可抵銷已確認金額，且擬以淨額結算或同時變現資產及清算債務，則金融資產與金融負債可予抵銷，並以淨額在財務狀況表列示。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(s) Inventories and other contract costs

(i) Inventories

Inventories are assets which are held for sale in the ordinary course of business, in the process of production for such sale or in the form of materials or supplies to be consumed in the production process or in the rendering of services.

Inventories are carried at the lower of cost and net realisable value.

Cost is calculated using the weighted average cost formula and comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

When inventories are sold, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised.

The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

(s) 存貨和其他合同成本

(i) 存貨

存貨是指企業在日常活動中持有以備出售的產成品或商品、處在生產過程中的在產品、在生產過程或提供勞務過程中耗用的材料或物料。

存貨乃以成本與可變現淨值之較低者列賬。

成本採用加權平均成本公式計算，並包括所有採購成本、加工成本及將存貨運至目前地點及達成現狀產生之其他成本。

可變現淨值乃以日常業務過程中的估計售價減估計完工成本及估計進行銷售所需的成本後所得數額。

存貨售出時，該等存貨之賬面金額於相關收入獲確認期間內確認為開支。

任何由存貨撇減至可變現淨值之金額及所有存貨虧損，於撇減或虧損出現期間確認為開支。存貨撇減的任何撥回金額，於撥回期間作為存貨所確認的開支的扣減。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(s) Inventories and other contract costs (Continued)

(ii) Other contract costs

Capitalised contract costs are stated at cost less accumulated amortisation and impairment losses. Impairment losses are recognised to the extent that the carrying amount of the contract cost asset exceeds the net of (i) remaining amount of consideration that the Group expects to receive in exchange for the goods or services to which the asset relates, less (ii) any costs that relate directly to providing those goods or services that have not yet been recognised as expenses.

Amortisation of capitalised contract costs is charged to profit or loss when the revenue to which the asset relates is recognised. The accounting policy for revenue recognition is set out in Note 2(y).

(s) 存貨和其他合同成本(續)

(ii) 其他合同成本

資本化合同成本按成本減累計攤銷及減值損失列示。當本集團合同成本資產的賬面價值超過(i)本集團預期就資產所關乎的貨品或服務而收取的對價餘額和(ii)與提供尚未確認為費用的商品或服務直接相關的費用的差額時，本集團應確認減值損失。

資本化合同成本的攤銷在確認與資產相關的收入時計入損益。收入確認的會計政策載於附註2(y)。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(t) Contract assets and contract liabilities

A contract asset is recognised when the Group recognises revenue (Note 2(y)) before being unconditionally entitled to the consideration under the payment terms set out in the contract. Contract assets are assessed for expected credit losses (ECL) in accordance with the policy set out in Note 2(p) and are reclassified to receivables when the right to the consideration has become unconditional.

A contract liability is recognised when the customer pays non-refundable consideration before the Group recognises the related revenue (Note 2(y)). A contract liability would also be recognised if the Group has an unconditional right to receive non-refundable consideration before the Group recognises the related revenue. In such cases, a corresponding receivable would also be recognised.

For a single contract with the customer, either a net contract asset or a net contract liability is presented. For multiple contracts, contract assets and contract liabilities of unrelated contracts are not presented on a net basis.

When the contract includes a significant financing component, the contract balance includes interest accrued under the effective interest method (Note 2(y)).

(u) Cash and cash equivalents

Cash and cash equivalents comprise cash at banks and on hand, demand deposits with banks and other financial institutions, and short-term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value. Cash and cash equivalents are not restricted as to use.

(t) 合同資產和合同負債

在實現合約所載的付款條款無條件享有對價前，本集團將確認的收益計入合同資產(附註2(y))。合同資產根據附註2(p)所載政策評估預期信用損失，並於對價變為無條件時重分類至應收款項。

當客戶在本集團確認相關收入(附註2(y))前支付不可退還的對價時，集團確認合同負債。如果本集團在確認相關收入前擁有無條件接收不可退還對價的權利，也將確認合同負債。在這種情況下，本集團也將確認相應的應收款項。

對於與客戶的單一履約合同，應列示為淨合同資產或淨合同負債。對於多份合同，合同資產和無關合同的合同負債不得以淨額列報。

當合同包含重大融資成分時，合同餘額包括按實際利率法計算的利息(附註2(y))。

(u) 現金及現金等價物

現金及現金等價物包括貨幣資金、現金、在銀行及其他金融機構的活期存款、以及高流動性短期投資，這種投資可隨時轉換為已知金額的現金，承受的價值變動風險不重大。現金及現金等價物的用途不受限制。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(v) Employee benefits

(i) *Short-term employee benefits and contributions to defined contribution retirement plans*

Salaries, annual bonuses, paid annual leave, contributions to defined contribution retirement plans and the cost of non-monetary benefits are accrued in the year in which the associated services are rendered by employees. Where payment or settlement is deferred and the effect would be material, these amounts are stated at their present values.

A defined contribution plan is a post-employment benefit plan under which an entity pays fixed contributions into a separate entity and will have no legal or constructive obligation to pay further amounts. Obligations for the statutory defined contribution pension plans are recognised as an expense in profit or loss when they are due.

(w) Income tax

Income tax for the year comprises current tax and movements in deferred tax assets and liabilities. Current tax and movements in deferred tax assets and liabilities are recognised in profit or loss except to the extent that they relate to items recognised in other comprehensive income or directly in equity, in which case the relevant amounts of tax are recognised in other comprehensive income or directly in equity, respectively.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

(v) 僱員福利

(i) *短期僱員福利及界定供款退休計劃供款*

薪金、年度花紅、界定供款退休計劃作出供款及非貨幣性福利之成本乃於僱員提供有關服務年度內計提。倘延遲付款或結算而且其影響重大，則該等金額按現值列賬。

設定提存計劃是一種離職後福利計劃，根據該計劃，一家實體向一家獨立實體支付固定金額的繳費金額，沒有支付更多金額的法律或推定義務。法定設定提存養老金計劃的繳費義務在其到期時在損益中確認為支出。

(w) 所得稅

本年度之所得稅包括即期稅項，以及遞延稅項資產及負債之變動。即期稅項及遞延稅項資產及負債之變動於損益中確認，惟倘涉及其他綜合收益或直接於權益確認之項目除外，在此情況下，相關稅項金額分別於其他綜合收益或直接於權益確認。

當期稅項是根據年內應稅所得額，按報告期末已執行或實際已執行之稅率計算之預期應付稅項，以及過往年度的應付稅項的任何調整。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(w) Income tax (Continued)

Deferred tax assets and liabilities arise from deductible and taxable temporary differences respectively, being the differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets also arise from unused tax losses and unused tax credits.

Apart from certain limited exceptions, all deferred tax liabilities, and all deferred tax assets to the extent that it is probable that future taxable profits will be available against which the asset can be utilised, are recognised. Future taxable profits that may support the recognition of deferred tax assets arising from deductible temporary differences include those that will arise from the reversal of existing taxable temporary differences, provided those differences relate to the same taxation authority and the same taxable entity, and are expected to reverse either in the same period as the expected reversal of the deductible temporary difference or in periods into which a tax loss arising from the deferred tax asset can be carried back or forward. The same criteria are adopted when determining whether existing taxable temporary differences support the recognition of deferred tax assets arising from unused tax losses and credits, that is, those differences are taken into account if they relate to the same taxation authority and the same taxable entity, and are expected to reverse in a period, or periods, in which the tax loss or credit can be utilised.

The limited exceptions to recognition of deferred tax assets and liabilities are those temporary differences arising from goodwill not deductible for tax purposes, the initial recognition of assets or liabilities that affect neither accounting nor taxable profit (provided they are not part of a business combination), and temporary differences relating to investments in subsidiaries and associates to the extent that, in the case of taxable differences, the Group controls the timing of the reversal and it is probable that the differences will not reverse in the foreseeable future, or in the case of deductible differences, unless it is probable that they will reverse in the future.

(w) 所得稅(續)

遞延所得稅資產與負債分別由可抵扣和應納稅暫時性差異產生。暫時性差異是指資產和負債在財務報表上的賬面金額與該等資產和負債的計稅基礎之間的差異。遞延稅項資產也可以由未使用稅項虧損和未使用稅項抵免產生。

除若干有限之例外情況外，所有遞延稅項負債及所有遞延稅項資產(惟以有可能用以抵扣未來很可能取得之應課稅利潤的部份為限)均予以確認。可支持確認可抵扣暫時性差異所產生遞延稅項資產的未來應課稅利潤包括轉回現有應納稅暫時性差異所產生的金額。為該等差異必須與同一稅務機關及同一課稅實體有關，並預期在預計轉回可抵扣暫時性差異之同一期間或遞延稅項資產所產生稅務虧損可予撥回或結轉之期間內轉回。在決定現有應納稅暫時性差異是否足以支持確認由未使用稅項虧損及稅項抵免所產生遞延稅項資產時，亦會採用同一準則，即須計及與同一稅務機關及同一應課稅實體有關，並預期在能夠運用稅項虧損或稅項抵免之間內轉回之該等差異。

確認遞延稅項資產及負債之有限例外情況包括來自不可在稅務方面獲得扣減的商譽、不影響會計或應課稅利潤(如屬業務合併的一部份則除外)的資產或負債之初始確認，以及與對附屬公司和聯營公司投資有關之暫時性差異，如為應納稅差異，只限於本集團可以控制轉回時間而不太可能在可見將來轉回之差額；或如屬可抵扣差異，則只限於可在將來轉回的差異。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(w) Income tax (Continued)

The amount of deferred tax recognised is measured based on the expected manner of realisation or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the end of the reporting period. Deferred tax assets and liabilities are not discounted.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and is reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow the related tax benefit to be utilised. Any such reduction is reversed to the extent that it becomes probable that sufficient taxable profits will be available.

Additional income taxes that arise from the distribution of dividends are recognised when the liability to pay the related dividends is recognised.

Current tax balances and deferred tax balances, and movements therein, are presented separately from each other and are not offset. Current tax assets are offset against current tax liabilities, and deferred tax assets against deferred tax liabilities, if the Company or the Group has the legally enforceable right to set off current tax assets against current tax liabilities and the following additional conditions are met:

- in the case of current tax assets and liabilities, the Company or the Group intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously; or
- in the case of deferred tax assets and liabilities, if they relate to income taxes levied by the same taxation authority on either:
 - the same taxable entity; or
 - different taxable entities which with the significant amounts of deferred tax liabilities or assets expected to be settled or recovered in each future period, intend to realise the current tax assets and settle the current tax liabilities on a net basis or realise and settle simultaneously.

(w) 所得稅(續)

已確認遞延稅額是按照資產與負債賬面金額的預期實現或結算方式，根據已執行或在報告期末實質上已執行的稅率計量。遞延稅項資產與負債均不折現計算。

遞延稅項資產之賬面值會於每個報告期末予以審閱，並減少不再可能有足夠之應課稅利潤以抵扣相關可使用的稅項利益之部份。如日後有可能有足夠之應課稅利潤，該減少金額將被撥回。

當確認須派付股息之責任時，會確認分派有關股息所產生的額外所得稅。

即期稅項結餘及遞延稅項結餘以及當中之變動乃各自分開呈列及不予抵銷。倘本公司或本集團擁有以即期稅項資產抵銷即期稅項負債之法律上可執行之權利，以及符合以下之額外條件時，即期稅項資產才會與即期稅項負債抵銷，而遞延稅項資產則與遞延稅項負債抵銷：

- 就即期稅項資產及負債而言，本公司或本集團計劃以淨額方式結算，或同時變現資產及償還負債；或
- 就遞延稅項資產及負債而言，如該資產及負債涉及之所得稅乃由同一個稅務機關向以下各方徵收：
 - 同一應課稅實體；或
 - 不同應課稅實體。該等實體計劃在日後每個預期待有大額遞延稅項負債需要清算或大額遞延稅項資產可以收回的期間內，按淨額為基礎實現當期稅項資產和清算當期稅項負債，或同時變現該資產和清算該負債。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(x) Provisions and contingent liabilities

(i) Provisions and contingent liabilities

Provisions are recognised when the Group has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

(ii) Onerous contracts

An onerous contract exists when the Group has a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received from the contract. Provisions for onerous contracts are measured at the present value of the lower of the expected cost of terminating the contract and the net cost of continuing with the contract.

(x) 撥備及或有負債

(i) 撥備與或有負債

如果本集團須就已發生事件承擔法律或推定責任，而履行該責任很可能會導致經濟利益外流，並可作出可靠估計，便會確認撥備。如果貨幣時間價值重大，則按預計履行責任所需開支之現值計提撥備。

倘若致使經濟利益外流之機會不大，或無法對有關款項作出可靠估計，便會將該責任披露為或有負債，惟經濟利益外流之機會極低則除外。如果本集團的義務僅視乎一宗或多宗未來事件是否發生才能確定存在，該義務亦會披露為或有負債，惟經濟利益外流之機會極低則除外。

(ii) 預計虧損合同

當集團在履行合同義務時所產生的不可避免的成本超過了預期從合同中獲取的經濟利益，該合同被稱之為預計虧損合同。預計合同虧損以終止合同的預期成本和繼續履約所發生成本兩者中較低者的現值計量。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(y) Revenue recognition

Revenue from contracts with customers

Revenue from contracts with customers is recognised when control of goods or services is transferred to the customers at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services.

When the consideration in a contract includes a variable amount, the amount of consideration is estimated to which the Group will be entitled in exchange for transferring the goods or services to the customer. The variable consideration is estimated at contract inception and constrained until it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognised will not occur when the associated uncertainty with the variable consideration is subsequently resolved.

When the contract contains a financing component which provides the customer with a significant benefit of financing the transfer of goods or services to the customer for more than one year, revenue is measured at the present value of the amount receivable, discounted using the discount rate that would be reflected in a separate financing transaction between the Group and the customer at contract inception. When the contract contains a financing component which provides the Group a significant financial benefit for more than one year, revenue recognised under the contract includes the interest expense accreted on the contract liability under the effective interest method. For a contract where the period between the payment by the customer and the transfer of the promised goods or services is one year or less, the transaction price is not adjusted for the effects of a significant financing component, using the practical expedient in IFRS 15.

(y) 收入確認

客戶合約收入

當商品或服務的控制權轉移至客戶時本集團即確認客戶合約收入，確認金額為本集團就該等商品或服務而預期有權換取的對價。

若合約中的對價包含可變金額，本集團就轉移予客戶的該等商品或服務而有權換取的對價金額進行估計。可變對價在合約開始時進行估計並受到約束，直至可變對價相關的不確定性隨後得到解決，累計已確認收入不大可能發生重大收入撥回。

倘合約包含融資部分，就向客戶轉移商品或服務而為其提供重大融資利益超過一年，則收入按本集團與客戶在合約開始時進行的個別融資交易所反映的貼現率貼現的應收款項現值計量。倘合約包含融資部分，為本集團提供重大融資利益超過一年，則根據該合約確認的收入包括按實際利率法計算合約責任產生之利息開支。對於客戶付款至轉移所承諾商品或服務期間為一年或不足一年的合約，不會使用國際財務報告準則第15號的可行權宜方法就重大融資成分的影響對交易價格進行調整。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(y) Revenue recognition (Continued)

Revenue from contracts with customers (Continued)

(i) Sale of industrial products

Revenue is recognised when the customer takes possession of and accepts the products. If the products are a partial fulfilment of a contract covering other goods and/or services, then the amount of revenue recognised is an appropriate proportion of the total transaction price under the contract, allocated between all the goods and services promised under the contract on a relative stand-alone selling price basis.

(ii) Construction contracts

A contract with a customer is classified by the Group as a construction contract when the contract relates to work on an asset under the control of the customer and therefore the Group's construction activities create or enhance an asset under the customer's control.

When the outcome of a construction contract can be reasonably measured, revenue from the contract is recognised progressively over time using the cost-to-cost method, i.e. based on the proportion of the actual costs incurred relative to the estimated total costs.

The likelihood of the Group earning contractual bonuses for early completion or suffering contractual penalties for late completion is taken into account in making these estimates, such that revenue is only recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur.

(y) 收入確認(續)

客戶合約收入(續)

(i) 銷售商品

商品銷售收入是在客戶佔有並接收商品時予以確認。如果提供的商品只是履行部分合同，則應按合同下交易總價的適當比例確認收入金額，在相對獨立的銷售價格基礎上於合同承諾的所有商品和服務之間分配。

(ii) 建造合同

當合同涉及客戶控制下的工作時，本集團將與客戶的合同劃分為建造合同。本集團的建造活動在客戶的控制下創建或新增資產。

當建造合同的成果可以被合理計量時，收入隨着時間的推移按照成本比例法逐漸確認，即基於實際發生的成本和預算總成本的比例進行計算。

在作出這些估計時，考慮到本集團因提前完成而獲得合同紅利或因延遲完成而遭受合同罰金的可能性，因此只有在很可能不會發生已確認累積收入金額的重大逆轉的情況下才確認收入。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(y) Revenue recognition (Continued)

Revenue from contracts with customers (Continued)

(ii) Construction contracts (Continued)

When the outcome of the contract cannot be reasonably measured, revenue is recognised only to the extent of contract costs incurred that are expected to be recovered.

If at any time the costs to complete the contract are estimated to exceed the remaining amount of the consideration under the contract, then a provision is recognised in accordance with the policy set out in Note 2(x)(ii).

(iii) Service concession revenue

Revenue related to construction services under a service concession arrangement is recognised based on the stage of completion of the work performed consistent with the Group's accounting policy on recognising revenue on construction contracts (Note 2(y)(ii)). Operation or service revenue is recognised in the period in which the services are provided by the Group. Interest income on financial assets is recognised in accordance with policy for interest income below. When the Group provides more than one service in a service concession arrangement, the consideration received is allocated by reference to the relative stand-alone selling prices of the services delivered when the amounts are separately identifiable.

(iv) Rendering of service

Revenue from the provision of service, such as operation and maintenance service is recognised over the scheduled period on a straight-line basis because the customer simultaneously receives and consumes the benefits provided by the Group.

(y) 收入確認(續)

客戶合約收入(續)

(ii) 建造合同(續)

當合同結果無法合理計量時，收入僅在預期可收回的合同成本範圍內確認。

如果在任何時候，完成合同的成本估計超過了合同下對價的剩餘金額，則根據附註2(x)(ii)中規定的政策確認準備金。

(iii) 服務特許權收入

服務特許權協議項下的與施工相關的收入，按照本集團確認建造合同收入相一致的會計政策(附註2(y)(ii))按工程完工進度確認。營運或服務收入在本集團提供服務的期間內確認。金融資產的利息收入按照下述利息收入的規定確認。當本集團在服務特許權協議提供的服務多於一項，且服務確認收入的公允價值能分別確定時，則參照所提供服務的相對獨立的銷售價格對收取的對價進行分配。

(iv) 經營租賃的租金收入

提供服務的收入，比如運維服務是在計劃期間內按照直線法確認的，因為客戶是同時接受並消耗集團提供的福利。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(y) Revenue recognition (Continued)

Rental income from operating leases

Rental income receivable under operating leases is recognised in profit or loss in equal instalments over the periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the use of the leased asset. Lease incentives granted are recognised in profit or loss as an integral part of the aggregate net lease payments receivable. Contingent rentals are recognised as income in the accounting period in which they are earned.

Other income

Interest income is recognised as it accrues under the effective interest method using the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to the gross carrying amount of the financial asset. For financial assets measured at amortised cost or FVOCI (recycling) that are not credit-impaired, the effective interest rate is applied to the gross carrying amount of the asset. For credit-impaired financial assets, the effective interest rate is applied to the amortised cost (i.e. gross carrying amount net of loss allowance) of the asset (Note 2(p)).

For POCI financial assets, interest income is recognised by calculating the credit-adjusted EIR and applying that rate to the amortised cost of the financial assets.

(y) 收入確認(續)

經營租賃的租金收入

根據經營租賃應收的租金收入在租賃期限涵蓋的期間按等額分期付款在損益中確認，除非其他基準更能代表從使用租入資產中獲得的利益的特徵。給予的租金優惠作為合計租賃付款應收賬款淨額的不可分割部分，在損益中確認。或有租賃款在其產生的會計期間確認為收入。

其他收入

利息收入按實際利率法下的累計額確認，實際利率是將金融資產預期壽命內的預計未來現金收入精確地折現為金融資產的總賬面金額。對於以攤餘成本或以公允價值計量且其變動計入其他綜合收益(重新計入)計量且未發生信用損失的金融資產，實際利率適用於該資產的總賬面金額。對於信用受損的金融資產，實際利率適用於該資產的攤餘成本(即總賬面金額減去損失準備金)(附註2(p))。

對於初始確認時已減值資產，利息收入的確認是通過計算信用調整的有效利率並且使用該利率去計算金融資產的攤銷成本。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(y) Revenue recognition (Continued)

Other income (Continued)

Dividend income from unlisted investments is recognised when the shareholders' right to receive payment is established. Dividend income from listed investments is recognised when the share price of the investment goes ex-dividend.

Government grants are recognised in the statement of financial position initially when there is reasonable assurance that they will be received and that the Group will comply with the conditions attaching to them. Grants that compensate the Group for expenses incurred are recognised as income in profit or loss on a systematic basis in the same periods in which the expenses are incurred. Grants that compensate the Group for the cost of an asset are initially recognised as deferred income and are subsequently recognised in profit or loss over the useful life of the asset.

(y) 收入確認(續)

其他收入(續)

非上市權益投資的股息收入在股東收取款項的權利確立時確認。上市股權投資的股息收入在投資項目的股價除息時確認。

當本集團可以合理確認將會收到政府補助並符合相關附帶條件時，政府補助初始會在財務狀況表內確認。用作補償本集團開支的補助於開支產生的同一期間以有系統的基準在損益內確認為收入。用作補償本集團資產成本的補助，初步確認為遞延收入，並隨後於資產的使用年限內於損益中確認。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(z) Translation of foreign currencies

Foreign currency transactions during the year are translated at the foreign exchange rates ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the foreign exchange rates ruling at the end of the reporting period. Exchange gains and losses are recognised in profit or loss.

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates.

The results of foreign operations are translated into RMB at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Statement of financial position items are translated into RMB at the closing foreign exchange rates at the end of the reporting period. Statement of profit or loss and statement of cash flows items are translated into RMB at the average foreign exchange rates for the reporting period. The resulting exchange differences are recognised in other comprehensive income and accumulated separately in equity in the exchange reserve.

On disposal of a foreign operation, the cumulative amount of the exchange differences relating to that foreign operation is reclassified from equity to profit or loss when the profit or loss on disposal is recognised.

(z) 外幣換算

年內的外幣交易按交易日的**外幣匯率**換算。以外幣計價的貨幣資產與負債則按報告期末的**外幣匯率**換算。匯兌損益在損益內確認。

以外幣計值並按歷史成本計量的非貨幣資產及負債以交易日期的**匯率**換算。

外貨幣業務業績按與於交易日適用的**外幣匯率**相近的匯率換算成人民幣。財務狀況表項目乃按於報告期末的收市外幣匯率換算為人民幣。損益表和現金流量表中項目按報告期的平均外幣匯率換算為人民幣。所產生的匯兌差額乃於其他綜合收益內確認，並單獨累計在權益的匯兌儲備內。

在處置海外業務時，與該海外經營有關的匯兌差異累計金額在確認處置損益時，將從權益被重分類至當期損益。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(aa) Borrowing costs

Borrowing costs that are directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial period of time to get ready for its intended use or sale are capitalised as part of the cost of that asset. Other borrowing costs are expensed in the period in which they are incurred.

The capitalisation of borrowing costs as part of the cost of a qualifying asset commences when expenditure for the asset is being incurred, borrowing costs are being incurred and activities that are necessary to prepare the asset for its intended use or sale are in progress. Capitalisation of borrowing costs is suspended or ceases when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are interrupted or complete.

(ab) Related parties

- (1) A person, or a close member of that person's family, is related to the Group if that person:
- (a) has control or joint control over the Group;
 - (b) has significant influence over the Group; or
 - (c) is a member of the key management personnel of the Group or of a parent of the Group.

(aa) 借貸成本

與購置、建造或生產需要長時間才可以達到擬定可使用或可出售狀態的資產直接相關的借款費用資本化，作為資產的部份成本。其他借款費用於產生期間列為開支。

借款費用應在資產開支和借款費用產生時，並且在資產達到擬定可使用或可出售狀態所必須的準備工作進行期間開始予以資本化，以作為合格資產的成本的一部份，在使合格資產達到擬定可使用或可出售狀態所必須的幾乎全部準備工作中斷或完成時，即暫時中止或停止將借款費用資本化。

(ab) 關聯方

- (1) 某一個人或與該個人關係密切的家庭成員應被視為與本集團有關聯，如果該個人：
- (a) 控制或共同控制本集團；
 - (b) 對本集團具有重大影響；或
 - (c) 作為本集團或本集團母公司關鍵管理人員。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(ab) Related parties (Continued)

(2) An entity is related to the Group if any of the following conditions applies:

- (a) The entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
- (b) One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
- (c) Both entities are joint ventures of the same third party.
- (d) One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
- (e) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group.
- (f) The entity is controlled or jointly controlled by a person identified in (1).
- (g) A person identified in (1)(a) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity).
- (h) The entity, or any member of a group of which it is a part, provides key management personnel services to the Group or to the Group's parent.

Close members of the family of a person are those family members who may be expected to influence, or be influenced by, that person in their dealings with the entity.

(ab) 關聯方(續)

(2) 在滿足任何以下條件的情況下，某一實體應被視為與本集團有關聯的實體：

- (a) 該實體和本集團均屬於同一集團的成員(即各母公司、附屬公司和同系附屬公司彼此相互關聯)。
- (b) 一間實體是另間實體的聯營公司或合營企業(或另一實體為成員公司之集團旗下成員公司之聯營公司或合營企業)。
- (c) 兩間實體均為同一第三方的合營企業。
- (d) 一間實體為第三方實體的合營企業，另一實體為該第三方實體的聯營公司。
- (e) 該實體為本集團或與本集團有關連的實體就僱員福利而設的離職後福利計劃。
- (f) 由(1)所述的個人控制或共同控制的實體。
- (g) 受上述(1)(a)中定義的個人重大影響的實體或該個人為實體(或該實體的母公司)的關聯管理人員。
- (h) 該實體或其所屬集團的任何成員公司，向本集團或本集團母公司提供關鍵管理人員服務。

與個關係密切的家庭成員是指預期該等在與實體的交易中，可能會影響該名個人或受其影響的家屬。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(ac) Segment reporting

Operating segments, and the amounts of each segment item reported in the financial statements, are identified from the financial information provided regularly to the Group's most senior executive management for the purposes of allocating resources to, and assessing the performance of, the Group's various lines of business and geographical locations.

Individually material operating segments are not aggregated for financial reporting purposes unless the segments have similar economic characteristics and are similar in respect of the nature of products and services, the nature of production processes, the type or class of customers, the methods used to distribute the products or provide the services, and the nature of the regulatory environment. Operating segments which are not individually material may be aggregated if they share a majority of these criteria.

(ad) Non-current assets held for sale and discontinued operations

(i) *Non-current assets held for sale*

A non-current asset (or disposal group) is classified as held for sale if it is highly probable that its carrying amount will be recovered through a sale transaction rather than through continuing use and the asset (or disposal group) is available for sale in its present condition. A disposal group is a group of assets to be disposed of together as a group in a single transaction, and liabilities directly associated with those assets that will be transferred in the transaction. When the Group is committed to a sale plan involving loss of control of a subsidiary, all the assets and liabilities of that subsidiary are classified as held for sale when the above criteria for classification as held for sale are met, regardless of whether the Group will retain a non-controlling interest in the subsidiary after the sale.

(ac) 分部報告

本集團為了分配資源予本集團各項業務以及評估各項業務的業績，而定期向本集團最高級行政管理層提供的財務數據。從該等資料中，可找出在財務報表中報告的經營分部、不同地區和每一分部、地區項目的金額。

個別而言屬於重大的經營分部不會在財務報告中予以匯總，除非該等分部擁有相若的經濟特性，而且其產品及服務的性質、生產流程性質、客戶的類型或類別、用以分銷產品或提供服務的方法以及監管環境的性質均相若。如果個別而言並非屬於重大的經營分部擁有以上大部份特徵可予以匯總成同一分部列示。

(ad) 持有代售的非流動資產及終止經營業務

(i) *持有代售的非流動資產*

如果非流動資產(或出售組別)的賬面金額很可能通過銷售交易而非通過持續使用而收回，且該非流動資產(或出售組別)可按現況出售，則分類為持有待售用途。出售組別是指於單一交易中一併出售的一組資產及與該等於交易中轉移的資產直接相關的負債。當本集團承諾進行涉及喪失一家附屬公司控制權的出售計劃時，不論本集團是否將於出售後保留該附屬公司的非控股權益，該附屬公司的所有資產及負債於符合上述有關劃歸為持有待售的條件時會劃歸為持有待售用途。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(ad) Non-current assets held for sale and discontinued operations (Continued)

(i) Non-current assets held for sale (Continued)

Immediately before classification as held for sale, the measurement of the non-current assets (and all individual assets and liabilities in a disposal group) is brought up-to-date in accordance with the accounting policies before the classification. Then, on initial classification as held for sale and until disposal, the non-current assets (except for certain assets as explained below), or disposal groups, are recognised at the lower of their carrying amount and fair value less costs to sell. The principal exceptions to this measurement policy so far as the financial statements of the Group are concerned are deferred tax assets and financial assets (other than investments in subsidiaries, associates and joint ventures). These assets, even if held for sale, would continue to be measured in accordance with the policies set out elsewhere in Note 2. Impairment losses on initial classification as held for sale, and on subsequent remeasurement while held for sale, are recognised in profit or loss. As long as a non-current asset is classified as held for sale, or is included in a disposal group that is classified as held for sale, the non-current asset is not depreciated or amortised.

(ad) 持有代售的非流動資產及終止經營業務(續)

(i) 持有代售的非流動資產(續)

在分類為持有待售用途前，非流動資產(及於一出售組別中的所有個別資產和負債)按分類前的會計政策計量。在初始分類為持有待售類別至售出時，非流動資產(除以下所述的部份資產外)或出售組別以賬面金額和公允價值減去出售成本兩者中的孰低者確認。在本集團財務報表中不使用這項計量政策的主要項目包括遞延稅項資產和金融資產(除對附屬公司、聯營公司和合營企業的投資外)。該等資產即使為持有待售用途，也會繼續按附註2其他部份所載的政策計量。於初始分類為持有待售用途及其後於列作持有待售用途的期間重新計量的減值損失在損益內確認。當非流動資產被歸類為持有待售用途，或被包括在分類為持有待售的出售組別，該非流動資產不予折舊或攤銷。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED) 2. 主要會計政策(續)

(ad) Non-current assets held for sale and discontinued operations (Continued)

(ii) Discontinued operations

A discontinued operation is a component of the Group's business, the operations and cash flows of which can be clearly distinguished from the rest of the Group and which represents a separate major line of business or geographical area of operations, or is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations, or is a subsidiary acquired exclusively with a view to resale.

Classification as a discontinued operation occurs upon disposal or when the operation meets the criteria to be classified as held for sale ((i) above), if earlier. It also occurs if the operation is abandoned.

Where an operation is classified as discontinued, a single amount is presented on the face of the statement of profit or loss, which comprises:

- the post-tax profit or loss of the discontinued operation; and
- the post-tax gain or loss recognised on the measurement to fair value less costs to sell, or on the disposal, of the assets or disposal group(s) constituting the discontinued operation.

(ad) 持有代售的非流動資產及終止經營業務(續)

(ii) 已終止經營業務

已終止經營業務是本集團業務組成部份，運營及現金流量可與本集團其他業務清楚區分，且代表一項按業務或地區劃分的獨立主要業務；或作為出售一項按業務或地區劃分的獨立主要業務的單一統籌計劃之其中一部分，或為一間純粹為轉售而收購的附屬公司。

倘若業務被出售或符合列為持有待售的項目(詳見上文(i)的準則(如較早發生))，則分類為已終止經營業務。撤出業務時，有關業務亦會分類為已終止經營業務。

當某項業務被分類為已終止經營時，於損益表中將僅以單一數額列示，包括：

- 已終止經營業務的稅後溢利或虧損；及
- 就已終止經營業務之資產或出售組別，計算其公允價值，並扣除有關出售之成本後之除稅後溢利或虧損。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.1 ISSUED BUT NOT YET EFFECTIVE INTERNATIONAL FINANCIAL REPORTING STANDARDS

The Group has not applied the following new and revised IFRSs, that have been issued but are not yet effective, in these financial statements.

Amendments to IFRS 3	<i>Definition of a Business</i> ¹
Amendments to IFRS 9, IAS 39 and IFRS 7	<i>Interest Rate Benchmark Reform</i> ¹
Amendments to IFRS 10 and IAS 28	<i>Sale or Contribution of Assets between an Investor and its Associate or Joint Venture</i> ⁴
IFRS 17	<i>Insurance Contracts</i> ²
Amendments to IAS 1 and IAS 8	<i>Definition of Material</i> ¹
Amendments to IAS 1	<i>Classification of Liabilities as Current or Non-current</i> ³

- 1 Effective for annual periods beginning on or after 1 January 2020
- 2 Effective for annual periods beginning on or after 1 January 2021
- 3 Effective for annual periods beginning on or after 1 January 2022
- 4 No mandatory effective date yet determined but available for adoption

Further information about those IFRSs that are expected to be applicable to the Group is described below.

2. 主要會計政策(續)

2.1 已頒佈但尚未生效的修訂、新訂 準則及詮釋

本集團並無於本財務報表內應用下列已頒佈但尚未生效的新訂或經修訂國際財務報告準則。

國際財務報告準則第3號之修訂	<i>業務的定義</i> ¹
國際財務報告準則第9號、國際會計準則第39號及國際財務報告準則第7號之修訂	<i>利率基準改革</i> ¹
國際財務報告準則第10號及國際會計準則第28號之修訂	<i>投資者與其聯營公司或合營企業之間的資產出售或投入</i> ⁴
國際財務報告準則第17號	<i>保險合同</i> ²
國際會計準則第1號及國際會計準則第8號之修訂	<i>重大的定義</i> ¹
國際會計準則第1號之修訂	<i>負債分類為流動負債或非流動負債</i> ³

- 1 於2020年1月1日或之後開始之年度期間生效
- 2 於2021年1月1日或之後開始之年度期間生效
- 3 於2022年1月1日或之後開始之年度期間生效
- 4 尚未釐定強制生效日期但可供採納

預期適用於本集團的有關國際財務報告準則的進一步資料載列如下。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.1 ISSUED BUT NOT YET EFFECTIVE INTERNATIONAL FINANCIAL REPORTING STANDARDS (CONTINUED)

Amendments to IFRS 3 clarify and provide additional guidance on the definition of a business. The amendments clarify that for an integrated set of activities and assets to be considered a business, it must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output. A business can exist without including all of the inputs and processes needed to create outputs. The amendments remove the assessment of whether market participants are capable of acquiring the business and continue to produce outputs. Instead, the focus is on whether acquired inputs and acquired substantive processes together significantly contribute to the ability to create outputs. The amendments have also narrowed the definition of outputs to focus on goods or services provided to customers, investment income or other income from ordinary activities. Furthermore, the amendments provide guidance to assess whether an acquired process is substantive and introduce an optional fair value concentration test to permit a simplified assessment of whether an acquired set of activities and assets is not a business. The Group expects to adopt the amendments prospectively from 1 January 2020. Since the amendments apply prospectively to transactions or other events that occur on or after the date of first application, the Group will not be affected by these amendments on the date of transition.

Amendments to IFRS 9, IAS 39 and IFRS 7 address the effects of interbank offered rate reform on financial reporting. The amendments provide temporary reliefs which enable hedge accounting to continue during the period of uncertainty before the replacement of an existing interest rate benchmark. In addition, the amendments require companies to provide additional information to investors about their hedging relationships which are directly affected by these uncertainties. The amendments are effective for annual periods beginning on or after 1 January 2020. Early application is permitted. The amendments are not expected to have any significant impact on the Group's financial statements.

2. 主要會計政策(續)

2.1 已頒佈但尚未生效的修訂、新訂 準則及詮釋(續)

國際財務報告準則第3號修訂本對業務定義進行了澄清並提供額外指引。該項修訂澄清，倘一組整合的活動和資產要構成業務，其必須至少包括一項投入和一一項實質性過程，並共同顯著促進創造產出的能力。業務可以不具備所有創造產出所需的投入和過程。該修訂刪除了對市場參與者是否有能力購買業務並能持續產生產出的評估，轉而重點關注所取得的投入和所取得的實質性過程是否共同顯著促進創造產出的能力。該修訂縮小了產出的定義範圍，重點關注向顧客提供的商品或服務、投資收益或其他日常活動收入。此外，該修訂為企業評估所取得的過程是否為實質性過程提供指引並引入可選的公平值集中度測試，以允許對所取得的一組活動和資產是否不構成業務進行簡化評估。本集團預計自2020年1月1日起採納該等修訂。由於該等修訂適用於首次應用之日或之後發生的交易或其他事件，因此本集團在過渡日期將不受該等修訂影響。

國際財務報告準則第9號，國際會計準則第39號及國際財務報告準則第7號之修訂旨在解決銀行同業拆息改革對財務申報之影響。該等修訂提供可在替換現有利率基準前之不確定期限內繼續進行對沖會計處理之暫時性補救措施。此外，該等修訂規訂公司須向投資者提供有關直接受該等不確定因素影響之對沖關係之額外資料。該等修訂將自2020年1月1日或以後每年有效。允許提前申請。預期該等修訂將不會對本集團財務報表造成任何重大影響。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

2. SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

2.1 ISSUED BUT NOT YET EFFECTIVE INTERNATIONAL FINANCIAL REPORTING STANDARDS (CONTINUED)

Amendments to IFRS 10 and IAS 28 address an inconsistency between the requirements in IFRS 10 and in IAS 28 in dealing with the sale or contribution of assets between an investor and its associate or joint venture. The amendments require a full recognition of a gain or loss when the sale or contribution of assets between an investor and its associate or joint venture constitutes a business. For a transaction involving assets that do not constitute a business, a gain or loss resulting from the transaction is recognised in the investor's profit or loss only to the extent of the unrelated investor's interest in that associate or joint venture. The amendments are to be applied prospectively. The previous mandatory effective date of amendments to IFRS 10 and IAS 28 was removed by the IASB in December 2015 and a new mandatory effective date will be determined after the completion of a broader review of accounting for associates and joint ventures. However, the amendments are available for adoption now.

Amendments to IAS 1 and IAS 8 provide a new definition of material. The new definition states that information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements. The amendments clarify that materiality will depend on the nature or magnitude of information. A misstatement of information is material if it could reasonably be expected to influence decisions made by the primary users. The Group expects to adopt the amendments prospectively from 1 January 2020. The amendments are not expected to have any significant impact on the Group's financial statements.

Amendments to IAS 1 issued in January 2020 amended the definition of the current liabilities and non-current liabilities. The entity's right to defer settlement of a liability for at least twelve months after the reporting period and the definition of settlement are considered when making the classification of a liability. The amendment clarifies that classification of a liability is unaffected by the likelihood that the entity will exercise its right to defer settlement of the liability for at least twelve months after the reporting period. The Group expects to adopt the amendments retrospectively from 1 January 2022. The amendments are not expected to have any significant impact on the Group's financial statements.

2. 主要會計政策(續)

2.1 已頒佈但尚未生效的修訂、新訂 準則及詮釋(續)

國際財務報告準則第10號及國際會計準則第28號之修訂針對國際財務報告準則第10號及香港會計準則第28號之間有關投資者與其聯營公司或合營公司之間資產出售或注資兩者規定之不一致情況。該等修訂規定，當投資者與其聯營公司或合營公司之間的資產出售或注資構成一項業務時，須確認全數收益或虧損。當交易涉及不構成一項業務之資產時，由該交易產生之收益或虧於該投資者之損益內確認。惟僅以不相關投資者於該聯營公司或合營公司之權益為限。該等修訂已前瞻應用。國際會計準則理事會已於2015年12月剔除國際財務報告準則第10號及國際會計準則第28號之修訂的以往強制生效日期，而新的強制生效日期將於對聯營公司及合營公司的會計處理完成更廣泛的檢討後釐定。然而，該等修訂現時可供採納。

國際會計準則第1號及國際會計準則第8號之修訂為重大一詞提供新定義。根據新定義，倘可合理預期漏報、錯報或掩蓋個別資料將可影響使用財務報表作一般目之之主要使用者基於相關財務報表作出之決定，則該資料為重大。修訂指明，重大性取決於資料之性質及牽涉範圍。倘可合理預期資料錯報會影響主要使用者之決定，則有關錯誤為重大。本集團預期自2020年1月1日起按未來適用基準採納該等修訂。該等修訂預期不會對本集團之財務報表造成任何重大影響。

2020年1月發佈的對國際會計準則第1號之修訂，修訂了流動負債和非流動負債的定義。在對負債進行分類時，應考慮主體在報告期後至少十二個月內延遲清償負債的權利以及清償的定義。該修正案闡明，負債的分類不受實體將在報告期後至少十二個月內行使其權利延遲清償負債的可能性的影響。本集團預計自2022年1月1日起追溯採用該等修訂。預期該等修訂將不會對本集團的財務報表產生任何重大影響。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES

The Group has adopted the following new and revised IFRSs for the first time for the current year's financial statements.

Amendments to IFRS 9	<i>Prepayment Features with Negative Compensation</i>
IFRS 16	<i>Leases</i>
Amendments to IAS 19	<i>Plan Amendment, Curtailment or Settlement</i>
Amendments to IAS 28	<i>Long-term Interests in Associates and Joint Ventures</i>
IFRIC 23	<i>Uncertainty over Income Tax Treatments</i>
<i>Annual Improvements to IFRSs 2015–2017 Cycle</i>	Amendments to IFRS 3, IFRS 11, IAS 12 and IAS 23

Except for the amendments to IFRS 9 and IAS 19, and *Annual Improvements to IFRSs 2015–2017 Cycle* – Amendments to IFRS 3, IFRS 11 and IAS 12, which are not relevant to the preparation of the Group's financial statements, the nature and the impact of the new and revised IFRSs are described below:

- (a) IFRS 16 replaces IAS 17 *Leases*, IFRIC 4 *Determining whether an Arrangement contains a Lease*, SIC-15 *Operating Leases – Incentives* and SIC-27 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model to recognise and measure right-of-use assets and lease liabilities, except for certain recognition exemptions. Lessor accounting under IFRS 16 is substantially unchanged from IAS 17. Lessors continue to classify leases as either operating or finance leases using similar principles as in IAS 17. Therefore, IFRS 16 did not have any significant impact on leases where the Group is the lessor.

3. 會計政策及披露的修訂

本集團已就本年度的財務報表首次採納以下新訂及經修訂國際財務報告準則。

國際財務報告準則第9號之修訂	反向賠償的提前還款特徵
國際財務報告準則第16號	租賃
國際會計準則第19號之修訂	計劃修訂、縮減或結算
國際會計準則第28號之修訂	於聯營公司及合營企業的長期權益
國際財務報告詮釋委員會詮釋第23號	所得稅處理的不確定性
國際財務報告準則2015年至2017年週期的年度改進	國際財務報告準則第3號、國際財務報告準則第11號、國際會計準則第12號及國際會計準則第23號之修訂

除國際財務報告準則第9號之修訂及國際會計準則第19號之修訂、及國際財務報告準則2015年至2017年週期的年度改進國際財務報告準則第3號、國際財務報告準則第11號及國際會計準則第12號之修訂與編製本集團財務報表無關外，新訂及經修訂國際財務報告準則的性質及影響如下：

- (a) 國際財務報告準則第16號取代國際會計準則第17號租賃、國際財務報告詮釋委員會詮釋第4號釐定安排是否包括租賃、常務詮釋委員會詮釋第15號經營租賃－優惠及常務詮釋委員會詮釋第27號評估涉及租賃法律形式交易的內容。該準則載列確認、計量、呈列及披露租賃的原則，並要求承租人將所有租賃按單一的資產負債表內模式確認，以確認和計量使用權資產和租賃負債，除卻若干確認豁免。國際財務報告準則第16號所載的出租人會計處理方式大致上沿襲國際會計準則第17號的相關會計處理方式。出租人繼續使用國際會計準則第17號所載的同一分類原則將租賃分類為經營租賃及融資租賃。因此，國際財務報告準則第16號對本集團為出租人的租賃並無任何重大影響。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED) 3. 會計政策及披露的修訂(續)

(a) (Continued)

The Group adopted IFRS 16 using the modified retrospective method with the date of initial application of 1 January 2019. Under this method, the standard has been applied retrospectively with the cumulative effect of initial adoption as an adjustment to the opening balance of retained earnings at 1 January 2019, and the comparative information for 2018 was not restated and continues to be reported under IAS 17 and related interpretations.

New definition of a lease

Under IFRS 16, a contract is, or contains a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration. Control is conveyed where the customer has both the right to obtain substantially all of the economic benefits from use of the identified asset and the right to direct the use of the identified asset. The Group elected to use the transition practical expedient allowing the standard to be applied only to contracts that were previously identified as leases applying IAS 17 and IFRIC 4 at the date of initial application. Contracts that were not identified as leases under IAS 17 and IFRIC 4 were not reassessed. Therefore, the definition of a lease under IFRS 16 has been applied only to contracts entered into or changed on or after 1 January 2019.

At inception or on reassessment of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease and non-lease component on the basis of their standalone prices.

(a) (續)

本集團自2019年1月1日用經修改回溯性方法初次採納國際財務報告準則第16號。在此方法下，初次採納的累計影響為2019年1月1日的保留盈利期初結餘調整，2018年的比較數據沒有重列並繼續沿用國際會計準則第17號及相關詮釋。

租賃的新定義

基於國際財務報告準則第16號，租賃為在一定期間內讓渡控制及使用一項資產的權利以獲取對價的合同或合同的一部分。控制權為客戶擁有獲取與使用該項資產相關的幾乎所有的經濟利益的權利以及使用該項已識別資產的權利。在首次採用日，本集團選擇採用過渡期的實務變通，新租賃準則僅適用於在國際會計準則第17號及國際財務報告解釋委員會第4號下確定為租賃的合約。因此，國際財務報告準則第16號的租賃定義僅適用於2019年1月1日或之後簽訂或更改的合約。

在開始或重新評估包含租賃組成部分的合同時，本集團以各租賃組成部分和非租賃組成部分的單獨價格為基礎將對價分攤至這些組成部分。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED) 3. 會計政策及披露的修訂(續)

(a) (Continued)

As a lessee – Leases previously classified as operating leases

Nature of the effect of adoption of IFRS 16

The Group has lease contracts for various items of land, buildings and structures, motor vehicles and other equipment. As a lessee, the Group previously classified leases as either finance leases or operating leases based on the assessment of whether the lease transferred substantially all the rewards and risks of ownership of assets to the Group. Under IFRS 16, the Group applies a single approach to recognise and measure right-of-use assets and lease liabilities for all leases, except for two elective exemptions for leases of low-value assets (elected on a lease by lease basis) and leases with a lease term of 12 months or less (“**short-term leases**”) (elected by class of underlying asset). Instead of recognising rental expenses under operating leases on a straight-line basis over the lease term commencing from 1 January 2019, the Group recognises depreciation (and impairment, if any) of the right-of-use assets and interest accrued on the outstanding lease liabilities (as finance costs).

The Group has elected not to recognise right-of-use assets and lease liabilities for (i) leases of low-value assets (e.g., laptop computers and telephones); and (ii) short-term leases. Instead, the Group recognises the lease payments associated with those leases as an expense on a straight-line basis over the lease term.

(a) (續)

作為承租人 – 之前劃分為經營租賃的租賃

採用國際財務報告準則16號的影響

本集團擁有各類土地、樓宇及建築物、汽車及其他設備的租賃合約。在新準則適用前，本集團作為承租人根據租賃是否將租賃資產所有權相關的幾乎所有風險與報酬轉移給本集團，將租賃分類為融資租賃和經營租賃。根據國際財務報告準則第16號，本集團對所有租賃採用單一方法確認和計量使用權資產與租賃負債，低價值資產租賃(基於每一項租賃)與租期少於12個月的租賃(「**短期租賃**」)(基於每一類資產)除外。本集團確認使用權資產折舊(及減值，如有)及尚未償還租賃負債之應計利息(為融資成本)，而非於自2019年1月1日開始之租期內按直線法於經營租賃項下確認租金開支。

本集團選擇不對(i)低價值資產租賃(如手提電腦、電話等)；(ii)短期租賃確認使用權資產及租賃負債。本集團將與該等租賃相關的租金付款在租賃期內以直線法進行攤銷計入相關費用。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED) 3. 會計政策及披露的修訂(續)

(a) (Continued)

As a lessee – Leases previously classified as operating leases (Continued)

Impacts on transition

Lease liabilities at 1 January 2019 were recognised based on the present value of the remaining lease payments, discounted using the incremental borrowing rate at 1 January 2019 and included in lease liabilities and other payables and accruals (current portion). The right-of-use assets for most leases were measured at the amount of the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to the lease recognised in the statement of financial position immediately before 1 January 2019.

All these assets were assessed for any impairment based on IAS 36 on that date. The Group elected to present the right-of-use assets in property, plant and equipment. This also includes the lease assets recognised previously under lease prepayment of RMB302,033,000.

The Group has used the following elective practical expedients when applying IFRS 16 at 1 January 2019:

- Using a single discount rate to a portfolio of leases with reasonably similar characteristics;
- Applying the short-term leases exemptions to leases with lease term that ends within 12 months at the date of initial application;
- Excluding the initial direct costs from the measurement of the right-of-use asset at the date of initial application; and
- Using hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

(a) (續)

作為承租人 – 之前劃分為經營租賃的租賃(續)

過渡期的影響

本集團根據相關租賃的剩餘租賃付款額按首次採用日的增量借款利率折現的現值確認2019年1月1日的租賃負債，包含在租賃負債和其他應付款項(短期)中。使用權資產按照與租賃負債相等的金額來計量，並根據於2019年1月1日前計入財務報表的與該租賃相關的預付和預提租賃付款額進行調整。

本集團在首次採用日對全部使用權資產根據國際會計準則第36號「資產減值」進行減值測試。本集團選擇將使用權資產列示於物業、廠房及設備中，包含以前在年度列示在預付土地款的土地租賃人民幣302,033,000元。

本集團於2019年1月1日採用國際財務報告準則第16號時，採用下述可選擇的實務變通：

- 對具有合理相似特徵的租賃組合採用單一折現率；
- 對於租賃期將在首次採用日後12個月內結束的租賃採用短期租賃豁免；
- 於首次採用日計量使用權資產時，扣除初始直接費用；及
- 對合同中含續租或終止租賃選擇權的租賃，採用後見之明確確定租賃期

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED) 3. 會計政策及披露的修訂(續)

(a) (Continued)

As a lessee – Leases previously classified as operating leases (Continued)

Financial impact at 1 January 2019

The impacts in financial statements arising from the adoption of IFRS 16 as at 1 January 2019 were as follows:

(a) (續)

作為承租人 – 之前劃分為經營租賃的租賃(續)

於2019年1月1日之財務影響

執行國際財務報告準則第16號 – 租賃對2019年1月1日財務報表的影響如下：

Assets	資產	Increase/(Decrease) 減少/(增加) RMB'000 人民幣千元
Increase in property, plant and equipment	物業、廠房及設備增加	330,194
Decrease in lease prepayments	預付土地租賃款減少	(302,033)
Decrease in other non-current assets	其他非流動資產減少	(890)
Decrease in deposit, prepayments and other receivables	按金、預付款項及其他應收款項減少	(341)
Increase in total assets	資產總額增加	26,930
Liabilities	負債	
Increase in lease liabilities	租賃負債增加	19,988
Increase in other payables and accruals	其他應付款項及應計費用增加	6,942
Increase in total liabilities	負債總額增加	26,930



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED) 3. 會計政策及披露的修訂(續)

(a) (Continued)

As a lessee – Leases previously classified as operating leases (Continued)

Financial impact at 1 January 2019 (Continued)

(a) (續)

作為承租人 – 之前劃分為經營租賃的租賃(續)

於2019年1月1日之財務影響(續)

		RMB'000 人民幣千元
Operating lease commitments as at 31 December 2018	於2018年12月31日經營租賃承諾	25,900
Weighted average incremental borrowing rate as at 1 January 2019	2019年1月1日加權平均增量借款利率	4.75%
Discounted operating lease commitments as at 1 January 2019	2019年1月1日經折現經營租賃承諾	22,992
Less:	減：	
Commitments relating to short-term leases and those leases with a remaining lease term ended on or before 31 December 2019	與短期租賃和剩餘租賃期在2019年12月31日或之前結束的租賃相關的最低租賃付款額	(19,201)
Add:	加：	
Payments for optional extension period not recognised as at 31 December 2018	2018年12月31日未確認的可選續租期的付款	23,139
Lease liabilities as at 1 January 2019	於2019年1月1日租賃負債	26,930



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

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3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED)

(b) Amendments to IAS 28 clarify that the scope exclusion of IFRS 9 only includes interests in an associate or joint venture to which the equity method is applied and does not include long-term interests that in substance form part of the net investment in the associate or joint venture, to which the equity method has not been applied. Therefore, an entity applies IFRS 9, rather than IAS 28, including the impairment requirements under IFRS 9, in accounting for such long-term interests. IAS 28 is then applied to the net investment, which includes the long-term interests, only in the context of recognising losses of an associate or joint venture and impairment of the net investment in the associate or joint venture. The Group assessed its business model for its long-term interests in associates and joint ventures upon adoption of the amendments on 1 January 2019 and concluded that the long-term interests in associates and joint ventures continued to be measured at amortised cost in accordance with IFRS 9. Accordingly, the amendments did not have any impact on the financial position or performance of the Group.

(c) IFRIC 23 addresses the accounting for income taxes (current and deferred) when tax treatments involve uncertainty that affects the application of IAS 12 (often referred to as “**uncertain tax positions**”).

The interpretation does not apply to taxes or levies outside the scope of IAS 12, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The interpretation specifically addresses (i) whether an entity considers uncertain tax treatments separately; (ii) the assumptions an entity makes about the examination of tax treatments by taxation authorities; (iii) how an entity determines taxable profits or tax losses, tax bases, unused tax losses, unused tax credits and tax rates; and (iv) how an entity considers changes in facts and circumstances. Upon adoption of the interpretation, the Group considered whether it has any uncertain tax positions arising from the transfer pricing on its intergroup sales. Based on the Group's tax compliance and transfer pricing experience, the Group determined that it is probable that its transfer pricing policy will be accepted by the tax authorities. Accordingly, the interpretation did not have any significant impact on the financial position or performance of the Group.

3. 會計政策及披露的修訂(續)

(b) 國際會計準則第28號修訂本澄清國際財務報告準則第9號的範圍豁免僅包括應用權益法的聯營公司或合營企業之權益，且不包括實質上構成聯營公司或合營企業投資淨額一部分的長期權益。因此，計算該長期權益時，實體應用國際財務報告準則第9號，而非國際會計準則第28號。僅在確認聯營公司或合營企業的虧損及聯營公司或合營企業淨投資減值的情況下國際會計準則第28號乃應用於淨投資(包括長期權益)。本集團採用2019年1月1日之修訂以評估其聯營公司或合營企業長期權益的經營模式及決定繼續根據國際財務報告準則第9號按攤銷成本計量聯營公司或合營企業的長期權益。因此，該修訂本將不會對本集團之財務狀況或表現造成任何影響。

(c) 國際財務報告解釋公告詮釋第23號於稅項處理涉及影響國際會計準則第12號應用的不確定性時(通常稱為「**不確定稅務情況**」)，處理該情況下的所得稅(即期及遞延)會計處理。

該詮釋並不適用於國際會計準則第12號範圍外的稅項或徵稅，尤其亦不包括不確定稅項處理相關的權益及處罰相關規定。該詮釋特別處理(i)實體是否分開考慮不確定稅項；(ii)實體對稅務機關的稅項處理檢查所作的假設；(iii)實體如何釐定應課稅溢利或稅項虧損、稅基、未動用稅項虧損、未動用稅收抵免及稅率；及(iv)實體如何考慮事實及情況變動。於採納該詮釋時，本集團考慮於其集團內銷售的轉移定價是否會產生任何不確定稅務情況。根據本集團的稅務合規及轉移定價研究，本集團認為稅務機關將很可能接受其轉移定價政策。因此，該詮釋不會對本集團的財務狀況或表現產生任何重大影響。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

3. CHANGES IN ACCOUNTING POLICIES AND DISCLOSURES (CONTINUED)

(d) Amendments under Annual Improvements to IFRSs 2015–2017 Cycle

IAS 23 Borrowing Costs: Clarifies that an entity treats as part of general borrowings any specific borrowing originally made to develop a qualifying asset, and that is still outstanding, when substantially all of the activities necessary to prepare that asset for its intended use or sale are complete. The amendments did not have any impact on the financial position or performance of the Group.

4. ACCOUNTING JUDGEMENT AND ESTIMATES

The Group's financial condition and results of operations are sensitive to accounting methods, assumptions and estimates that underlie the preparation of these financial statements. The Group bases the assumptions and estimates on historical experience and on various other assumptions that the Group believes to be reasonable and which form the basis for making judgements about matters that are not readily apparent from other sources. Actual results may differ from those estimates as facts, circumstances and conditions change.

The selection of critical accounting policies, the judgements and other uncertainties affecting application of those policies and the sensitivity of reported results to changes in conditions and assumptions are factors to be considered when reviewing these financial statements. The principal accounting policies are set forth in Note 2. The Group believes the following critical accounting policies involve the most significant judgements and estimates used in the preparation of these financial statements.

3. 會計政策及披露的修訂(續)

(d) 國際財務報告準則2015年至2017年週期的年度改進

國際會計準則第23號借貸成本：該準則澄清，當為使資產達到預定用途或銷售的必要活動絕大部分已完成時，對於原為開發合資格資產而作出且仍尚未償還的專項借款，實體可將之視作一般借款的一部分。該修訂不會對本集團的財務狀況或表現產生任何影響。

4. 會計判斷及估計

本集團的財務狀況和經營成果對編製財務報表時所採用的會計方法、假設和估計有敏感變動。本集團對這些假設和估計是基於以往的經驗和各種其他假設，而本集團亦相信這是合理的。本集團亦按這些假設和估計為基準，對一些不明顯地能從其他來源確定的事項作出判斷。管理層會不斷評估這些估計。實際結果可能因事實、情況和條件的改變而與估計金額有異。

對重大會計政策的選擇、影響對這些政策的應用的判斷和其他不確定因素，以及報告的經營成果對條件和假設發生變化的敏感性均是審閱財務報表時應考慮的因素。主要會計政策已載列於附註2。本集團認為，在編製財務報表時，下列重大會計政策涉及最主要的判斷和估計。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

4. ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 4. 會計判斷及估計(續)

(a) Impairment losses for non-current assets

In considering the impairment losses that may be required for certain of the Group's assets which include property, plant and equipment (including right-of-use assets), investment properties, intangible assets, investments in associates and goodwill, recoverable amount of the asset needs to be determined. The recoverable amount is the greater of the fair value less costs to sell and the value in use. It is difficult to precisely estimate selling price because quoted market prices for these assets may not be readily available. In determining the value in use, expected cash flows generated by the asset are discounted to their present value, which requires significant judgement particularly in relation to the key assumptions adopted, including revenue growth rates, gross profit margins, long-term growth rates, inflation rates, the discount rate applied in the discounted cash flow forecast and the remaining useful economic lives of the relevant assets. The information about the impairment losses for non-current assets of the Group is disclosed in Note 15, Note 16, Note 18, Note 19 and Note 21 to the financial statements.

(b) Impairment losses for receivables and contract assets

The Group uses a provision matrix to calculate ECLs for trade receivables, contract assets and other receivables. The provision rates are based on ageing of balances for groupings of various customer segments that have similar loss patterns (i.e., by geography, customer type).

The provision matrix is initially based on the Group's historical observed default rates. The Group will calibrate the matrix to adjust the historical credit loss experience with forward-looking information. At each reporting date, the historical observed default rates are updated and changes in the forward-looking estimates are analysed.

The assessment of the correlation among historical observed default rates, forecast economic conditions and ECLs is a significant estimate. The amount of ECLs is sensitive to changes in circumstances and forecast economic conditions. The Group's historical credit loss experience and forecast of economic conditions may also not be representative of a customer's actual default in the future. The information about the ECLs on the Group's trade receivables, contract assets and other receivables is disclosed in Note 23, Note 25, Note 26 and Note 27 to the financial statements, respectively.

(a) 非流動資產減值損失

當考慮對本集團若干資產(包括物業、廠房及設備(含使用權資產)、投資性物業、無形資產、對聯營公司的投資和商譽)計提減值虧損時，則須確定該等資產之可收回金額。可收回金額為公允價值減銷售成本或使用價值之較高者。由於並未取得該等資產之市場報價，因此難以準確估計售價。於確定使用價值時，該資產產生之預期現金流量將折現至其現值，而此需對收入增長率、毛利率、長期增長率、通貨膨脹率、預期現金流量折現率以及相關資產的剩餘經濟使用壽命等項目作出重大判斷。有關本集團非流動資產減值損失的資訊於財務報表附註15、附註16、附註18、附註19及附註21披露。

(b) 應收賬款及合同資產減值損失

本集團使用撥備矩陣計算應收賬款、合同資產及其他應收款的預期信貸損失。撥備率乃基於賬齡，以將具有類似損失模式的不同客戶(如：地區，客戶類型等)進行分組。

撥備矩陣最初基於本集團的歷史觀察違約率。本集團將根據前瞻性資料校准矩陣以調整歷史信貸損失經驗。於每個報告日期，對歷史觀察違約率予以更新，並對前瞻性估計的變動進行分析。

對歷史觀察違約率、經濟狀況預測及預期信貸損失之間的相關性評估屬重要估計。預期信貸損失的金額易受環境變化及經濟狀況預測的影響。本集團的歷史信貸損失經驗及對經濟狀況的預測亦或無法代表未來客戶的實際違約情況。有關本集團應收賬款、合同資產及其他應收款預期信貸損失的信息於財務報表附註23、附註25、附註26及附註27披露。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

4. ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 4. 會計判斷及估計(續)

(c) Construction contracts

As explained in accounting policies set out in Note 2(y)(ii), revenue and profit recognition on an uncompleted project is dependent on estimating the total outcome of the construction contract, as well as the work done to date. Based on the Group's recent experience and the nature of the construction activity undertaken by the Group, the Group makes estimates of the point at which it considers the work is sufficiently advanced such that the costs to complete and revenue can be reliably estimated. As a result, until this point is reached the contract assets as disclosed in Note 25 will not include profit which the Group may eventually realise from the work done to date. In addition, actual outcomes in terms of total cost or revenue may be higher or lower than estimated at the end of the reporting period, which would affect the revenue and profit recognised in future years as an adjustment to the amounts recorded to date.

(d) Provision for warranty

The Group will rectify product defects of wind turbines, steam turbines and distributed control system products arising within one to five years of the date of sale. Besides, the Group also provides for warranty of construction service for general repairs or defects occurring during the warranty period. The Group estimates warranty costs based on the Group's historical cost data, industry data and an assessment of the Group's competitors' accrual. The warranty obligation of the Group will be affected not only by the product failure rates, but also by costs incurred to repair or replace failed products. If the actual product failure rates and cost of replacement or repairing of failed products differ from the estimates, the Group will need to prospectively revise the provision for warranty costs which would affect profit or loss in future years.

Provisions for these assurance-type warranties granted by the Group are recognised based on sales volume and past experience of the level of repairs, discounted to their present values as appropriate. The information about provision for warranty of the Group is disclosed in Note 35 to the financial statements.

(c) 建造合同

誠如附註2(y)(ii)所載之會計政策所釋述，確認未完成項目之收入及利潤取決於估計建造合同之總結果及迄今已完成之工程。根據本集團近期經驗及本集團所進行工程活動之性質，本集團於其認為工程已進展至足以可靠地估計完成成本及收入時做出估計。因此，直至此時點之前，附註25所披露的合同資產不會計入本集團迄今已完成工程最終可能實現的利潤。此外，按總成本或收入計算的實際結果可能高於或低於報告期末之估計金額，並透過對迄今記錄金額作出調整而影響於未來年度確認之收入及利潤。

(d) 質保金撥備

產品售出日期之後1-5年內風機、汽輪機與分布式控制系統產生的產品缺陷，本集團將進行保修。此外，本集團亦為在保修期內發生的一般維修或缺陷提供工程服務保修。本集團根據其歷史成本數據、行業數據及其競爭對手的應計項目評估其保修成本。質保金撥備不僅受產品故障率的影響，同樣也受修復或替換故障產品成本之影響。倘若實際的產品故障率及修復或替換故障產品的成本與估算有異，本集團則須修訂未來的質保成本撥備，從而影響未來年度的損益。

本集團對上述保證型擔保的準備金根據銷售量和維修水平的以往經驗予以確認，並適當折現至其現值。有關本集團質保金撥備的資訊於財務報表附註35披露。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

4. ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 4. 會計判斷及估計(續)

(e) Recognition of deferred tax assets

Deferred tax assets in respect of unused tax losses and tax credit carried forward and deductible temporary differences are recognised and measured based on the expected manner of realisation or settlement of the carrying amount of the assets, using tax rates enacted or substantively enacted at the end of the reporting period. In determining the carrying amounts of deferred tax assets, expected taxable profits are estimated which involves a number of assumptions relating to the operating environment of the Group and requires a significant level of judgement exercised by the directors. Any change in such assumptions and judgement would affect the carrying amounts of deferred tax assets to be recognised and hence the net profit in future years. The information about deferred tax assets of the Group is disclosed in Note 34 to the financial statements.

(f) Fair value of unlisted equity investments

The unlisted equity investments have been valued based on a market-based valuation technique as detailed in Note 40 to the financial statements. The valuation requires the Group to determine the comparable public companies (peers) and select the price multiple. In addition, the Group makes estimates about the discount for illiquidity and size differences. The Group classifies the fair value of these investments as Level 3. The fair value of the unlisted equity investments at 31 December 2019 was RMB347,062,000 (2018: RMB251,217,000).

(g) Depreciation

Property, plant and equipment and investment properties are depreciated on a straight-line basis over the estimated useful lives of the assets, after taking into account the estimated residual value. The Group reviews the estimated useful lives of the assets regularly. The useful lives are based on the Group's historical experience with similar assets and taking into account anticipated technological changes. The depreciation expense for future periods is adjusted if there are significant changes from previous estimates.

(e) 遞延稅項資產的確認

有關已結轉未被使用的稅項虧損和稅項減免以及可抵扣暫時性差異的遞延稅項資產，會運用於報告期末已實行或實質上已實行的稅率，按照資產賬面金額的預期實現或結算方式確認及計量。在確定遞延稅項資產的賬面值時，會對預期應課稅利潤作出估計，當中涉及多項有關本集團經營環境的假設，並要求董事作出大量判斷。當有關假設及判斷出現任何變動，將會影響將予確認的遞延稅項資產的賬面值，從而影響未來年度的淨利潤。有關集團遞延所得稅資產的信息在財務報表附註34中披露。

(f) 非上市權益投資的公允價值

誠如財務報表附註40所詳述，非上市權益投資乃以市場估值法估值。估值要求本集團確定可資比較上市公司(同行)並選擇價格乘數。此外，本集團就流動性差及規模差異的折現情況進行估算。本集團將該等投資的公允價值分類為第3級。截至2019年12月31日，非上市權益投資的公允價值為人民幣347,062,000元(2018年：人民幣251,217,000元)。

(g) 折舊

物業、廠房及設備在扣除估計殘值之後，在預計可使用期限內按直線法計提折舊。本集團定期審閱資產的預計可使用期限。可使用期限是按本集團類似資產的已往經驗，並考慮預期的技術發展因素而釐定。如果之前的預估發生了重大改變，則對未來期間的折舊費用進行調整。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

4. ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED) 4. 會計判斷及估計(續)

(h) Income tax

The Group files income taxes with numerous tax authorities. Judgement is required in determining the provision for taxation as there are many transactions and calculations for which the ultimate tax determinations are uncertain during the ordinary course of business. For preferential tax treatments available for approved High and New Technology Enterprises, in determining the applicable tax rates for calculations of current income tax and deferred income tax, after passed the substantive approvals, the Group uses the expected tax rates that are probably be approved by tax authorities according to the tax rules and regulations enacted at the end of the reporting period. Where the final tax outcomes of these matters are different from the amounts originally recorded, the differences may impact on the current income tax and deferred income tax provisions in the periods in which the final tax outcomes became available.

(i) Contingent liabilities

Management judgement is required in the area of contingent liabilities particularly in assessing the outcome of possible obligations arising from the transactions as detailed in Note 42. Management reassesses the likelihood of the outcome of these possible obligations at the end of the reporting period. Where a change in the probability that an outflow of economic resources will be required to settle the obligation, a provision will be recognised in the period in which such determination is made.

(j) Write-down of inventories

The Group reviews the carrying amounts of inventories at the end of the reporting period to determine whether the inventories are carried at lower of cost and net realisable value in accordance with the accounting policy set out in Note 2(s). Management estimates the net realisable value based on all available information, including the current market price of the finished goods and raw materials, and historical costs. Any change in the assumptions would increase or decrease the amount of inventories write-down or the related reversals of write-down and affect the Group's profit. The information about write-down of inventories of the Group is disclosed in Note 24 to the financial statements.

(h) 所得稅

本集團須向多個稅務機關繳付所得稅，由於在日常業務過程中很多交易和計算的最終稅項並不確定，在確定稅項撥備時須作出判斷。對於已獲核准為高新技術企業的稅務優惠而言，在獲得實質性的批准後，本集團根據稅務規章制度，於報告期末使用可能獲得稅務機構批准的稅率，以確定即期稅項和遞延稅項的適用稅率。當有關事項的最終稅務結果有別於初始記錄金額時，有關差異可能影響取得最終稅務結果期間的即期所得稅和遞延所得稅撥備。

(i) 或有負債

管理層須對或有負債作出判斷，尤其是評估附註42所詳述交易所產生的可能責任之結果。管理層會於每個報告期末重新評估該等可能責任結果之可能性。倘經濟資源流出之可能性發生變動而將需結付債務，則於作出該項決定之期間確認撥備。

(j) 存貨撇減

本集團於每一報告期末對於存貨的賬面價值進行審閱，以確定存貨是否如附註2(s)中所述的會計政策以其成本及可變現淨值孰低者列賬。管理層根據全部可獲取信息，包括產成品及原材料的市場價格，以及歷史成本評估其可變現淨值。相關假設的任何變動會增加或減少存貨撇減或相關撇減轉回的金額，因而影響本集團的損益。有關本集團存貨撇減的資訊於財務報表附註24披露。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

4. ACCOUNTING JUDGEMENT AND ESTIMATES (CONTINUED)

(k) Development costs

Development costs are capitalised in accordance with the accounting policy for research and development costs in Note 2(j) to the financial statements. Determining the amounts to be capitalised requires management to make assumptions regarding the expected future cash generation of the assets, discount rates to be applied and the expected period of benefits. At 31 December 2019, the carrying amount of capitalised development costs was RMB247,326,000 (2018: RMB305,448,000).

5. OPERATING SEGMENT INFORMATION

(a) Segment reporting

The Group manages its businesses by subsidiaries, which are organised by business lines (products and services). In a manner consistent with the way in which information is reported internally to the Group's most senior executive management for the purposes of resource allocation and performance assessment, the Group has presented the following four reportable segments.

- Environmental protection segment: this segment provides environmental protection products and services which mainly consists of sulphur oxide control technologies, nitrogen oxide control technologies, rental of desulphurisation and denitrification facilities, ash removal with filter bag, water treatment related technologies and products.
- Energy conservation solutions segment: this segment provides energy saving products and services which mainly consists of plasma ignition and micro-oil ignition equipment and gas turbine improvement services and construction of energy-efficient power plants.
- Wind power products and services segment: this segment produces and sells wind turbine and its components, and provides related system solutions and services to wind power operators.
- The Group combined other business activities that are not reportable in "All others". Revenue included in this category is mainly from the wind and solar power generation and sale of other electric power control system related products.

4. 會計判斷及估計(續)

(k) 開發支出

開發支出為根據財務報表附註2(j)的研發費用會計政策予以資本化。確定要資本化的金額需要管理層對資產的預期未來現金產生量，將應用的折現率以及預期的受益期作出假設。於2019年12月31日，資本化開發成本賬面值為人民幣247,326,000元(2018年：人民幣305,448,000元)。

5. 經營分部信息

(a) 分部報告

本集團以附屬公司管理其業務，該等附屬公司以經營項目(產品和服務)進行組織。為了分配資源、評估業績，向本集團最高級行政管理人員進行內部彙報的方式是一致的，本集團提出了下列四個應報告的部分。

- 環保分部：本分部提供環保產品和服務，主要包括脫硫技術、脫硝技術、脫硫脫硝設備租賃服務、濾袋式除塵、水處理相關技術和產品。
- 節能解決方案分部：本分部提供節能產品及服務，主要包括等離子點火、微油點火設施、汽輪機改造服務及節能電站之建造。
- 風電產品及服務分部：本分部生產和銷售風機及其組件，向風電運營商提供相關系統解決方案和服務。
- 本集團將未呈報的其他經營業務歸為「所有其他」。在此類別中的收入主要源於風力、太陽能發電及銷售其他電力控制系統相關產品。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION 5. 經營分部信息(續) (CONTINUED)

(a) Segment reporting (Continued)

(i) Segment results, assets and liabilities

For the purposes of assessing segment performance and allocating resources between segments, the Group's most senior executive management monitors the results, assets and liabilities attributable to each reportable segment on the following bases:

Segment assets include all assets with the exception of interests in associates, other equity investments, tax recoverable, deferred tax assets and other corporate assets. Segment liabilities include all liabilities with the exception of income tax payable, deferred tax liabilities and other corporate liabilities.

Revenue and expenses are allocated to the reportable segments with reference to revenue generated by those segments and the expenses incurred by those segments.

The measure used for reporting segment profit is the gross profit. In addition to receiving segment information concerning the gross profit, management is also provided with segment information concerning depreciation and amortisation, interest income, finance costs, impairment of assets, inventory write-down and additions to segment non-current assets.

(a) 分部報告(續)

(i) 分部業績、資產及負債

為評估分部業績、在分部間分配資源，本集團最高級行政管理人員按以下基準對各可呈報分部的應估業績、資產和負債進行監控：

分部資產包括所有資產，對聯營公司的投資、其他權益投資、可收回稅項、遞延稅項資產和其他行政資產除外。分部負債包括所有負債，應付所得稅、遞延稅項負債和其他行政負債除外。

收入和費用乃參考各可呈報分部產生的收入和發生的開支分配給各可呈報分部。

用於衡量可呈報分部利潤的指標為毛利。除了收到有關毛利的分部信息外，管理人員還收到有關折舊及攤銷、利息收入、財務成本、資產減值和存貨撇減和添置分部非流動資產的分部信息。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION (CONTINUED) 5. 經營分部信息(續)

(a) Segment reporting (Continued)

(a) 分部報告(續)

(i) Segment results, assets and liabilities (Continued)

(i) 分部業績、資產及負債(續)

Information regarding the Group's reportable segments as provided to the Group's most senior executive management for the purposes of resource allocation and assessment of segment performance for the years ended 31 December 2019 and 2018 is set out below:

提供給本集團最高級行政管理人員用作進行資源分配並對截至2019年和2018年12月31日止年度的分部業績作出評估的關於本集團可呈報分部的信息如下：

		2019				
		Continuing operations				Total
		持續經營業務				
		Environmental protection	Energy conservation solutions	Wind power products and services 風電產品及服務	All others	
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Disaggregated by timing of revenue recognition	按收入確認時點分類					
Point in time	在單個時點確認	321,831	214,356	4,722,493	452,369	5,711,049
Over time	在一段時間確認	4,183,940	1,678,482	100,209	17,358	5,979,989
Revenue from external customers	外部客戶收入	4,505,771	1,892,838	4,822,702	469,727	11,691,038
Inter-segment revenue	分部間收入	36,323	144,869	80,497	72,376	334,065
Reportable segment revenue	可呈報分部收入	4,542,094	2,037,707	4,903,199	542,103	12,025,103
Reportable segment profit (gross profit)	可呈報分部利潤(毛利)	962,005	289,825	1,153,433	147,033	2,552,296

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION 5. 經營分部信息(續) (CONTINUED)

(a) Segment reporting (Continued)

(i) Segment results, assets and liabilities (Continued)

(a) 分部報告(續)

(i) 分部業績、資產及負債(續)

		2019				
		Continuing operations				Total
		持續經營業務				
		Environmental protection	Energy conservation solutions	Wind power products and services	All others	
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Depreciation and amortisation	折舊及攤銷	291,652	17,504	133,416	70,543	513,115
Impairment of property, plant and equipment	物業、廠房及設備減值	21,248	-	-	66	21,314
Impairment/(reversal of impairment) of contract assets	合同資產減值計提/(轉回)	1,511	(50)	8,420	-	9,881
Inventory write-down	存貨撇減	-	-	-	53	53
(Reversal of impairment)/impairment of trade and other receivables	應收賬款及其他應收款項減值(轉回)/計提	(7,425)	(6,784)	12,271	20,423	18,485
Impairment of other non-current assets	其他非流動資產減值	4,473	-	-	-	4,473
Interest income	利息收入	43,570	52,445	16,500	559	113,074
Finance costs	財務成本	86,277	7,666	165,314	4,453	263,710
Reportable segment assets	可呈報分部資產	12,232,405	3,731,758	13,126,819	2,524,128	31,615,110
Additions to reportable segment non-current assets during the year*	年內添置可呈報分部非流動資產*	325,365	25,789	176,040	56,261	583,455
Reportable segment liabilities	可呈報分部負債	7,964,451	2,186,049	11,362,183	498,025	22,010,708

* The amount consists of additions to property, plant and equipment and intangible assets.

* 此金額包括物業、廠房及設備及無形資產的增加。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION 5. 經營分部信息(續)

(a) Segment reporting (Continued)

(a) 分部報告(續)

(i) Segment results, assets and liabilities (Continued)

(i) 分部業績、資產及負債(續)

		2018					
		Continuing operations 持續經營業務			Discontinued operation 已終止經營業務	Total 總計	
		Environmental protection 環保 RMB'000 人民幣千元	Energy conservation solutions 節能解決方案 RMB'000 人民幣千元	Wind power products and services 風電產品 及服務 RMB'000 人民幣千元	All others 所有其他 RMB'000 人民幣千元	Solar power products and services 太陽能產品 及服務 RMB'000 人民幣千元	RMB'000 人民幣千元
Disaggregated by timing of revenue recognition	按收入確認時點分類						
Point in time	在單個時點確認	438,598	360,895	3,771,142	313,476	-	4,884,111
Over time	在一段時間確認	4,774,180	1,640,278	97,729	15,482	-	6,527,669
Revenue from external customers	外部客戶收入	5,212,778	2,001,173	3,868,871	328,958	-	11,411,780
Inter-segment revenue	分部間收入	(1,855)	51,065	21,817	46,828	-	117,855
Reportable segment revenue	可呈報分部收入	5,210,923	2,052,238	3,890,688	375,786	-	11,529,635
Reportable segment profit/(loss) (gross profit/(loss))	可呈報分部利潤/(虧損) (毛利/(毛虧))	1,055,720	267,431	1,193,529	152,180	(12,732)	2,656,128
Depreciation and amortisation	折舊及攤銷	240,231	25,707	135,269	103,129	570	504,906
Impairment of property, plant and equipment	物業、廠房及設備減值	116,286	-	-	-	28,828	145,114
Impairment/(reversal of impairment) of contract assets	合同資產減值計提/(轉回)	27,733	(50)	7,539	-	-	35,222
Inventory write-down	存貨撇減	21,718	1,170	-	-	7,368	30,256
Impairment/(reversal of impairment) of trade and other receivables	應收賬款及其他應收款項減值計提/(轉回)	49,338	(31,958)	202,612	5,817	(47,671)	178,138
Impairment/(reversal of impairment) of other non-current assets	其他非流動資產減值/(減值轉回)	14,753	(578)	33,368	-	(160,462)	(112,919)
Interest income	利息收入	54,042	15,356	3,919	608	247	74,172
Finance costs	財務成本	92,443	4,915	167,601	73	4,716	269,748
Reportable segment assets	可呈報分部資產	12,237,742	3,635,364	12,569,856	2,291,276	589,180	31,323,418
Additions to reportable segment non-current assets during the year	年內添置可呈報分部非流動資產	204,194	15,556	195,859	19,823	1,828	437,260
Reportable segment liabilities	可呈報分部負債	8,992,225	1,829,343	9,912,219	513,719	687,971	21,935,477

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION 5. 經營分部信息(續)

(CONTINUED)

(a) Segment reporting (Continued)

(ii) Reconciliations of reportable segment revenues, profit or loss, assets and liabilities

(a) 分部報告(續)

(ii) 可呈報分部收入、利潤、資產和負債的調節

		Continuing operations		Discontinued operation		Total	
		持續經營業務		非持續經營業務		總計	
		2019	2018	2019	2018	2019	2018
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Revenue	收入						
Reportable segment revenue	可呈報分部收入	12,025,103	11,529,635	-	-	12,025,103	11,529,635
Elimination of inter-segment revenue	分部間收入抵銷	(334,065)	(117,855)	-	-	(334,065)	(117,855)
Consolidated revenue	合併收入	11,691,038	11,411,780	-	-	11,691,038	11,411,780
Profit/(loss)	利潤/(虧損)						
Reportable segment profit/(loss)	可呈報分部利潤/(虧損)	2,552,296	2,668,860	-	(12,732)	2,552,296	2,656,128
Elimination of inter-segment loss/(profit)	分部間虧損/(利潤)抵銷	35,902	(868)	-	-	35,902	(868)
Reportable segment profit/(loss) derived from the Group's external customers	取自集團外的可呈報分部利潤/(虧損)	2,588,198	2,667,992	-	(12,732)	2,588,198	2,655,260
Other revenue	其他收入	323,064	331,668	-	37,493	323,064	369,161
Other net income	其他收益淨額	155,915	42,278	-	(3,389)	155,915	38,889
Selling and distribution expenses	銷售及分銷開支	(1,184,562)	(653,816)	-	9,383	(1,184,562)	(644,433)
Administrative expenses	行政開支	(1,485,061)	(1,929,154)	-	129,020	(1,485,061)	(1,800,134)
Finance costs	財務成本	(592,937)	(580,062)	-	(4,716)	(592,937)	(584,778)
Share of profits less losses of associates	應佔聯營公司利潤減虧損	45,868	61,433	-	-	45,868	61,433
Consolidated (loss)/profit before taxation	合併稅前(虧損)/利潤	(149,515)	(59,661)	-	155,059	(149,515)	95,398

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION 5. 經營分部信息(續)

(a) Segment reporting (Continued)

(a) 分部報告(續)

(ii) Reconciliations of reportable segment revenues, profit or loss, assets and liabilities (Continued)

(ii) 可呈報分部收入、利潤、資產和負債的調節(續)

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Assets	資產		
Reportable segment assets	可呈報分部資產	31,615,110	31,323,418
Inter-segment elimination	分部間抵銷	(365,217)	(377,790)
		31,249,893	30,945,628
Interests in associates	對聯營公司的投資	444,539	396,682
Other equity investments	其他權益投資	1,229,800	858,415
Tax recoverable	可收回稅項	220,952	176,299
Deferred tax assets	遞延稅項資產	686,097	911,188
Unallocated head office and corporate assets	未分配總部及行政資產	982,031	869,202
Consolidated total assets	合併資產總額	34,813,312	34,157,414
Liabilities	負債		
Reportable segment liabilities	可呈報分部負債	22,010,708	21,935,477
Inter-segment elimination	分部間抵銷	(379,237)	(368,273)
		21,631,471	21,567,204
Income tax payable	應付所得稅	52,636	48,565
Deferred tax liabilities	遞延稅項負債	215,742	153,949
Unallocated head office and corporate liabilities	未分配總部及行政負債	5,351,745	4,644,524
Consolidated total liabilities	合併負債總額	27,251,594	26,414,242

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

5. OPERATING SEGMENT INFORMATION (CONTINUED) 5. 經營分部信息(續)

(a) Segment reporting (Continued)

(iii) Geographical information

The Group did not have significant business operations outside the PRC, therefore no geographic segment information is presented.

(iv) Major customers

Revenue of approximately RMB8,905,148,000 (2018: RMB7,509,251,000) was derived from China Energy and related parties under China Energy and related to the environmental protection segment, the energy conservation solutions segment, the wind power products and services segment and the all others segment of the Group.

(a) 分部報告(續)

(iii) 地域信息

本集團並無於中國境外經營的重大業務，因此並無呈報地區分部信息。

(iv) 主要客戶

從國家能源集團及國家能源集團下屬的關聯方取得的來自環保、節能解決方案、風電產品及服務和所有其他分部的收入金額為人民幣8,905,148,000元(2018：人民幣7,509,251,000元)。

6. REVENUE

An analysis of revenue is as follows:

	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Revenue from contracts with customers 客戶合約收入	11,053,872	10,475,639
Revenue from other sources 其他收入來源		
Gross rental income from operating lease (Note) 來自經營租賃的租賃收入(附註)	637,166	936,141
	11,691,038	11,411,780

Note:

The amount mainly represents income related to service arrangements entered into by the Group with power plants to operate the desulphurisation and denitrification facilities for the treatment of sulphur oxide and nitrogen oxide generated by power plants during their electricity generation. The Group acquires or constructs the facilities and then maintains and operates the facilities to provide pollutant treatment services to power plants during the useful lives of power plants. The service charge is based on the volume of electricity sold by the power plant and a tariff determined by the National Development and Reform Commission of the PRC. These arrangements are not in the legal form of leases, but are deemed as operating leases based on their terms and conditions and are continued to accounted for as such by applying the transition practical expedients under IFRS16.

6. 收入

收入分析如下：

附註：

該金額主要為與本集團與電廠簽訂的負責脫硫及脫硝設施的運行工作以在發電過程中處理電廠生成的二氧化硫及氮氧化物之服務安排所相關的收入。本集團購買或建造設施，之後在電廠運行期負責運行設施以向電廠提供污染物處理服務。根據電廠售出的電量以及國家發展和改革委員會制定的收費標準收取服務費用。此等安排雖並不是法律形式上的租賃，但根據其條款與條件被視同為經營租賃，並繼續通過應用IFRS16下的過渡安排進行核算。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

6. REVENUE (CONTINUED)

6. 收入(續)

(a) Disaggregated revenue information

(a) 分拆收入信息

Revenue from contracts with customers for the year ended 31 December 2019

截至2019年12月31日止年度的客戶合約收入

Segments	分部	Environmental protection	Energy conservation solutions	Wind power products and services	All others	Total
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Type of goods or services	商品及服務類別					
Sale of industrial products	銷售商品	321,831	214,356	4,722,493	452,369	5,711,049
Revenue from construction contracts	建造合同收入	2,336,946	1,678,482	-	-	4,015,428
Rendering of services	提供服務	669,965	-	100,209	17,358	787,532
Service concession arrangement revenue	服務特許權協議收入	539,863	-	-	-	539,863
Total	總計	3,868,605	1,892,838	4,822,702	469,727	11,053,872
Geographical markets	地域市場					
Mainland China	中國大陸	3,868,605	1,892,838	4,822,702	469,727	11,053,872
Total	總計	3,868,605	1,892,838	4,822,702	469,727	11,053,872
Timing of revenue recognition	收入確認時間					
Goods transferred at a point in time	於某一時點轉讓的商品	321,831	214,356	4,722,493	452,369	5,711,049
Services transferred over time	隨時間轉讓的服務	3,546,774	1,678,482	100,209	17,358	5,342,823
Total	總計	3,868,605	1,892,838	4,822,702	469,727	11,053,872

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

6. REVENUE (CONTINUED)

(a) Disaggregated revenue information (Continued)

Revenue from contracts with customers for the year ended 31
December 2018

Segments	分部	Environmental	Energy	Wind power	All others	Total
		protection	conservation	products and		
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Type of goods or services	商品及服務類別					
Sale of industrial products	銷售商品	438,598	360,895	3,771,142	313,476	4,884,111
Revenue from construction contracts	建造合同收入	3,224,892	1,627,350	–	–	4,852,242
Rendering of services	提供服務	342,067	12,928	97,729	15,482	468,206
Service concession arrangement revenue	服務特許權協議收入	271,080	–	–	–	271,080
Total	總計	4,276,637	2,001,173	3,868,871	328,958	10,475,639
Geographical markets	地域市場					
Mainland China	中國大陸	4,276,637	2,001,173	3,868,871	328,958	10,475,639
Total	總計	4,276,637	2,001,173	3,868,871	328,958	10,475,639
Timing of revenue recognition	收入確認時間					
Goods transferred at a point in time	於某一時點轉讓的商品	438,598	360,895	3,771,142	313,476	4,884,111
Services transferred over time	隨時間轉讓的服務	3,838,039	1,640,278	97,729	15,482	5,591,528
Total	總計	4,276,637	2,001,173	3,868,871	328,958	10,475,639

6. 收入(續)

(a) 分拆收入信息(續)

截至2018年12月31日止年度的客戶
合約收入

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

6. REVENUE (CONTINUED)

6. 收入(續)

(a) Disaggregated revenue information (Continued)

(a) 分拆收入信息(續)

Set out below is the reconciliation of the revenue from contracts with customers to the amounts disclosed in the segment information:

下表載列來自客戶合約收入之調節，有關金額已於分部資料披露：

For the year ended 31 December 2019

截至2019年12月31日止年度

Segments	分部	Environmental protection	Energy conservation solutions	Wind power products and services	All others	Total
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Revenue from contracts with customers	來自客戶合約收入	3,868,605	1,892,838	4,822,702	469,727	11,053,872
Gross rental income from operating lease	來自經營租賃的租賃收入	637,166	-	-	-	637,166
Total	總計	4,505,771	1,892,838	4,822,702	469,727	11,691,038

For the year ended 31 December 2018

截至2018年12月31日止年度

Segments	分部	Environmental protection	Energy conservation solutions	Wind power products and services	All others	Total
		環保	節能解決方案	風電產品及服務	所有其他	總計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Revenue from contracts with customers	來自客戶合約收入	4,276,637	2,001,173	3,868,871	328,958	10,475,639
Gross rental income from operating lease	來自經營租賃的租賃收入	936,141	-	-	-	936,141
Total	總計	5,212,778	2,001,173	3,868,871	328,958	11,411,780

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

6. REVENUE (CONTINUED)

(a) Disaggregated revenue information (Continued)

The following table shows the amounts of revenue recognised in the current reporting period that were included in the contract liabilities at the beginning of the reporting period:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Revenue recognised that was included in contract liabilities at the beginning of the reporting period:	計入報告期初合約負債的已確認收入：		
Sale of industrial products	銷售商品	942,167	941,096
Revenue from construction contracts	建造合同收入	665,988	922,598
		1,608,155	1,863,694

(b) Performance obligations

Information about the Group's performance obligations is summarised below:

Sale of industrial products

The performance obligation is satisfied upon delivery of the industrial products or after installation and payment is generally due within 60 days from the date of billing.

Revenue from construction contracts

The performance obligation is satisfied over time as services are rendered and payment is generally due within 60 days from the date of billing. A certain percentage of payment is retained by customers until the end of the retention period as the Group's entitlement to the final payment is conditional on the satisfaction of the service quality by the customers over a certain period as stipulated in the contracts.

6. 收入(續)

(a) 分拆收入信息(續)

下表載列本報告期間確認的收入金額，該等金額於報告期初計入合約負債：

(b) 履約義務

有關本集團的履約義務的信息概列入如下：

銷售商品

該履約義務於商品交付客戶時或安裝完成後確認已履行，通常於開票之日起60天內付款。

建造合同收入

該履約義務隨服務的提供逐步確認履行，通常於開票之日起60天內付款。由於本集團的最終收款權取決於客戶對服務質量的滿意程度，客戶會保留一定比例的質保金直到合同規定的質保期到期後付款。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

6. REVENUE (CONTINUED)

(b) Performance obligations (Continued)

Rendering of services

The performance obligation is satisfied over time as services are rendered and payment is generally due within 30 days from the date of billing.

Service concession arrangement revenue

Under service concession arrangement, the Group concluded that the performance obligations are provision of construction service and operation service. Both of the performance obligations are satisfied over time as services are rendered (Note 2(y)(iii)) and payment is generally due within 30 days from the date of billing.

The amounts of transaction prices allocated to the remaining performance obligations (unsatisfied or partially unsatisfied) as at 31 December are as follows:

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Amounts expected to be recognised as revenue:	預期確認為收入的金額：		
Within one year	一年內	4,334,671	3,898,633
After one year	一年以上	1,224,142	1,699,984
		5,558,813	5,598,617

The amounts of transaction prices allocated to the remaining performance obligations which are expected to be recognised as revenue after one year relate to construction services, of which the performance obligations are to be satisfied within two years. All the other amounts of transaction prices allocated to the remaining performance obligations are expected to be recognised as revenue within one year. The amounts disclosed above do not include variable consideration which is constrained. Using the practical expedient in IFRS 15, the amounts disclosed above do not include revenue to be recognised under the service agreements entered into by the Group with power plants to operate the desulphurisation and denitrification facilities for the treatment of sulphur oxide and nitrogen oxide generated by power plants during their electricity generation in the amount to which the Group has a right to invoice.

6. 收入(續)

(b) 履約義務(續)

提供服務

該履約義務隨服務的提供逐步確認履行，通常於開票之日起30天內付款。

服務特許權協議收入

根據服務特許權協議，本集團認定履約義務為提供建造與運營服務。兩項履約義務都隨着時間的推移服務完成而逐步履行(見附註2(y)(iii))，通常於開票之日起30天內付款。

於12月31日分配至剩餘履約義務(未達成或部分未達成)的交易價格如：

預期將於一年後確認的分配至餘下履約義務的交易價格涉及將於兩年內達成的建造服務。其他所有分配至剩餘履約義務的交易價格預期於一年後確認為收入。上述價格不包括受限可變對價。適用IFRS 15的實踐下，上述金額不包括本集團與電廠簽訂的負責脫硫及脫硝設施的運行工作以在發電過程中處理電廠生成的二氧化硫及氮氧化物之服務協議相關的本集團有開票權利可確認的收入。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

7. OTHER REVENUE AND OTHER NET INCOME

7. 其他收入及其他收益淨額

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2019	2018	2019	2018	2019	2018
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Other revenue	其他收入						
Government grants	政府補助	118,411	122,792	-	-	118,411	122,792
Interest income	利息收入	114,287	96,805	-	247	114,287	97,052
Dividend income from equity investments	權益投資股息收入	20,393	18,115	-	-	20,393	18,115
Others	其他	69,973	93,956	-	37,246	69,973	131,202
		323,064	331,668	-	37,493	323,064	369,161

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2019	2018	2019	2018	2019	2018
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Other net income	其他收益淨額						
Net gains on sales of raw materials	原材料銷售收益淨額	2,570	6,890	-	-	2,570	6,890
Net gains on disposals of subsidiaries and interest in an associate	出售附屬及聯營公司收益淨額	-	8,453	-	-	-	8,453
Net gains on disposals of property, plant and equipment and intangible assets (Note)	出售物業、廠房、設備及無形資產收益淨額(附註)	147,112	1,301	-	-	147,112	1,301
Net foreign exchange gains	匯兌收益淨額	3,838	8,281	-	-	3,838	8,281
Others	其他	2,395	17,353	-	(3,389)	2,395	13,964
		155,915	42,278	-	(3,389)	155,915	38,889

Note:

The amounts mainly represented the net gains of RMB141,359,000 on disposal of concession assets due to the early termination of the service concession agreement (Note 18).

附註：

這些數據主要是由於特許經營協議提前終止而處置特許資產產生的淨收益為人民幣141,359,000元(附註18)。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

8. FINANCE COSTS

8. 財務成本

	Continuing operations		Discontinued operation		Total	
	持續經營業務		已終止經營業務		總計	
	2019	2018	2019	2018	2019	2018
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Interests on bank loans and other borrowings	587,781	582,819	-	4,716	587,781	587,535
Interest on lease liabilities	5,156	-	-	-	5,156	-
Less: interest expenses capitalised into property, plant and equipment	-	(2,757)	-	-	-	(2,757)
	592,937	580,062	-	4,716	592,937	584,778

The borrowing costs have been capitalised at a rate of 4.49% per annum for the year of 2018.

2018年借款成本已按年利率4.49%資本化。

9. LOSS BEFORE TAXATION

9. 稅前虧損

Loss before taxation is arrived at after charging/(crediting):

稅前虧損已扣除/(計入)：

(a) Staff costs

(a) 員工成本

	Continuing operations		Discontinued operation		Total	
	持續經營業務		已終止經營業務		總計	
	2019	2018	2019	2018	2019	2018
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Salaries, wages and other benefits (Note)	1,176,253	1,044,793	-	11,812	1,176,253	1,056,605
Contributions to defined contribution retirement plan (Note)	159,116	112,095	-	1,017	159,116	113,112
	1,335,369	1,156,888	-	12,829	1,335,369	1,169,717

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

9. LOSS BEFORE TAXATION (CONTINUED)

(a) Staff costs (Continued)

Note:

The above staff costs include directors' and supervisors' emoluments.

Pursuant to the relevant labour rules and regulations in the PRC, the Company and its PRC Subsidiaries participated in defined contribution retirement schemes (the "PRC Schemes") organised by the relevant local government authorities for its employees. The Group is required to make contributions to the PRC Schemes at certain percentage of total salaries of the employees. The local government authorities are responsible for the entire pension obligations payable to retired employees.

In addition, certain subsidiaries and its staff participate in a retirement plan managed by China Energy on a voluntary basis to supplement the above-mentioned schemes and the Group is required to make contributions at 5% to 8% of total salaries of the employees. The Group has no other material obligation to make payments in respect of pension benefits associated with these schemes and supplementary retirement plan other than the annual contributions described above.

(b) Other items

9. 稅前虧損(續)

(a) 員工成本(續)

附註：

以上員工成本包括董事和監事的薪酬。

根據中國相關勞動法律法規，本公司及其中國附屬公司為其員工參加了有關地方政府機關組織的界定供款退休計劃(「中國計劃」)。本集團須對中國計劃繳納員工總薪金的一定比例的供款。當地政府機關負責全部應付離退休職工的養老金。

此外，若干附屬公司及其職工可自願參加國家能源集團管理的退休計劃作為對上述計劃的補充，本集團須繳納員工總薪金的5%到8%的供款。除上述年度供款以外，本集團沒有其他就退休福利須向這些計劃與補充退休計劃支付款項的重大責任。

(b) 其他項目

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2019	2018	2019	2018	2019	2018
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Amortisation	攤銷						
- lease prepayments (Note(i))	- 預付土地租賃款(附註(i))	-	7,850	-	-	-	7,850
- intangible assets	- 無形資產	82,964	74,915	-	296	82,964	75,211
Depreciation	折舊						
- investment properties	- 投資性物業	9,133	8,916	-	-	9,133	8,916
- property, plant and equipment	- 物業、廠房及設備(附註(i))	421,018	412,655	-	274	421,018	412,929

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

9. LOSS BEFORE TAXATION (CONTINUED)

9. 稅前虧損(續)

(b) Other items (Continued)

(b) 其他項目(續)

		Continuing operations		Discontinued operation		Total	
		持續經營業務		已終止經營業務		總計	
		2019	2018	2019	2018	2019	2018
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Impairment/(reversal of impairment)	減值虧損/(減值轉回)						
- property, plant and equipment	- 物業、廠房及設備	21,314	116,286	-	28,828	21,314	145,114
- trade and other receivables	- 應收賬款及其他應收款項	18,485	225,809	-	(47,671)	18,485	178,138
- other non-current assets	- 其他非流動資產	4,473	47,543	-	(160,462)	4,473	(112,919)
- inventories	- 存貨	53	22,888	-	7,368	53	30,256
- contract assets	- 合同資產	9,881	35,222	-	-	9,881	35,222
Auditors' remuneration	審計師酬金						
- annual audit services	- 年度審計服務	10,560	9,560	-	-	10,560	9,560
- interim review services	- 中期審閱服務	3,980	4,050	-	-	3,980	4,050
Lease expenses (Note (ii))	租賃費用(附註(ii))						
- hire of plant, equipment and motor vehicles	- 廠房、設備及汽車租賃	11,006	29,010	-	-	11,006	29,010
- hire of properties	- 物業租賃	20,192	22,751	-	230	20,192	22,981
Research and development costs	研發成本	256,201	239,699	-	-	256,201	239,699
Provision/(reversal of provision) for warranty	質保金撥備/(轉回)	353,753	80,106	-	(10,430)	353,753	69,676
Rental receivables from investment properties	投資性物業的應收租金	(44,848)	(45,742)	-	(35,219)	(44,848)	(80,961)
Direct outgoings of investment properties	投資性物業的直接開支	16,736	11,519	-	420	16,736	11,939
Cost of inventories (Note 24(b))	存貨成本(附註24(b))	4,331,379	3,421,964	-	-	4,331,379	3,421,964

Notes:

- (i) Upon the adoption of IFRS 16, amortisation of lease prepayment was reclassified from "amortisation-lease prepayments" to "depreciation- property, plant and equipment".
- (ii) Upon the adoption of IFRS 16, operating lease charges for the year of 2019 only represent the lease charges for the low-value assets and short-term leases.

附註：

- (i) 在適用IFRS16新租賃準則下，預付土地租賃款的攤銷由「攤銷－預付土地租賃款」重分類至「折舊－物業、廠房及設備」。
- (ii) 在適用IFRS16新租賃準則下，對於2019年的經營性租賃所指為低價值資產租賃以及短期租賃。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

10. INCOME TAX IN THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS

10. 合併損益表內的所得稅

(a) Taxation in the consolidated statement of profit or loss represents:

(a) 合併損益表的稅項指：

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Current tax	本期稅項		
Provision for the year	本年度撥備	129,135	167,609
(Over provision)/under provision in respect of prior years	過往年度(過度撥備)/撥備不足	(32,777)	16,254
		96,358	183,863
Deferred tax (Note 34(b))	遞延稅項(附註34(b))		
Origination and reversal of temporary differences	暫時性差異的產生及轉回	201,179	(200,828)
		297,537	(16,965)

Note:

The charge for PRC enterprise income tax for the Group's subsidiaries established in Mainland China is calculated at the statutory rate of 25% (2018: 25%) on the estimated assessable profit of the period determined in accordance with relevant enterprise income tax rules and regulations. Certain of the Group's subsidiaries in Mainland China were designated as "High New Technology Enterprise" and were entitled to a preferential tax rate of 15%.

Hanchuan Longyuan Boqi Environmental Technology Co., Ltd., a subsidiary of the Company, is engaged in pollution prevention and control projects as a qualified third-party enterprise. Project income derived from its units 1 to 5 is levied at a preferential rate of 15% (2018: 12.5%). Meanwhile income derived from its unit 6 is tax-exempted for the first 3 years followed by a 50% exemption from the fourth to the sixth years starting from the first year in which the project generates operating profit, due to the qualified environmental protection projects, thus the applicable income tax rate for the year of 2019 was 12.5% (2018: 0%).

Besides, a subsidiary of the Group which is a small-scale enterprise and is subject to enterprise income tax at 20% (2018: 20%).

附註：

本集團於中國成立的附屬公司之企業所得稅支出是以根據相關企業所得稅法規規定的期間估計應繳稅利潤按法定稅率25% (2018年：25%)計算，本集團若干位於中國大陸被認定為「高新技術企業」的附屬公司按15%優惠稅率徵稅。

本公司之附屬公司漢川龍源博奇環保科技有限公司屬於符合條件的從事污染防治項目的第三方企業。1-5號機組產生項目收入減按15% (2018年：12.5%)的稅率徵收企業所得稅。同時因從事合資格環保項目，6號機組享受從該等項目產生項目收入的第一年起首三年度豁免繳納稅項，其後第四至六年豁免50%稅項，由此該機組2019年應繳稅率為12.5% (2018年：0%)。

除此之外，本集團一家附屬公司屬於小型企業並按20% (2018年：20%)徵收企業所得稅。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

10. INCOME TAX IN THE CONSOLIDATED STATEMENT OF PROFIT OR LOSS (CONTINUED) 10. 合併損益表內的所得稅(續)

(b) Reconciliations between tax expense and accounting (loss)/profit at applicable tax rates:

(b) 稅項開支與會計(虧損)/利潤按照適用稅率計算的調節：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
(Loss)/profit before taxation	稅前(虧損)/利潤		
– continuing operations	– 持續經營業務	(149,515)	(59,661)
– discontinued operation	– 已終止經營業務	–	155,059
		(149,515)	95,398
Notional tax on (loss)/profit before taxation at PRC statutory tax rate	稅前(虧損)/利潤按照中國法定稅率計算的名義稅項	(37,310)	23,848
Effect on non-deductible expenses	不可扣減開支的影響	27,409	18,586
Effect of non-taxable income	非應稅收入的影響	–	(4,829)
Effect of research and development bonus deductions	研發開支加計扣除的影響	(26,274)	(12,637)
Effect of share of profits less losses of associates	應佔聯營公司利潤減虧損的影響	(11,467)	(15,358)
Effect of PRC tax concessions	中國稅務優惠的影響	(19,193)	(72,727)
Tax effect of unused tax losses and temporary differences not recognised	未確認的未使用稅務虧損及暫時性差異的稅項影響	261,446	125,246
Tax effect of unused tax losses and temporary differences not recognised in previous years but utilised or recognised in the current year	本年使用或確認以往年度未確認的未使用稅務虧損及暫時性差異的稅項影響	(13,995)	(101,017)
Tax effect of unused tax losses and temporary differences recognised in previous years but derecognised in the current year	本年終止確認以往年度確認的未使用稅務虧損及暫時性差異的稅項影響	148,875	6,298
(Over provision)/under provision in respect of prior years	以往年度撥備	(32,777)	16,254
Others	其他	823	(629)
Actual tax expense	實際稅項開支	297,537	(16,965)

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

11. DIRECTORS' AND SUPERVISORS' EMOLUMENTS 11. 董事及監事的薪酬

Directors' and supervisors' emoluments disclosed pursuant to section 383(1) of Hong Kong Companies Ordinance and Part 2 of the Companies (Disclosure of Information about Benefits of Directors) Regulation are as follow:

根據《香港公司條例》第3節、第8(1)節以及《公司(披露董事利益資料)規例》第2部份規定披露的董事和監事薪金如下：

		Directors' and supervisors' fees	Salaries, allowances and benefits in kind	Discretionary bonuses	Retirement scheme contributions	2019 Total
		董事費及監事費	工資、補貼及實物福利	酌情花紅	退休金供款	2019合計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Directors	董事					
Mr. CHEN Dongqing (<i>Chief executive</i>)	陳冬青先生(執行主席)	-	615	390	116	1,121
Mr. ZHANG Jun	張軍先生	-	584	390	116	1,090
Mr. TANG Chaoxiong	唐超雄先生	-	612	313	103	1,028
Mr. WANG Zhongqu	王忠渠先生	-	-	-	-	-
Mr. ZHANG Wenjian	張文建先生	-	-	-	-	-
Mr. GU Yuchun	顧玉春先生	-	-	-	-	-
Mr. YAN Andrew Y	閻焱先生	-	-	-	-	-
Independent non-executive directors	獨立非執行董事					
Mr. SHEN Xiaoliu	申曉留先生	150	-	-	-	150
Mr. QU Jiuhui	曲久輝先生	150	-	-	-	150
Mr. XIE Qiuye	謝秋野先生	150	-	-	-	150
Mr. YEUNG Chi Tat	楊志達先生	250	-	-	-	250
Supervisors	監事					
Mr. LUAN Baoxing	樂寶興先生	-	-	-	-	-
Mr. XU Xingzhou	許興洲先生	-	-	-	-	-
Mr. YANG Xiangbin	楊向斌先生	-	-	-	-	-
Ms. HE Lili	何麗麗女士	-	612	313	108	1,033
Mr. LI Wei	李偉先生	-	558	4	92	654
		700	2,981	1,410	535	5,626

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

11. DIRECTORS' AND SUPERVISORS' EMOLUMENTS (CONTINUED) 11. 董事及監事的薪酬(續)

		Directors' and supervisors' fees	Salaries, allowances and benefits in kind	Discretionary bonuses	Retirement scheme contributions	2018 Total
		董事費 及監事費	工資、補貼 及實物福利	酌情花紅	退休金供款	2018合計
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
Directors	董事					
Mr. CHEN Dongqing (<i>Chief executive</i>)	陳冬青先生(執行主席)	-	679	260	119	1,058
Mr. ZHANG Jun	張軍先生	-	641	260	119	1,020
Mr. TANG Chaoxiong	唐超雄先生	-	523	221	106	850
Mr. WANG Zhongqu	王忠渠先生	-	-	-	-	-
Mr. ZHANG Wenjian	張文建先生	-	-	-	-	-
Mr. GU Yuchun	顧玉春先生	-	-	-	-	-
Mr. YAN Andrew Y	閻焱先生	-	-	-	-	-
Independent non-executive directors	獨立非執行董事					
Mr. SHEN Xiaoliu	申曉留先生	150	-	-	-	150
Mr. QU Jiuhui	曲久輝先生	150	-	-	-	150
Mr. XIE Qiuye	謝秋野先生	150	-	-	-	150
Mr. YEUNG Chi Tat	楊志達先生	250	-	-	-	250
Supervisors	監事					
Mr. LUAN Baoxing	樂寶興先生	-	-	-	-	-
Mr. XU Xingzhou	許興洲先生	-	-	-	-	-
Mr. YANG Xiangbin	楊向斌先生	-	-	-	-	-
Ms. HE Lili	何麗麗女士	-	583	221	111	915
Mr. LI Wei	李偉先生	-	364	158	98	620
		700	2,790	1,120	553	5,163



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

12. INDIVIDUALS WITH HIGHEST EMOLUMENTS

Of the five individuals with the highest emoluments, none of them (2018: two) are directors and supervisors whose emoluments are disclosed in Note 11. The aggregate of the emoluments in respect of the five (2018: three) highest paid individuals are as follows:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Salaries and other emoluments	工資及其他薪酬	5,112	1,966
Discretionary bonuses	酌情花紅	570	567
Retirement scheme contributions	退休金供款	480	323
		6,162	2,856

The emoluments of the five (2018: three) individuals with the highest emoluments are within the following bands:

		2019	2018
		Number of	Number of
		individuals	individuals
		人數	人數
Nil to HKD1,000,000	零至港幣1,000,000元	–	1
HKD1,000,000 to HKD1,500,000	港幣1,000,000元至港幣1,500,000元	4	2
HKD1,500,000 to HKD2,000,000	港幣1,500,000元至港幣2,000,000元	1	–

12. 薪酬最高的個人

薪酬最高的五位(2018年：兩位)個人中，其中不包括董事，其薪酬在附註11中進行了披露。薪酬最高的五位(2018年：三位)個人的總薪酬如下：

這五位(2018年：三位)具有最高薪酬的個人的薪酬範圍如下：

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

13. DISCONTINUED OPERATION

During the year ended 31 December 2015, management decided to abandon all of the Group's operations under the solar power products and services segment, which constitute a major line of business of the Group, due to the challenging market conditions in the solar industry. As such, the results of the Group's operations under the solar power products and services segment were presented as discontinued operation in the consolidated financial statements.

The Company entered into a sale and purchase agreement with certain counter-parties during the year ended 31 December 2016, pursuant to which the Company proposed to dispose of the main assets/liabilities of solar power products and services segment. Such assets and liabilities were presented as non-current assets and disposal groups held for sale in the consolidated financial statements as at 31 December 2017. The disposal of aforementioned assets/liabilities has been completed during the year ended 31 December 2018.

14. EARNINGS/(LOSS) PER SHARE

The calculation of basic (loss)/earnings per share is based on the (loss)/profit attributable to ordinary equity shareholders of the Company, and the weighted average of 6,063,770,000 ordinary shares (2018: 6,063,770,000 ordinary shares) in issue during the year ended 31 December 2019.

There were no dilutive potential ordinary shares in existence during the years ended 31 December 2019 and 2018.

Profit/(loss) attributable to ordinary equity shareholders of the Company used in the basic earnings/(loss) per share calculation:

13. 已終止經營業務

於截至2015年12月31日止年度，由於太陽能行業嚴峻的市場環境，管理層決定終止本集團主要經營業務之一的太陽能產品和服務分部的所有經營業務，該分部原為本集團的一個主要經營業務。因此，本集團在太陽能產品及服務分部的經營成果在簡要合併財務數據中列示為已終止經營業務。

截至2016年12月31日止本公司與交易方簽署了買賣協議，提議處置太陽能產品及服務分部的主要資產/負債。於2017年12月31日截止的報告期末該部分資產及負債在合併財務報表中以持有待售的非流動資產及出售組別列示。截至2018年12月31日止已完成該部分資產及負債的處置。

14. 每股收益/(虧損)

每股基本(虧損)/收益的計算依據為歸屬於本公司普通股股東的(虧損)/收益以及截至2019年12月31日止年度發行在外普通股的加權平均數為6,063,770,000股(2018年：6,063,770,000股普通股)。

於截至2019年及2018年12月31日止年度內，本公司不存在稀釋性潛在普通股。

在計算基本每股收益/(虧損)時使用的歸屬於本公司的普通股股東的盈利/(虧損)為：

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
(Loss)/profit attributable to ordinary equity shareholders of the Company, used in the basic earnings/(loss) per share calculation:	用於計算每股基本收益/(虧損)的歸屬於公司權益股東的(虧損)/利潤：		
From continuing operations	持續經營業務	(289,688)	(40,972)
From a discontinued operation	已終止經營業務	-	155,059
		(289,688)	114,087

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

15. PROPERTY, PLANT AND EQUIPMENT

15. 物業、廠房及設備

		Buildings and structures 樓宇及建築物 RMB'000 人民幣千元	Machinery and equipment 機器及設備 RMB'000 人民幣千元	Motor vehicles 汽車 RMB'000 人民幣千元	Furniture, fixtures and others 家具裝置及其他 RMB'000 人民幣千元	Construction in progress 在建工程 RMB'000 人民幣千元	Right-of-use assets (Note(iv)) 使用權資產 (附註iv) RMB'000 人民幣千元	Total 總計 RMB'000 人民幣千元
Cost:	成本：							
At 1 January 2018	於2018年1月1日	2,884,309	4,966,960	165,405	416,106	183,256	-	8,616,036
Additions	增加	6,018	27,784	2,764	45,213	266,772	-	348,551
Transfer from construction in progress	在建工程轉入	13,510	15,477	-	-	(28,987)	-	-
Disposals	出售	(1,555)	(2,369)	(2,943)	(3,958)	-	-	(10,825)
Reclassified as assets held for sale	重分類至持有待售資產	-	(1,361,679)	-	-	(2,352)	-	(1,364,031)
At 31 December 2018	於2018年12月31日	2,902,282	3,646,173	165,226	457,361	418,689	-	7,589,731
Effect of adoption of IFRS 16 (Note(iv))	採用IFRS16(附註iv)	(298,228)	-	-	-	-	628,422	330,194
At 1 January 2019	於2019年1月1日	2,604,054	3,646,173	165,226	457,361	418,689	628,422	7,919,925
Additions	增加	32,761	65,815	3,347	16,202	236,528	124,855	479,508
Transfer from construction in progress	在建工程轉入	68,069	348,993	-	-	(417,062)	-	-
Transfer to investment properties (Note16)	轉出至投資性物業(附註16)	(1,664)	-	-	-	-	-	(1,664)
Disposals	出售	(15,107)	(104,991)	(6,180)	(4,609)	-	(474)	(131,361)
At 31 December 2019	於2019年12月31日	2,688,113	3,955,990	162,393	468,954	238,155	752,803	8,266,408
Accumulated depreciation and impairment	累計折舊及減值：							
At 1 January 2018	於2018年1月1日	852,266	2,859,328	139,035	284,769	8,439	-	4,143,837
Depreciation charge for the year (Note(iii))	本年度折舊費(附註(iii))	119,061	246,838	8,454	38,576	-	-	412,929
Impairment loss	減值損失	30	113,631	-	42	31,411	-	145,114
Written back on disposals	因出售而撥回	-	(1,831)	(2,810)	(3,921)	-	-	(8,562)
Reclassified as assets held for sale	重分類至持有待售資產	-	(1,352,420)	-	-	(1,988)	-	(1,354,408)
At 31 December 2018	於2018年12月31日	971,357	1,865,546	144,679	319,466	37,862	-	3,338,910

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

15. PROPERTY, PLANT AND EQUIPMENT (CONTINUED) 15. 物業、廠房及設備(續)

		Buildings and structures 樓宇及 建築物 RMB'000 人民幣千元	Machinery and equipment 機器及設備 RMB'000 人民幣千元	Motor vehicles 汽車 RMB'000 人民幣千元	Furniture, fixtures and others 家具裝置及 其他 RMB'000 人民幣千元	Construction in progress 在建工程 RMB'000 人民幣千元	Right-of-use assets (Note(iv)) 使用權資產 (附註iv) RMB'000 人民幣千元	Total 總計 RMB'000 人民幣千元
Effect of adoption of IFRS 16 (Note(iv))	採用IFRS16(附註iv)	(52,633)	-	-	-	-	52,633	-
At 1 January 2019	於2019年1月1日	918,724	1,865,546	144,679	319,466	37,862	52,633	3,338,910
Depreciation charge for the year (Note(iii))	本年度折舊費(附註(iii))	111,298	255,649	1,944	20,290	-	40,317	429,498
Impairment loss (Note (ii))	減值損失(附註(ii))	-	21,248	-	66	-	-	21,314
Transfer to investment properties (Note 16)	轉出至投資性物業(附註16)	(607)	-	-	-	-	-	(607)
Written back on disposals	因出售而撥回	(1,171)	(97,575)	(5,970)	(4,307)	-	(74)	(109,097)
At 31 December 2019	於2019年12月31日	1,028,244	2,044,868	140,653	335,515	37,862	92,876	3,680,018
Net book value:	賬面淨值：							
At 31 December 2019	於2019年12月31日	1,659,869	1,911,122	21,740	133,439	200,293	659,927	4,586,390
At 31 December 2018	於2018年12月31日	1,930,925	1,780,627	20,547	137,895	380,827	-	4,250,821

Notes:

(i) The Group's buildings and structures are located in Mainland China.

附註：

(i) 本集團的樓宇及建築物均位於中國大陸。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

15. PROPERTY, PLANT AND EQUIPMENT (CONTINUED) 15. 物業、廠房及設備(續)

Notes: (Continued)

- (ii) For the year ended 31 December 2019, full impairment provision of RMB21,314,000 (2018: RMB75,671,000) was made on certain machinery and equipment, furniture, fixtures and others of two (2018: nine) subsidiaries of the Group's environmental protection segment, since these assets were replaced due to the upgrading of the projects in order to satisfy the environmental requirements of the government. Management considered that the recoverable amounts of these assets are almost zero due to that these assets were customised and would not have other utilisation value.

For the year ended 31 December 2019, certain subsidiaries of the Group's environmental protection segment and wind power products and services segment were loss-making due to various market, politics and economic factors, which included severe market competition, rising in cost of raw materials, delays in operations influenced by government policies and decreases in market demand. The Group assessed the recoverable amounts by using value-in-use model or fair value less cost of disposal model. When determining the recoverable amounts based on value-in-use calculations, management prepared the calculations with cash flow projections covering a five-year period. Cash flows beyond the five-year period are projected using zero growth rate. The cash flows are discounted using discount rates of 10.7% to 16.4%. The discount rates used are pre-tax and reflect specific risks relating to the relevant cash-generating units. Key assumption used for the value-in-use calculations is the revenue. As a result, the recoverable amounts of the property, plant and equipment are higher than their carrying amounts, and no impairment losses provided in the consolidated statement of profit or loss for the year then ended.

During the year ended 31 December 2018, an impairment loss of RMB69,443,000 was recognised for machinery and equipment and construction in progress of environmental protection segment and all others segment as a result of production suspend or construction in project where the construction was on hold. The Group's management assessed the recoverable amounts of those assets by the fair values less costs of disposal model and their carrying amount in environmental protection segment and all others segment were written down to their recoverable amounts of RMB79,035,000 and RMB8,279,000, respectively. The fair value measurement of these assets was categorised into level 2 and was determined according to the quotation by the potential buyer or by reference to the recent comparable transactions in the market.

- (iii) The depreciation charges of RMB8,480,000 (2018: Nil), are included in "inventory" in the consolidation statement of financial position.

附註：(續)

- (ii) 截至2019年12月31日，部分機器、設備及家具減值損失為人民幣21,314,000元(2018年：人民幣75,671,000元)，其中本集團環保分部兩家(2018年：九家)附屬公司為達到國家環保標準升級設備，替換部分資產。管理層認為被替換資產多為特殊定制，無其他使用價值，故可回收金額為零。

截至2019年12月31日，由於各種市場、經濟及政治因素，包括嚴重的市場競爭，原材料價格的增長，政府政策導致營運延遲和市場需求下降，本集團部分環保分部、風能產品服務分部的附屬公司收入大幅減少。本集團採用使用價值模型和公允價值減去處置成本模型對可回收金額進行評估。當採用使用價值模型對可回收金額進行評估時，管理層會預測未來五年的現金流，五年以上的現金流零增長率。現金流的折限率為10.7%至16.4%。折限率為稅前折限率，且反應不同現金產出單元的特殊風險。價值模式的核心假設為收入。根據結果，本集團物業、廠房及設備的可收回金額高於其賬面價值，所以本年末計提資產減值損失。

截至2018年12月31日止年度，環保分部及所有其他分部因停產或在建工程項目緩建而確認的機器設備及在建工程減值損失為人民幣69,443,000元。集團管理層以公允價值減去處置成本模式評估這些資產的可收回金額，環保分部和其他所有分部的賬面價值分別減記為可收回金額人民幣79,035,000元和人民幣8,279,000元。這些資產的公允價值計量被劃分為第二層級，並根據潛在買家的報價或參照市場上最近的可比交易確定。

- (iii) 合併資產負債表中的「存貨」包括固定資產折舊費用人民幣8,480,000元(2018年：零)。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

15. PROPERTY, PLANT AND EQUIPMENT (CONTINUED) 15. 物業、廠房及設備(續)

Notes: (Continued)

附註：(續)

(iv) Right-of-use assets

(iv) 使用權資產

The Group reclassified the land included in buildings and structures to the right-of-use assets upon the adoption of IFRS 16 and selected to present the right-of-use assets in property, plant and equipment. The carrying amounts of the Group's right-of-use assets and the movements during the year are as follows:

本集團採用《國際財務報告準則》第16號，將樓宇及建築物包含的土地重分類至使用權資產並在物業、廠房及設備披露使用權資產。本年，使用權資產的賬面價值如下：

		Buildings Leasehold land	and structures 樓宇及 建築物	Motor vehicles 汽車	Other equipment 其他設備	Total 總計
		<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元
As at 31 December 2018	於2018年12月31日	-	-	-	-	-
Effect of adoption of IFRS 16	適用IFRS16影響下	547,628*	25,907	2,113	141	575,789
As at 1 January 2019	於2019年1月1日	547,628	25,907	2,113	141	575,789
Additions	本年增加	36,301	87,479	1,075	-	124,855
Disposal	本年出售	(400)	-	-	-	(400)
Depreciation charge	本年度折舊費	(15,462)	(23,002)	(1,754)	(99)	(40,317)
As at 31 December 2019	於2019年12月31日	568,067	90,384	1,434	42	659,927

* The amount includes the reclassification from lease prepayments of RMB302,033,000 and the reclassification from land, buildings and structures of RMB245,595,000.

* 該金額包含重分類至此的預付土地租賃款人民幣302,033,000元和土地、樓宇及建築物人民幣245,595,000元。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

16. INVESTMENT PROPERTIES

16. 投資性物業

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Cost:	成本：		
At 1 January	於1月1日	321,138	321,138
Transfer from property, plant and equipment	轉入自物業、廠房及設備	1,664	-
At 31 December	於12月31日	322,802	321,138
Accumulated depreciation:	累計折舊：		
At 1 January	於1月1日	94,857	85,941
Depreciation charge for the year	本年度折舊費	9,133	8,916
Transfer from property, plant and equipment	轉入自物業、廠房及設備	607	-
At 31 December	於12月31日	104,597	94,857
Net book value	賬面淨值	218,205	226,281

All the investment properties owned by the Group are located in Mainland China.

本集團所有的投資性物業均位於中國大陸。

(a) Investment properties leased out under operating lease

The Group's investment properties consist of commercial and residential properties in Mainland China. The investment properties are leased out under operating leases, the leases typically run for an initial period of 1 to 10 years, with an option to renew the lease after that date at which time all terms are re-negotiated. Lease payments are usually adjusted upon the expiry of lease terms to reflect market rentals. None of the leases includes contingent rentals. Some lease contracts could be cancelled by mutual agreement between the Group and the lessees. Rental income recognised by the Group during the year was RMB44,848,000 (2018: RMB45,742,000).

(a) 根據經營租賃出租的投資性物業

本集團租賃的投資性物業包括中國大陸的商業及住宅物業。投資物業以經營租賃方式出租，一般初始租賃期均為1-10年，到期之後可以續租，屆時雙方將就所有租賃條款重新談判。到期之後一般根據市場租金進行調整。所有租金合同均不存在或有租金。部分合同雙方協商一致即可解除。本年度集團共確認租賃收入人民幣44,848,000元(2018：人民幣45,742,000元)。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

16. INVESTMENT PROPERTIES (CONTINUED)

(a) Investment properties leased out under operating lease (Continued)

The Group's total future minimum lease payments under non-cancellable operating leases are receivable as follows:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Within 1 year	1年內	15,454	14,707
After 1 year	1年以上	8,511	23,965
		23,965	38,672

(b) Fair value of investment properties

(i) Fair value hierarchy

The following table presents the fair value of the Group's investment properties measured at the end of the reporting period on a recurring basis for disclosure purpose, categorised into the three-level fair value hierarchy as defined in IFRS 13 Fair Value Measurement. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs i.e. unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date

16. 投資性物業(續)

(a) 根據經營租賃出租的投資性物業(續)

在不可解除的經營租賃項下，本集團未來應收的最低租賃付款總額如下：

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Within 1 year	1年內	15,454	14,707
After 1 year	1年以上	8,511	23,965
		23,965	38,672

(b) 投資性物業公允價值

(i) 公允價值等級

下表提供了本集團於報告期末為披露目的重複計量的投資性物業的公允價值，並按《國際財務報告準則第13號》「公允價值計量」中所定義分為三個公允價值層級。公允價值計量層級是根據評估方法中使用的輸入數據的可觀察性和重要性來確定劃分的，具體如下：

- 第1層級估值：僅使用1級輸入數據進行計量的公允價值，即計量之日相同資產或負債的活躍市場中未經調整的報價

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

16. INVESTMENT PROPERTIES (CONTINUED)

(b) Fair value of investment properties (Continued)

(i) Fair value hierarchy (Continued)

- Level 2 valuations: Fair value measured using Level 2 inputs i.e. observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available
- Level 3 valuations: Fair value measured using significant unobservable inputs

16. 投資性物業(續)

(b) 投資性物業公允價值(續)

(i) 公允價值等級(續)

- 第2層級估值：使用2級輸入數據進行計量的公允價值，即不符合1級要求且未使用不可觀察的重要輸入數據的可觀察輸入資料。不可觀察輸入數據是不存在市場數據的輸入資料
- 第3層級估值：使用不可觀察的重要輸入數據進行計量的公允價值

		Fair value measurement as at 31 December 2019 categorised into 於2019年12月31日公允價值計量區分為：			
		Fair value at 31 December 2019 於2019年 12月31日 公允價值 RMB'000 人民幣千元	Level 1 第一等級 RMB'000 人民幣千元	Level 2 第二等級 RMB'000 人民幣千元	Level 3 第三等級 RMB'000 人民幣千元
Recurring fair value measurements	重複的公允價值計量				
Investment properties	投資性物業	1,005,022	–	1,005,022	–

		Fair value measurement as at 31 December 2018 categorised into 於2018年12月31日公允價值計量區分為：			
		Fair value at 31 December 2018 於2018年 12月31日 公允價值 RMB'000 人民幣千元	Level 1 第一等級 RMB'000 人民幣千元	Level 2 第二等級 RMB'000 人民幣千元	Level 3 第三等級 RMB'000 人民幣千元
Recurring fair value measurements	重複的公允價值計量				
Investment properties	投資性物業	1,011,934	–	1,011,934	–

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

16. INVESTMENT PROPERTIES (CONTINUED)

(b) Fair value of investment properties (Continued)

(ii) Valuation techniques and inputs used in Level 2 fair value measurements

The fair value of investment properties is determined using market comparison approach by reference to recent sales price of comparable properties on a price per square metre basis using market data which is publicly available.

17. LEASE

The Group as a lessee

The Group has lease contracts for various items of leased land, buildings and structures, motor vehicles and other equipment used in its operations. Leases of land generally have lease periods of 9 to 50 years. For some land lease contracts, lump sum payments were made upfront to acquire the leased land from the owners, and no ongoing payments will be made under the terms of these land leases. Leases of buildings and structures generally have lease terms between 2 months and 6 years, while motor vehicles generally have lease terms between 3 months and 3 years. Other equipment generally has lease terms of 12 months or less and/or is individually of low value. Generally, the Group is restricted from assigning and subleasing the leased assets outside the Group.

(a) Lease prepayments (before 1 January 2019)

		RMB'000 人民幣千元
Carrying amount at 1 January 2018	於2018年1月1日賬面價值	309,883
Recognised in profit or loss during the year	於該年度確認的損益	(7,850)
Carrying amount at 31 December 2018	於2018年12月31日賬面價值	302,033

16. 投資性物業(續)

(b) 投資性物業公允價值(續)

(ii) 在第2層級公允價值計量中採用的評估方法和輸入數據

投資性物業的公允價值是通過參考公開的市場資料中可比物業以每平方米價格為基礎之最近售價，按市場比較法來確定。

17. 租賃

本集團作為承租人

本集團已就其經營使用而租賃的土地、房屋建築物、汽車和其他設備簽訂了租賃合同。土地的租賃期限為9至50年，部分已經根據合同條款預先向業主全額付款。房屋建築物的租賃期限一般為2個月至6年，汽車的租賃期限一般為3個月至3年，其他設備的租期一般為12個月或以下，且／或個別價值較低。一般來說，本集團租賃的資產被限制在本集團之外轉讓和轉租。

(a) 預付土地租賃款(於2019年1月1日之前)

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

17. LEASE (CONTINUED)

The Group as a lessee (Continued)

(b) Lease liabilities

The carrying amount of lease liabilities and the movements during the year are as follows:

		2019 Lease liabilities RMB'000 租賃負債 人民幣千元
Carrying amount at 1 January	於1月1日賬面價值	26,930
New leases	本年新增租賃	124,855
Accretion of interest recognised during the year	本年確認的利息費用	5,156
Payments	支付	(28,086)
Carrying amount at 31 December	於12月31日賬面價值	128,855
Analysed into:	分類至：	
Current portion	流動負債	30,852
Non-current portion	非流動負債	98,003

As at 31 December 2019, part of the lease liabilities amounting to RMB39,037,000 were derived from leases from the related parties under China Energy.

於2019年12月31日，從國家能源集團下屬關聯方租賃確認的租賃負債金額為人民幣39,037,000元。

(c) The amounts recognised in profit or loss in relation to leases are as follows:

		2019 RMB'000 人民幣千元
Interest on lease liabilities	租賃負債利息支出	5,156
Depreciation charge of right-of-use assets	使用權資產攤銷	40,317
Expense relating to short-term leases and other leases with remaining lease terms ended on or before 31 December 2019	短期租賃以及2019年12月31日或之前到期的存量租賃費用	27,489
Expense relating to leases of low-value assets	低價值租賃費用	3,709
Total amount recognised in profit or loss	損益表里確認的總金額	76,671

The total cash outflows for leases are disclosed in Note 29(c) and (d) to the financial statements.

17. 租賃

本集團作為承租人

(b) 租賃負債

本年租賃負債的賬面價值及其變動如下：

(c) 損益表里確認的與租賃相關的金額如下：

租約的現金流出總額在財務報表附註29(c)和(d)中披露。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

18. INTANGIBLE ASSETS

18. 無形資產

		Concession assets 特許權資產 RMB'000 人民幣千元	Technical know-how 專業技術 RMB'000 人民幣千元	Development costs 開發成本 RMB'000 人民幣千元	Software and others 軟件及其他 RMB'000 人民幣千元	Total 總計 RMB'000 人民幣千元
Cost:	成本：					
At 1 January 2018	於2018年1月1日	1,053,539	92,587	423,648	95,506	1,665,280
Additions	增加	3,761	50	59,019	25,942	88,772
Disposals	出售	-	(28,110)	-	(5,111)	(33,221)
At 31 December 2018 and 1 January 2019	於2018年12月31日及於2019年1月1日	1,057,300	64,527	482,667	116,337	1,720,831
Additions	增加	24,558	5,391	54,350	19,648	103,947
Disposals	出售	(340,327)	-	(54,228)	(1,596)	(396,151)
Reclassification	重分類	-	19,303	(19,303)	-	-
At 31 December 2019	於2019年12月31日	741,531	89,221	463,486	134,389	1,428,627
Accumulated amortisation and impairment losses:	累計攤銷及減值損失：					
At 1 January 2018	於2018年1月1日	238,264	81,562	138,657	42,876	501,359
Amortisation (Note (iii))	攤銷(附註(iii))	24,096	1,330	38,562	11,223	75,211
Disposals	出售	-	(28,110)	-	(5,111)	(33,221)
At 31 December 2018 and 1 January 2019	於2018年12月31日及於2019年1月1日	262,360	54,782	177,219	48,988	543,349
Amortisation (Note (iii))	攤銷(附註(iii))	27,300	4,424	38,941	13,030	83,695
Disposals	出售	(62,496)	-	-	(114)	(62,610)
At 31 December 2019	於2019年12月31日	227,164	59,206	216,160	61,904	564,434
Net book value:	賬面淨值：					
At 31 December 2019	於2019年12月31日	514,367	30,015	247,326	72,485	864,193
At 31 December 2018	於2018年12月31日	794,940	9,745	305,448	67,349	1,177,482



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

18. INTANGIBLE ASSETS (CONTINUED)

Notes:

- (i) Concession assets represent the rights the Group received for the usage of the concession water treatment plants for the treatment of water. The concession assets are amortised over the operating period of the service concession projects.

According to the unified planning requirements of the local government, a concession project operated by Taiyuan Lucency Sewage Treatment Co., Ltd. ("Taiyuan Lucency") has to face an early termination. On 22 November 2019, Taiyuan Lucency and the local government agreed on that, the local government would pay a compensation of RMB381,597,600, and the local government would also undertake all the relevant tax. As of 31 December 2019, Taiyuan Lucency has completed the transfer of the concession assets, received the above compensation and recognised the net gains of RMB141,359,000 for the early termination (Note 7).

- (ii) For the year ended 31 December 2019, two subsidiaries of the Group's environmental protection segment were loss-making due to various market and economic factors. The Group assessed the recoverable amounts by using value-in-use model. When determining the recoverable amounts based on value-in-use calculations, management prepared the calculations with cash flow projections covering the concession period. The cash flows are discounted using discount rate of 11.3% to 11.6% (2018: 8.9% to 9.8%). The discount rates used are pre-tax and reflect specific risks relating to the relevant cash generating units. The key assumption used for the value-in-use calculations is the revenue from the treated water sales. As a result, the recoverable amounts of the intangible assets are higher than the carrying amounts, and no impairment losses provided in the consolidated statement of profit or loss for the year then ended (2018: Nil).
- (iii) The amortisation charges of RMB30,338,000 (2018: RMB28,005,000), RMB52,626,000 (2018: RMB46,910,000) and nil (2018: RMB296,000) are included in "cost of sales", "administrative expenses" and "profit for the year from a discontinued operation" in the consolidated statement of profit or loss respectively.
- (iv) As at 31 December 2019, certain of the Group's interest-bearing bank loans and other borrowings were secured by concession assets (Note 30), which had an aggregate net book value of RMB195,378,000 (2018: RMB599,851,000).

18. 無形資產(續)

附註：

- (i) 特許權資產指本集團享有的特許經營權，即污水處理的經營權。特許權資產在特許經營項目經營期間進行攤銷。

根據當地政府統一規劃要求，需提前終止本集團附屬公司太原朗新明污水處理有限公司(「太原朗新明」)負責運營的特許經營項目。2019年11月22日，太原朗新明與當地政府達成一致，由當地政府支付補償款人民幣381,597,600元，並由當地政府承擔相關稅費。截至2019年12月31日，太原朗新明已將該特許經營資產移交，收到了上述補償款，並確認了淨收益人民幣141,359,000元(附註7)。

- (ii) 截至2019年12月31日，由於市場和經濟原因，本集團中屬於環保分部的兩家子公司出現虧損。本集團通過使用價值模型來評估可回收金額。在根據使用價值模型計算確定可收回金額時，管理層在計算過程中對特許權期的現金流量進行了預測。現金流以11.3%至11.6% (2018年：8.9%至9.8%)的折現率折現。所使用的折現率為稅前折現率，並反映相關現金產出單元的特定風險。在使用價值計算中使用的關鍵假設是來自處理水銷售的收入。根據結果，無形資產的可收回金額高於賬面價值，本年無計入合併損益表中的減值損失(2018年：零)。
- (iii) 合併損益表中的「銷售成本」、「行政開支」和「終止經營的年度利潤」項目下分別包括無形資產攤銷費用人民幣30,338,000元(2018：人民幣28,005,000元)，人民幣52,626,000元(2018：人民幣46,910,000元)及人民幣零元(2018：人民幣296,000元)。
- (iv) 截至2019年12月31日止，本集團的若干帶息銀行貸款及其他借款以特許權資產作抵押(附註30)，其賬面淨值總額為人民幣195,378,000元(2018：人民幣599,851,000元)。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

19. GOODWILL

19. 商譽

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
At 1 January 2018, 31 December 2018 and 31 December 2019	於2018年1月1日，2018年12月31日 及2019年12月31日	57,591	57,591

The lowest level within the Group at which goodwill is monitored for internal management purposes is the operating segment level. Therefore, goodwill is allocated to the Group's cash-generating units ("CGUs") according to operating segments. A summary of goodwill allocated to each CGU is presented below:

為內部管理目的而對商譽進行管控的集團內最低級別為經營分部級別。因此，商譽根據經營分部分配給本集團的現金產出單元("CGUs")。分配給每個現金產出單元的商譽總結如下：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Galaxy Water Qingdao Nancun	銀河水務青島南村	1,079	1,079
Galaxy Water Jiaonan	銀河水務膠南	2,352	2,352
Galaxy Water Qingdao Development	銀河水務青島開發	1,845	1,845
Galaxy Water Dezhou	銀河水務德州	2,468	2,468
Zhucheng Galaxy Sewage Treatment	諸城污水	10,791	10,791
Jining Galaxy Water	濟寧水務	7,149	7,149
Jining Sewage Treatment	濟寧污水	960	960
Galaxy Water Caoxian	銀河水務曹縣	2,607	2,607
Galaxy Water Shanxian	銀河水務單縣	2,658	2,658
Galaxy Water Shouguang	銀河水務壽光	6,958	6,958
Galaxy Water Changle	銀河水務昌樂	2,987	2,987
Galaxy Water Tengzhou	銀河水務滕州	5,652	5,652
Galaxy Water Tengzhoumushi	銀河水務滕州木石	1,508	1,508
Galaxy Water Tengzhoudawu	銀河水務滕州大塢	2,476	2,476
Galaxy Water Tengzhouxigang	銀河水務滕州西崗	797	797
Shanxi Xinyuan	山西新源	5,304	5,304
		57,591	57,591

The recoverable amounts of CGUs are determined based on value-in-use calculations. These calculations use cash flow projections based on financial budgets approved by management covering the remaining concession period between 8 to 31 years under which the concession rights were granted by the local governments. The cash flows are discounted using discount rates ranging from 8.2% to 12.1% (2018: 8.9% to 9.8%). The discount rates used are pre-tax and reflect specific risks relating to the relevant CGUs. The key assumption used for the value-in-use calculations is the revenue from treated water sales. Management has determined the revenue from treated water sales based on its expectation of treated water volume and the price of water treatment approved by the related government authorities.

現金產出單元的可收回數額乃按使用價值計算而確定。在地方政府授予特許權的剩餘經營期8至31年期間內，根據經管理層批准的財務預算進行現金流量的預測。該現金流使用8.2%到12.1%(2018: 8.9%到9.8%)的貼現率進行貼現。使用稅前貼現率，反映了與該現金產出單元相關的特定風險。用於使用價值計算的關鍵假設是處理水的銷售收入。管理層根據對處理水量的預期和相關政府部門批准的水處理價格，確定了處理水的銷售收入。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

20. INVESTMENTS IN SUBSIDIARIES

The following list contains only the particulars of subsidiaries as at 31 December 2019 which principally affected the results, assets or liabilities of the Group. All of the subsidiaries are limited liability companies.

20. 對附屬公司的投資

於2019年12月31日，對本集團業績、資產或負債具有主要影響的附屬公司的詳情列舉如下。所有中國附屬公司均為有限責任公司。

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Beijing Guodian Longyuan Environmental Engineering Co., Ltd.	The PRC	RMB 1,613,000,000	100%	100%	-	Provision of desulphurisation and other environmental protection engineering services 提供脫硫及其他環保工程服務
北京國電龍源環保工程有限公司	中國	人民幣1,613,000,000				
Jiangsu Deke Environmental Equipment Co., Ltd.	The PRC	RMB 80,000,000	67.46%	-	67.46%	Production and sale of environmental protection equipment 環保設備的生產與銷售
江蘇德克環保設備有限公司	中國	人民幣80,000,000				
Bengbu Guodian Longyuan Environmental Development Co., Ltd.	The PRC	RMB 30,000,000	100%	-	100%	Operation of environmental protection facilities 環保設施的經營
蚌埠國電龍源環保發展有限公司	中國	人民幣30,000,000				
Jiangsu Longyuan Catalyst Co., Ltd.	The PRC	RMB 50,000,000	100%	-	100%	Production and sale of selective catalytic reduction catalyst 選擇性催化還原催化劑的生產與銷售
江蘇龍源催化劑有限公司	中國	人民幣50,000,000				
Nanjing Longyuan Environmental Co., Ltd.	The PRC	RMB 101,000,000	60%	-	60%	Provision of environmental protection engineering services 提供環保工程服務
南京龍源環保有限公司	中國	人民幣101,000,000				
Puyang Guodian Longyuan Water Treatment Co., Ltd.	The PRC	RMB 10,000,000	70%	-	70%	Operation of water treatment projects 水處理項目的經營
濮陽國電龍源水務有限公司	中國	人民幣10,000,000				
Hanchuan Longyuan Boqi Environmental Technology Co., Ltd.	The PRC	RMB 110,000,000	70%	-	70%	Operation of environmental protection facilities 環保設備的經營
漢川龍源博奇環保科技有限公司	中國	人民幣110,000,000				
China Energy Technology&Environment (HK)Limited (Note (i))	Hong Kong	RMB 17,739,000	100%	100%	-	International trade 國際貿易
China Energy Technology&Environment(HK)Limited (附註(i))	香港	人民幣17,739,000				
Beijing Lucency Environment and Technology Co., Ltd.	The PRC	RMB 500,000,000	100%	100%	-	Construction and operation of water treatment projects 水處理項目的施工與經營
北京朗新明環保科技有限公司	中國	人民幣500,000,000				
Dalian Delang Water Treatment Co., Ltd.	The PRC	RMB 20,000,000	51%	-	51%	Operation of water treatment projects 水處理項目的經營
大連德朗水務有限公司	中國	人民幣20,000,000				
Shanxi Xinyuan Environment Protection Resource Development Co., Ltd.	The PRC	RMB 13,000,000	51%	-	51%	Construction and operation of water treatment projects 水處理項目的施工與經營
山西新源環保資源開發有限責任公司	中國	人民幣13,000,000				
Taiyuan Lucency Sewage Treatment Co., Ltd.	The PRC	RMB 102,000,000	80%	-	80%	Design and installation of sewage treatment equipment 污水處理設備的設計與安裝
太原朗新明污水處理有限公司	中國	人民幣102,000,000				

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

20. INVESTMENTS IN SUBSIDIARIES (CONTINUED)

20. 對附屬公司的投資(續)

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Dalian Economic and Technical Development Zone Drain Management Co., Ltd. 大連經濟技術開發區排水管理有限公司	The PRC 中國	RMB 53,442,000 人民幣53,442,000	50%	-	50%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water Corporation Ltd. 國電銀河水務股份有限公司	The PRC 中國	RMB 300,000,000 人民幣300,000,000	70%	-	70%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Shanxian) Co., Ltd. 國電銀河水務(單縣)有限公司	The PRC 中國	RMB 15,000,000 人民幣15,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Shouguang) Co., Ltd. 國電銀河水務(壽光)有限公司	The PRC 中國	RMB 60,000,000 人民幣60,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Dezhou) Co., Ltd. 國電銀河水務(德州)有限公司	The PRC 中國	RMB 21,409,200 人民幣21,409,200	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Changle) Co., Ltd. 國電銀河水務(德州)有限公司	The PRC 中國	RMB 32,550,000 人民幣32,550,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Caoxian) Co., Ltd. 國電銀河水務(昌樂)有限公司	The PRC 中國	RMB 12,000,000 人民幣12,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Galaxy Water (Tengzhou Mushi) Co., Ltd. 國電銀河水務(曹縣)有限公司	The PRC 中國	RMB 13,250,000 人民幣13,250,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Qingdao Development Zone) Co., Ltd. 銀河水務(滕州木石)有限公司	The PRC 中國	RMB 72,000,000 人民幣72,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Jining Galaxy Water Treatment Co., Ltd. 國電銀河水務(青島開發區)有限公司	The PRC 中國	RMB 51,710,400 人民幣51,710,400	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian Galaxy Water (Tengzhou) Co., Ltd. 濟寧銀河水務有限公司	The PRC 中國	RMB 47,000,000 人民幣47,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Zhucheng Galaxy Sewage Treatment Co., Ltd. 國電銀河水務(滕州)有限公司	The PRC 中國	RMB 50,000,000 人民幣50,000,000	70%	-	100%	Construction and operation of water treatment projects 水處理項目的施工與經營
Guodian United Power Technology Co., Ltd. 諾城銀河污水處理有限公司	The PRC 中國	RMB 2,137,527,100 人民幣2,137,527,100	70%	70%	-	Research and development and sale of wind turbine technology 風力機技術的研究與銷售
Guodian United Power Technology (Baoding) Co., Ltd. 國電聯合動力技術有限公司	The PRC 中國	RMB 220,000,000 人民幣220,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
國電聯合動力技術(保定)有限公司	中國	人民幣220,000,000				

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

20. INVESTMENTS IN SUBSIDIARIES (CONTINUED)

20. 對附屬公司的投資(續)

Name of the company 公司名稱	Place of establishment/ incorporation 成立/註冊地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 本集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Guodian United Power Technology (Lianyungang) Co., Ltd. 國電聯合動力技術(連雲港)有限公司	The PRC 中國	RMB 150,000,000 人民幣150,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Guodian United Power Technology (Chifeng) Co., Ltd. 國電聯合動力技術(赤峰)有限公司	The PRC 中國	RMB 115,000,000 人民幣115,000,000	70%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Beijing Guodian Sida Technology Co., Ltd. 北京國電思達科技有限公司	The PRC 中國	RMB 16,000,000 人民幣16,000,000	100%	-	100%	Production and sale of wind turbine 風力機的生產與銷售
Guodian Longyuan Power Technology and Engineering Co., Ltd. 國電龍源電力技術工程有限責任公司	The PRC 中國	RMB 244,727,000 人民幣244,727,000	100%	100%	-	Provision of energy conservation engineering services 提供節能工程服務
Guodian Longyuan Energy Saving Technology Co., Ltd. 國電龍源節能技術有限公司	The PRC 中國	RMB 178,000,000 人民幣178,000,000	100%	100%	-	Provision of energy conservation engineering services 提供節能工程服務
Beijing Longwei Power Generation Technology Co., Ltd. 北京龍威發電技術有限公司	The PRC 中國	RMB 40,000,000 人民幣40,000,000	60%	-	60%	Production and sale of steam turbine 汽輪機的生產與銷售
Yantai Longyuan Power Technology Co., Ltd. (Note (ii)) 煙台龍源電力技術股份有限公司(附註(ii))	The PRC 中國	RMB 513,216,000 人民幣513,216,000	23.25%	23.25%	-	Production and sale of thermal energy equipment 熱能設備的生產與銷售
Guodian Longyuan Technologies USA Corporation (Note (i)) 國電龍源電力技術有限公司(附註(i))	United States 美國	USD 2,000,000 美元2,000,000	23.25%	-	100%	Production and sale of igniters and other electric equipment 點火器及其他電氣設備的生產與銷售
Beijing Huadian Tianren Company Power Controlling Technology Co., Ltd. 北京華電天仁電力控制技術有限公司	The PRC 中國	RMB 143,823,113 人民幣143,823,113	90%	90%	-	Production and sale of variable-pitch control system for wind turbine 風力發電機組變漿控制系統
Guodian Longyuan Electrical Co., Ltd. 國電龍源電氣有限公司	The PRC 中國	RMB 134,932,900 人民幣134,932,900	100%	100%	-	Production and sale of wind turbine components 風力機的生產與銷售
Beijing Guodian Zhishen Company Control Technology Co., Ltd. 北京國電智深控制技術有限公司	The PRC 中國	RMB 53,900,000 人民幣53,900,000	53.15%	53.15%	-	Production and sale of electric power related products 電力及相關產品的生產及銷售
Beijing Guodian Technology New Energy and Technology Co., Ltd. 北京國電科環新能源科技有限公司	The PRC 中國	RMB 1,000,000 人民幣1,000,000	100%	100%	-	Research and development of technology 技術研發
Beijing Guodian Lantian Energy Saving Science and Technology Development Co., Ltd. 北京國電藍天節能科技開發有限公司	The PRC 中國	RMB 30,000,000 人民幣30,000,000	100%	-	100%	Provision of energy conservation engineering services 環保設備的生產與銷售



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

20. INVESTMENTS IN SUBSIDIARIES (CONTINUED)

Notes:

- (i) Except for China Energy Technology & Environment (HK) Limited and Guodian Longyuan Technologies USA Corporation, the English translation of the names of other entities is for identification only. The official names of these entities are in Chinese.
- (ii) The Company is the largest equity owner of this company and no other equity owners individually or in the aggregate had the power to control this company according to the articles of association. The Company controlled the operation of this company by appointing senior management, approving annual budget and determining the remuneration of employees, etc. The Company has agreements with certain shareholders of this company, whereby such equity owners have agreed to vote in concert with the Company since the establishment of this company. The PRC lawyer of the Company confirmed that these agreements are valid under relevant PRC laws. Considering the above mentioned factors, the directors are of the opinion that the Company controlled this company.
- (iii) The following table lists out the information relating to subsidiaries of the Group which have material non-controlling interests ("NCI"). The summarised financial information presented below presents the amounts before any inter-company elimination.

20. 對附屬公司的投資(續)

附註：

- (i) 除 China Energy Technology & Environment(HK) Limited和Guodian Longyuan Technologies USA Corporation的英文名稱之外，其餘英文名稱僅用於識別之用，該等公司的正式名稱為中文名稱。
- (ii) 本公司是該公司最大的權益所有者，根據該公司的公司章程，不存在個別地或集體地有能力控制該公司的其他權益所有者。在該公司歷史上，本公司通過任命高級管理人員、年度預算審批及確定僱員薪酬等，一直對該公司的經營享有控制權。自該公司成立以來，本公司與該公司的若干股東簽訂了協議，根據協議規定，此等股東同意與本公司投出一致的投票。本公司的中國律師確認，此等協議在中國法律項下具有效力。鑑於上述因素，董事們認為，在報告年限內，本公司對該公司具有控制權。
- (iii) 下表對本集團重大非控股權益的附屬公司相關信息進行了列明。下表列明的概要財務信息為公司間賬項抵銷前的金額。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

20. INVESTMENTS IN SUBSIDIARIES (CONTINUED)

20. 對附屬公司的投資(續)

		Guodian United Power Technology Co., Ltd. (Note) 國電聯合動力技術有限公司 (附註)		Yantai Longyuan Power Technology Co., Ltd. (Note) 煙台龍源電力技術股份有限公司 (附註)		Hanchuan Longyuan Boqi Environmental Technology Co., Ltd. 漢川龍源博奇環保科技有限公司	
		2019	2018	2019	2018	2019	2018
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
NCI percentage	非控股權益比例	30.00%	30.00%	76.75%	76.75%	30.00%	30.00%
Current assets	流動資產	9,644,222	8,976,490	2,020,195	2,088,450	128,574	108,459
Non-current assets	非流動資產	3,204,677	3,471,244	211,593	231,821	351,605	378,722
Current liabilities	流動負債	(9,436,220)	(8,208,610)	(255,991)	(350,026)	(198,558)	(230,603)
Non-current liabilities	非流動負債	(1,241,827)	(1,339,496)	(17,318)	(16,968)	-	(16,000)
Net assets	資產淨額	2,170,852	2,899,628	1,958,479	1,953,277	281,621	240,578
Carrying amount of NCI	非控股權益賬面金額	651,256	815,598	1,503,133	1,497,909	84,486	72,173
Revenue	收入	4,458,786	3,511,759	524,585	455,967	286,974	248,997
(Loss)/profit and total comprehensive income for the year	本年度(虧損)/利潤與綜合收益總額	(728,776)	(127,569)	7,593	25,325	122,377	102,691
(Loss)/profit allocated to NCI	分配予非控股權益的(虧損)/利潤	(218,633)	(48,905)	5,828	18,006	36,713	30,807
Dividend paid to NCI	支付予非控股權益的股息	-	7,500	-	-	25,171	-
Cash inflows from operating activities	經營活動的現金流入	370,065	164,678	12,287	83,297	179,796	191,072
Cash outflows/inflows from investing activities	投資活動的現金流出/流入	(88,715)	(44,609)	10,382	25,307	(32,016)	(12,450)
Cash outflows from financing activities	融資活動的現金流出	(80,501)	(163,971)	(1,587)	-	(130,648)	(142,822)

Note:

The summarised financial information presents consolidated financial information of Guodian United Power Technology Co., Ltd. and Yantai Longyuan Power Technology Co., Ltd.

附註：

以上財務信息包含了國電聯合動力技術有限公司和煙台龍源電力技術股份有限公司的合併財務信息。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

21. INTERESTS IN ASSOCIATES

21. 對聯營公司的投資

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Share of net assets	應佔資產淨值	443,339	395,482
Amounts due from associates (over 3 years)	聯營公司之欠款(3年以上)	1,200	1,200
		444,539	396,682

The following list contains only the particulars of material associates, all of which are unlisted corporate entities whose quoted market price is not available and established in the PRC, which principally affected the results or assets of the Group as at 31 December 2019:

下表僅列出了對本集團2019年12月31日的業績或資產具有主要影響的重大聯營公司的詳情，所有這些公司均為沒有市場報價的未掛牌上市公司，並成立於中國：

Name of the company 公司名稱	Place of establishment 成立地	Issued and fully paid-up capital 已發行且全部繳足的資本	Proportion of ownership interest 所有者權益比例			Principal activities 主營業務
			Group's effective interest 集團的有效權益	Held by the Company 由本公司持有	Held by subsidiaries 附屬公司持有	
Guizhou Longyuan Wengfu Environment Technology Co., Ltd. ("Guizhou Longyuan") (Note (ii)) 貴州龍源翁福環保科技有限公司(貴州龍源附註(ii))	The PRC 中國	RMB250,000,000 人民幣250,000,000	55%	-	55%	Operation of environmental protection facilities 環保設施運行
Guodian Longyuan Environmental Taizhou Co., Ltd. ("Longyuan Taizhou") 國電龍源環保泰州有限公司(龍源泰州)	The PRC 中國	RMB 180,000,000 人民幣180,000,000	45%	-	45%	Operation of environmental protection facilities 環保設施運行

Notes:

附註：

- (i) The English translation of the names is for identification only. The official names of these entities are in Chinese.
- (ii) According to the articles of association of Guizhou Longyuan, the resolutions in relation to material financial and operating decisions have to be passed by three-fourth of directors. As the Group only has rights to appoint less than three-fourth of directors of Guizhou Longyuan, the Group does not have power to control the financial and operating policies of Guizhou Longyuan although the Group owns more than half of equity interests and voting power in Guizhou Longyuan.

- (i) 英文名稱僅用於識別之用，這些公司的正式名稱均為中文名稱。
- (ii) 根據貴州龍源的公司章程，有關重大財務和經營決策的決議必須由四分之三的董事通過。雖然本集團擁有貴州龍源一半以上股權和表決權，但由於本集團僅有權委任貴州龍源不足四分之三的董事，故本集團對貴州龍源重大財務和經營政策無控制權。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

21. INTERESTS IN ASSOCIATES (CONTINUED)

Summarised financial information of the material associates, adjusted for any differences in accounting policies and reconciled to the carrying amounts in the consolidated financial statements, is disclosed below:

21. 對聯營公司的投資(續)

重大聯營公司的概要財務信息，已因應會計政策的差異進行了調整，並調節至合併財務報表的賬面金額披露如下：

		Guizhou Longyuan Wengfu Environment Technology Co., Ltd. 貴州龍源翁福環保科技有限公司		Guodian Longyuan Environmental Taizhou Co., Ltd. 國電龍源環保泰州有限公司	
		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Gross amounts of the associates:	聯營公司總額：				
Current assets	流動資產	189,763	200,235	90,510	71,795
Non-current assets	非流動資產	60,021	61,715	511,244	553,705
Current liabilities	流動負債	(1,549,873)	(1,549,945)	(143,202)	(112,959)
Non-current liabilities	非流動負債	—	—	(28,000)	(43,999)
Equity	權益	(1,300,089)	(1,287,995)	430,552	468,542
Revenue	收入	—	360	359,577	389,049
(Loss)/profit and total comprehensive income for the year	本年度(虧損)/利潤與綜合收益總額	(12,094)	(112,640)	99,457	152,716
Dividend received from the associates	已收聯營公司之股息	—	—	47,400	83,802
Reconciled to the Group's interests in the associates:	調節至本集團對聯營公司的投資：				
Gross amounts of net (liabilities)/assets of the associates	聯營公司淨(負債)/淨資產總額	(1,300,089)	(1,287,995)	430,552	468,542
Group's effective interest	本集團實際權益	55%	55%	45%	45%
Group's share of net (liabilities)/assets of the associates	本集團應佔聯營公司淨(負債)/淨資產	(715,049)	(708,397)	193,747	210,844
Unrecognised share of losses	未確認的虧損	715,049	708,397	—	—
Elimination of unrealised profits on downstream sales	順流交易未實現利潤的抵銷	—	—	(9,747)	(9,747)
Carrying amount in the consolidated financial statements	於合併財務報表的賬面金額	—	—	184,000	201,097

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

21. INTERESTS IN ASSOCIATES (CONTINUED)

21. 對聯營公司的投資(續)

Aggregate information of associates that are not individually material:

個別非重大聯營公司合計金額信息：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Aggregate carrying amount of individually immaterial associates in the consolidated financial statements	在合併財務報表中個別非重大聯營公司的合計賬面金額	259,339	194,385
Aggregate amounts of the Group's share of losses of those associates and total comprehensive income	本集團應佔此等聯營公司的合計金額虧損	1,113	(7,289)

Three associates of the Group are loss-making and the Group's share of the accumulated losses of those associates has exceeded its interest in the associates. In accordance with the accounting policy set out in Note 2(e), the Group discontinued to recognise its share of losses of the associates. The unrecognised share of losses of associates for the current year of RMB5,149,000 (2018: RMB61,952,000) equals or exceeds its interest in the associates. The accumulated unrecognised share of losses of associates as at the end of the reporting period was RMB869,488,000 (2018: RMB864,339,000).

本集團三家聯營公司目前處於虧損狀態，本集團應佔該聯營公司的累積虧損已超過本集團對該聯營公司的投資。根據附註2(e)中列明的會計政策，本集團已不再確認其在該聯營公司中的虧損份額。本年度對該聯營公司的未確認虧損份額超過或等於對該聯營公司的投資的金額為人民幣5,149,000元(2018年：人民幣61,952,000元)。於報告期末累計對該聯營公司的未確認虧損份額為人民幣869,488,000元(2018年：人民幣864,339,000元)。

22. OTHER EQUITY INVESTMENTS

22. 其他權益投資

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Equity securities designated at FVOCI (non-recycling) (Note (i))	使用公允價值計量且其變動計入其他綜合收益的權益證券投資(不重新計入)(附註(i))		
Listed equity securities	上市權益證券	882,738	607,198
Unlisted equity securities	非上市權益證券	347,062	251,217
		1,229,800	858,415

Note:

附註：

(i) The Group designated its investments in equity securities at FVOCI (non-recycling) as the investments are held for strategic purposes.

(i) 因其投資乃策略性持有，本集團指定其權益性投資使用公允價值計量且其變動計入其他綜合收益(不重新計入)。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

23. OTHER NON-CURRENT ASSETS

23. 其他非流動資產

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Long-term trade receivables due from: <i>(Note (i))</i>	長期應收賬款(附註(i))		
– related parties under China Energy	– 國家能源集團下屬關聯方	12,545	141,833
– third parties	– 第三方	9,182	64,118
Long-term service concession receivables due from third parties <i>(Note (ii))</i>	應收第三方服務特許權長期應收款項(附註(ii))	721,022	746,819
Less: Loss allowance	減：壞賬準備	(4,473)	–
		738,276	952,770
Advance to third parties <i>(Note (iii))</i>	長期應收第三方款項(附註(iii))	214,854	752,640
Less: Loss allowance	減：壞賬準備	(14,926)	(460,379)
		199,928	292,261
Contract assets <i>(Note (iv))</i>	合同資產(附註(iv))	2,721,910	1,965,698
Long-term prepayments	長期預付款	14,071	3,062
Deductible VAT <i>(Note (v))</i>	可抵扣增值稅(附註(v))	154,540	139,820
		3,828,725	3,353,611



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

23. OTHER NON-CURRENT ASSETS (CONTINUED)

Notes:

- (i) Long-term trade receivables represent trade receivables of certain construction contracts which are repayable by instalments over period of 3 to 8 years.
- (ii) Long-term service concession receivables due from third parties represent the amounts contractually and unconditionally receivables in connection with construction services under concession arrangements (Note 44).
- (iii) The balances represented:
- Advance to a former associate, disposed of during the year ended 31 December 2018. The receivables are repayable before 2023;
 - Advance to a former subsidiary, disposed of during the year ended 31 December 2017. The receivables are repayable before 2020 and the balance as at 31 December 2019 was reclassified to deposits, prepayments and other receivables.
 - Long-term loan to a third party representing an unsecured loan to a third party which is repayable by instalments from 2020 to 2034.
- (iv) Contract assets represent the retentions of sales of industrial products and provision of construction services which will be received after one year in line with the retention period ends and the consideration for construction service during the construction or upgrade period under the service concession arrangement, which will be reclassified to long-term receivables after the construction service satisfied.
- The increase in contract assets in 2019 was the result of the increase in the ongoing sales of industrial products and the provision of construction services at the end of the year.
- (v) Deductible VAT represents the input VAT in excess of output VAT. Input VAT is recognised for the purchase of manufacturing raw materials and components and acquisitions of machinery and equipment used for operation. Input VAT will be deductible from output VAT payable for goods to be sold in subsequent years.
- (vi) As at 31 December 2019, long-term service concession receivables of the Group amounting to RMB584,598,000 (2018: RMB504,664,000) and long-term trade receivables of the Group amounting to RMB57,080,000 (2018: RMB30,209,000) were pledged as collateral for bank loans (Note 30).

23. 其他非流動資產(續)

附註：

- (i) 長期應收賬款指在3-8年期內分期償付的若干建造合同項下的應收賬款。
- (ii) 應收第三方服務特許權長期應收款項指與特許經營安排下的建造服務相關之約定及無條件應收款項(附註44)。
- (iii) 餘額代表：
- 截至2018年12月31日止年度處置的前附屬公司的應收款項，於2023年前償還；
 - 截至2017年12月31日止處置的前附屬公司的應收賬款，於2020年前償還，該款項於2019年12月31日被重分類至按金、預付款項及其他應收款項。
 - 向第三方提供的長期貸款是指向第三方提供的無擔保貸款，可從2020年至2034年分期償還。
- (iv) 合同資產代表將於一年質保期到期後收回的產品銷售及建造服務質保金，以及根據服務特許安排在建造或改造期提供的建築服務成本，該成本在建築服務完成後將重分類至長期應收款。
- 2019年合同資產的增加是由於產品的持續銷售和建築服務的增加。
- (v) 可抵扣增值稅指進項增值稅超過銷項增值稅的部分。進項增值稅於購買生產用原材料和部件以及購買經營用機器及設備時確認。進項增值稅可從後續年度出售貨物應支付的銷項增值稅中抵扣。
- (vi) 於2019年12月31日，本集團的服務特許權長期應收款項約為人民幣584,598,000元(2018：人民幣504,664,000元)。約人民幣57,080,000元(2018：人民幣30,209,000元)的長期應收款已作為銀行借款的抵押物(附註30)。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

23. OTHER NON-CURRENT ASSETS (CONTINUED)

(a) Ageing analysis

As of the end of the reporting period, the ageing analysis of long-term trade receivables and long-term service concession receivables, based on invoice date (or date of revenue recognition, if earlier) and net of loss allowances is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Between 1 and 2 years	1至2年內	–	38,753
Between 2 and 3 years	2至3年內	8,336	1,194
Over 3 years	3年以上	729,940	912,823
		738,276	952,770

(b) Movement in the loss allowance account

Movement in the loss allowance account in respect of long-term trade receivables and long-term service concession receivables during the year is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Balance at 1 January	於1月1日結餘	–	–
Impairment losses, net	本年計提	(4,473)	–
Balance at 31 December	於12月31日結餘	(4,473)	–

For the above long-term trade receivables and long-term service concession receivables, an impairment analysis is performed at each reporting date by considering the probability of default by applying a loss rate approach with reference to the historical loss record of the Group. The loss rate is adjusted to reflect the current conditions and forecasts of future economic conditions, as appropriate. Since the credit risk has not increased significantly since initial recognition for the above financial assets, the expected loss was calculated based on the possible default events within the next 12 months at ECL rates of 0.15% to 0.98%.

23. 其他非流動資產(續)

(a) 賬齡分析

於報告期末，本集團基於開立發票日期(或收入確認日，兩者孰早)的長期應收賬款及服務特許權長期應收款項(扣除壞賬撥備)的賬齡分析如下：

(b) 壞賬損失變動

本年長期應收賬款及服務特許權長期應收款項的壞賬損失變動如下：

對於上述長期應收賬款及服務特許權長期應收款項，在每個報告日，通過參照集團的歷史損失記錄考慮違約概率，採用損失率方法，進行減值分析，並參考目前的情況和對未來經濟情況的預測對損失率作出調整，以反映目前的情況和對未來經濟情況的預測。由於上述金融資產的信用風險自初始確認以來並沒有顯着增加，因此預計損失根據未來12個月內可能發生的壞賬損失率0.15%至0.98%來計算。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

23. OTHER NON-CURRENT ASSETS (CONTINUED)

23. 其他非流動資產(續)

(b) Movement in the loss allowance account (CONTINUED)

(b) 壞賬損失變動(續)

Movement in the loss allowance account in respect of advance to third parties during the year is as follows:

本年長期應收第三方款項的壞賬損失變動如下：

		2019 <i>RMB'000</i> 人民幣千元	2018 RMB'000 人民幣千元
Balance at 1 January	於1月1日結餘	(460,379)	(171,337)
Impairment losses, net	本年計提	-	(47,543)
Amounts written off	本年核銷	358,529	-
Reclassify to/from other receivables	重分類至／自其他應收款	86,924	(241,499)
Balance at 31 December	於12月31日結餘	(14,926)	(460,379)

For the above advance to third parties, an impairment analysis is performed at each reporting date by considering the probability of default using the general approach. As described in the note (iii) above, the advance to a former associate was considered as POCI assets, since there is no subsequent change in the expected credit losses, there is no further expected loss recognised in the year of 2019 (2018: RMB32,617,000). For the advance to the other third party, the fully provision of RMB14,926,000 was made during the year of 2018.

對於上述長期應收第三方款項，在每個報告日，採用一般方法考慮違約概率，進行減值分析。如上述附註(iii)所述，應收前附屬公司的應收款項被視為POCI資產，由於預期的信貸損失隨後沒有變化，在2019年沒有進一步確認的預期損失(2018年：人民幣32,617,000元)。對於應收第三方的款項，2018年全額確認撥備人民幣14,926,000元。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

24. INVENTORIES

(a) Inventories in the consolidated statement of financial position comprises:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Raw materials	原材料	1,143,858	1,085,010
Work in progress	在產品	1,274,785	846,388
Finished goods	產成品	1,718,441	1,069,022
Spare parts	備件	10,768	16,987
		4,147,852	3,017,407

(b) The analysis of the amount of inventories recognised as an expense and included in the consolidated statement of profit or loss is as follows:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Carrying amount of inventories sold	售出存貨的賬面金額	4,331,326	3,391,708
Write-down of inventories	存貨撇減	53	30,256
		4,331,379	3,421,964

24. 存貨

(a) 合併財務狀況表中的存貨包括：

(b) 在合併損益表中確認為費用的存貨金額如下：

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

25. CONTRACT ASSETS

25. 合同資產

		2019	2018
		<i>RMB'000</i>	<i>RMB'000</i>
		人民幣千元	人民幣千元
Contract assets arising from:	合同資產產生自：		
Sale of industrial products	銷售工業產品	2,812,694	2,243,302
Construction service	建造服務	1,755,186	1,698,723
Service concession arrangements	服務特許安排	645,400	310,940
		5,213,280	4,252,965
Less: Loss allowance	減：壞賬準備	(206,413)	(196,532)
		5,006,867	4,056,433
Portion classified as non-current assets	分類為非流動性部分	2,721,910	1,965,698
Current portion	分類為流動性部分	2,284,957	2,090,735

Contract assets are initially recognised for revenue earned from the sale of industrial products and the provision of construction service as the receipt of consideration is conditional on successful completion of installation of the industrial products and construction, respectively.

Included in contract assets for the sale of industrial products are retention receivables. Upon the end of the retention period, the amounts recognised as contract assets are reclassified to trade receivables. The retention receivables which will be received within one year are presented as contract assets within the current assets in the consolidated statement of financial position and other retention receivables are presented as other non-current assets.

The increase in contract assets in 2019 was the result of the increase in the ongoing sale of industrial products and the provision of construction services at the end of the year.

當銷售工業產品和提供建造服務產生收入，且收到的對價分別取決於成功完成工業產品的安裝和建造時開始對合同資產的初始確認。

銷售工業產品的合同資產中包括應收質保金款項。隨着質保期滿，合同資產中確認的金額被重新分類為應收賬款。一年內將收回的應收質保金在合併財務狀況報表中列示為流動資產中的合同資產，其他的被列示為其他非流動資產。

2019年合同資產的增加是由于年底工業產品的持續銷售和建造服務的提供。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

25. CONTRACT ASSETS (CONTINUED)

Contract assets arising from the construction service represented unbilled revenue for construction contract work. The expected timing of recovery of such contracts as at 31 December is as follows:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Within one year	一年以內	1,228,950	1,639,753
After one year	一年以上	1,171,636	369,910
Total contract assets arising from the construction service	產生自建造服務的 合同資產總額	2,400,586	2,009,663

The movements in the loss allowance for impairment of contract assets are as follows:

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
At beginning of year	年初	(196,532)	(161,310)
Impairment losses, net	壞賬損失淨額	(9,881)	(35,222)
At end of year	年末	(206,413)	(196,532)

25. 合同資產(續)

產生自建造服務的合同資產指建造合同工程下未發賬單的收入。這類合同在12月31號的預計收回時間如下：

合同資產中壞賬損失的變動如下：

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

25. CONTRACT ASSETS (CONTINUED)

An impairment analysis is performed at each reporting date using a provision matrix to measure expected credit losses. The provision rates for the measurement of the expected credit losses of the contract assets are based on the trade receivables from the same customer bases. The provision rates of contract assets are based on the ageing of trade receivables for groupings of various customer segments with similar loss patterns. The calculation reflects the probability weighted outcome, the time value of money and reasonable and supportable information that is available at the reporting date about past events, current conditions and forecasts of future economic conditions.

The provision rates of contract assets related to retentions of sale of industrial products and construction service are generally calculated using the expected loss rate of trade receivables with the ageing of within one year if the amounts are not credit-impaired.

The provision of contract assets arising from service concession arrangement are calculated on the 12 months expected loss rate, which was same to the long-term service concession receivables in Note 23 above.

Set out below is the information about the credit risk exposure on the Group's contract assets using a provision matrix:

25. 合同資產(續)

每個報告日都會運用撥備矩陣執行減值分析去計量預計信用損失。用於計量合同資產的預計信用損失的計提比例是根據相同客戶群的應收賬款確定。合同資產的計提比例是根據具有相似損失情況的各客戶群的應收賬款賬齡確定。計算反映了概率加權結果，貨幣的時間價值以及在報告日關於過去事件，現在的事件以及預期未來經濟環境下可獲得的合理和可支持性信息。

銷售工業產品和建造服務的合同資產(質保金)預計信用損失的計提率是在未發生信用減值的情況下，按照一年內賬齡的應收賬款預期損失率計算的。

合同資產(特許經營權)按12個月的預期損失率計算，與上述附註23中長期特許服務應收賬款相同。

下表載列的信息是關於使用撥備矩陣得到的集團合同資產的信用損失風險：

		2019	
		Expected credit loss (not credit-impaired)	Expected credit loss (credit-impaired)
		預期信用損失(未發生信用減值)	預期信用損失(發生信用減值)
			Total
			合計
Expected credit loss rate	預計信用損失率	0.71%	100%
Gross carrying amount (RMB'000)	賬面金額總額(人民幣千元)	5,042,704	5,213,280
Expected credit losses (RMB'000)	預計信用損失(人民幣千元)	(35,837)	(206,413)



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

25. CONTRACT ASSETS (CONTINUED)

25. 合同資產(續)

		Expected credit loss (not credit-impaired) 預期信用 損失(未發生 信用減值)	2018 Expected credit loss (credit-impaired) 預期信用 損失(發生 信用減值)	Total 合計
Expected credit loss rate	預計信用損失率	0.64%	100%	
Gross carrying amount (RMB'000)	賬面金額總額(人民幣千元)	4,082,389	170,576	4,252,965
Expected credit losses (RMB'000)	預計信用損失(人民幣千元)	(25,956)	(170,576)	(196,532)

The contract assets of the Group include amounts of RMB1,182,646,000 due from related parties under China Energy (2018: RMB1,368,874,000 due from related parties under China Energy and an associate).

本集團合同資產包括應從國家能源集團下屬的關聯方收取的款額約為人民幣1,182,646,000元，(2018年：人民幣1,368,874,000元應從國家能源集團下屬的關聯方及聯營公司收取)。

26. TRADE AND BILLS RECEIVABLES

26. 應收賬款及票據

		31 December 2019 2019年 12月31日 RMB'000 人民幣千元	31 December 2018 2018年 12月31日 RMB'000 人民幣千元
Trade receivables for contract work due from:	合同工程的應收賬款：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	2,726,196	2,962,972
– associates	– 聯營公司	–	5,667
– third parties	– 第三方	2,329,520	3,122,049
		5,055,716	6,090,688
Bills receivable for contract work due from:	合同工程的應收票據：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	674,813	821,660
– associates	– 聯營公司	–	8,822
– third parties	– 第三方	220,041	210,197
		894,854	1,040,679

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

26. TRADE AND BILLS RECEIVABLES (CONTINUED) 26. 應收賬款及票據(續)

		31 December 2019 2019年 12月31日 RMB'000 人民幣千元	31 December 2018 2018年 12月31日 RMB'000 人民幣千元
Trade receivables for operating leases due from:	經營租賃的應收賬款：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	92,038	68,136
– associates	– 聯營公司	–	3,263
– third parties	– 第三方	364	8,199
		92,402	79,598
Trade receivables for sale of goods and rendering of services due from: (Note (ii))	銷售商品及提供服務的應收賬款：(附註(ii))		
– China Energy	– 國家能源集團	1,567	1,900
– related parties under China Energy	– 國家能源集團下屬的關聯方	1,783,997	2,166,586
– associates	– 聯營公司	13,733	53,581
– third parties	– 第三方	3,172,330	3,408,397
		4,971,627	5,630,464
Bills receivable for sale of goods and rendering of services due from:	銷售商品及提供服務的應收票據：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	211,033	522,369
– associates	– 聯營公司	–	1,000
– third parties	– 第三方	584,705	629,019
		795,738	1,152,388
		11,810,337	13,993,817
Less: Loss allowance	減：壞賬撥備	(2,001,070)	(2,078,371)
		9,809,267	11,915,446



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

26. TRADE AND BILLS RECEIVABLES (CONTINUED)

Notes

- (i) Trade and bills receivables of the Group include bills endorsed to suppliers totalling RMB228,618,000 (2018: RMB119,911,000). These receivables were not derecognised as the Group remains exposed to the credit risk of these receivables. The carrying amount of the trade payables was RMB228,618,000 (2018: RMB119,911,000). As at 31 December 2019, the fair value of the transferred assets and the associated liabilities was the same as their carrying amount with the net position of nil (2018: Nil).

At 31 December 2019, the Group endorsed certain bills receivable accepted by banks in Mainland China to certain of its suppliers in order to settle the trade payables due to such suppliers with a carrying amount in aggregate of RMB2,306,736,000 (2018: RMB1,836,975,000) and factored certain bills receivables accepted by banks in Mainland China with a carrying amount in aggregate of RMB714,582,000 (2018: Nil) (the “**Derecognised Bills**”). The Derecognised Bills had a maturity of one to twelve months at the end of the reporting period. In accordance with the Law of Negotiable Instruments in the PRC, the holders of the Derecognised Bills have a right of recourse against the Group if the PRC banks default (the “**Continuing Involvement**”). In the Opinion of the directors, the Group has transferred substantially all risks and rewards relating to the Derecognised Bills. Accordingly, it has derecognised the full carrying amounts of the Derecognised Bills and the associated trade payables. The maximum exposure to loss from the Group’s Continuing Involvement in the Derecognised Bills and the undiscounted cash flows to purchase these Derecognised Bills is equal to their carrying amounts. In the opinion of the directors, the fair values of the Group’s Continuing Involvement in the Derecognised Bills are not significant. During the year ended 31 December 2019, the Group has not recognised any gain or loss on the date of transfer of the Derecognised Bills. No gains or losses were recognised from the Continuing Involvement, both during the year or cumulatively. The endorsement has been made evenly throughout the year.

- (ii) As at 31 December 2019, trade receivables of the Group amounting to RMB76,649,000 (2018: RMB94,033,000) were pledged as collateral for interest-bearing bank loans and other borrowings (Note 30).

All trade and bills receivables (net of loss allowance) of the Group are expected to be recovered within one year.

26. 應收賬款及票據(續)

附註：

- (i) 本集團的應收賬款及票據包括背書轉讓給供貨商的票據，總額約為人民幣228,618,000元(2018年：人民幣119,911,000元)。這些應收賬款和票據未被中止確認，因為本集團仍對這些應收賬款和票據具有信用風險。相關應付帳款的賬面金額約為人民幣228,618,000元(2018年：人民幣119,911,000元)。於2019年12月31日，轉讓資產的公允價值及關聯負債與其賬面金額相同，淨差額為零(2018年：零)。

於2019年12月31日，本集團向其若干供應商背書獲中國內地的銀行接納的若干應收票據，賬面總值為人民幣2,306,736,000元(2018年：人民幣1,836,975,000元)，以結清應付該等供應商的貿易應付款項，並對獲中國內地銀行接納的若干應收票據進行貼現，賬面總值為人民幣714,582,000元(2018年：零)（「已終止確認票據」）。於報告期末，已終止確認票據的期限為一至十二個月。根據中國票據法，倘中國的銀行違約，已終止確認票據持有人有權向本集團追索（「持續參與」）。董事認為，本集團已轉讓有關已終止確認票據的絕大部分風險及回報，故其悉數終止確認了已終止確認票據及相關貿易應付款項的賬面值。本集團持續參與已終止確認票據及購回該等已終止確認票據的未貼現現金流量所面臨的最大損失相等於其賬面值。董事認為，本集團持續參與已終止確認票據的公允價值並不重大。截至2019年12月31日止年度，本集團並未在轉讓已終止確認票據之日確認任何收益或虧損。年內或累計至今均無自持續參與確認收益或虧損。背書已於年內均衝作出。

- (ii) 於2019年12月31日，本集團作為帶息銀行及其他借款押物而質押的應收賬款約為人民幣76,649,000元(2018年：人民幣94,033,000元)(見附註30)。

本集團所有應收賬款與票據(扣除壞賬撥備)預計將於一年之內收回。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

26. TRADE AND BILLS RECEIVABLES (CONTINUED) 26. 應收賬款及票據(續)

(a) Ageing analysis

As of the end of the reporting period, the ageing analysis of trade receivables, based on invoice date (or date of revenue recognition, if earlier) and net of loss allowance of the Group is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Within 1 year	1年內	4,556,233	5,299,590
Between 1 and 2 years	1至2年內	1,790,635	2,996,402
Between 2 and 3 years	2至3年內	590,500	922,804
Over 3 years	3年以上	1,181,307	503,583
		8,118,675	9,722,379

(b) Impairment analysis

Movement in the loss allowance account in respect of trade receivables during the year is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Balance at 1 January	於1月1日結餘	(2,078,371)	(2,131,077)
Impairment losses, net	本年確認的減值虧損淨值	77,301	23,694
Uncollectible amounts written off	本年核銷金額	-	29,012
Balance at 31 December	於12月31日結餘	(2,001,070)	(2,078,371)

An impairment analysis is performed at each reporting date using a provision matrix to measure expected credit losses. The provision rates are based on the ageing of balance of trade receivables for groupings of various customer segments with similar loss patterns. The calculation reflects the probability weighted outcome, the time value of money and reasonable and supportable information that is available at the reporting date about past events, current conditions and forecasts of future economic conditions.

(a) 賬齡分析

於報告期末，本集團基於開立發票日期(或收入確認日，兩者孰早)的應收賬款扣除壞賬撥備的賬齡分析如下：

(b) 減值分析

本年有關應收賬款的呆賬撥備的變動如下：

於每個報告日，本集團使用撥備矩陣計算應收賬款的預期信用損失。預期信用損失率為根據具有類似損失模式的各個客戶群應收賬款餘額的賬齡計算得出。此計算反映出概率加權結果、貨幣的時間價值及於報告日可獲得的有關過去事件、當前狀況和未來經濟情況預測的合理及有依據的信息。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

26. TRADE AND BILLS RECEIVABLES (CONTINUED)

(b) Impairment analysis (Continued)

The following table provides information about the Group's exposure to credit risk and ECLs for trade receivables as at 31 December 2019 and 2018:

2019		Expected loss rate 預期損失率 %	Gross carrying amount 賬面價值 RMB'000 人民幣千元	Loss allowance 壞賬準備 RMB'000 人民幣千元
Within 1 year	1年內	0.8%	4,593,715	(37,482)
Between 1 and 2 years	1至2年內	4.1%	1,866,978	(76,343)
Between 2 and 3 years	2至3年內	12.7%	676,624	(86,124)
Over 3 years	3年以上	60.4%	2,982,428	(1,801,121)
			10,119,745	(2,001,070)
2018		Expected loss rate 預期損失率 %	Gross carrying amount 賬面價值 RMB'000 人民幣千元	Loss allowance 壞賬準備 RMB'000 人民幣千元
Within 1 year	1年內	1.3%	5,367,570	(67,980)
Between 1 and 2 years	1至2年內	4.6%	3,139,814	(143,412)
Between 2 and 3 years	2至3年內	27.2%	1,267,292	(344,488)
Over 3 years	3年以上	75.1%	2,026,074	(1,522,491)
			11,800,750	(2,078,371)

Bills receivable as at 31 December 2019 were bank acceptance bills and commercial acceptance bills with a maturity of six to twelve months, and management considers the probability of default as minimal.

26. 應收賬款及票據(續)

(b) 減值分析(續)

於2019年及2018年12月31日，本集團應收賬款的信貸風險及預期信用損失率如下表：

於2019年12月31日應收票據為期限為六至十二個月的銀行承兌票據和商業承兌匯票，並且管理層認為違約的可能性極低。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

27. DEPOSITS, PREPAYMENTS AND OTHER RECEIVABLES 27. 按金、預付款項及其他應收款項

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Deposits for construction contracts' bidding (Note (i))	建造合同的投標或履約保證金 (附註(i))		
– related parties under China Energy (Note (v))	– 國家能源集團下屬的關聯 方(附註(v))	73,780	61,094
– third parties	– 第三方	69,973	95,396
Advances to staff	給員工的墊款	7,550	11,983
Advances to	墊款		
– associates (Note (iii))	– 聯營公司(附註(iii))	19,523	18,411
– third parties (Note (iii))	– 第三方(附註(iii))	556,983	373,236
Consideration receivables for the disposal of subsidiaries and associates from	應收處置附屬公司及聯營公司 的對價		
– related parties under China Energy (Note (v))	– 國家能源集團下層的關聯 方(附註(v))	266,264	266,264
– third parties	– 第三方	24,137	96,401
Consideration receivables for the disposals of property, plant and equipment from	應收出售物業、廠房、及設備 的款項		
– related parties under China Energy (Note (v))	– 國家能源集團下層的關聯 方(附註(v))	189,952	189,952
Loan to an associate	給聯營公司的貸款	373,259	373,259
Interest receivables	應收利息		
– an associate	– 聯營公司	113,741	113,741
– third parties	– 第三方	24,546	–
Dividends receivable	應收股利		
– an associate	– 聯營公司	14,150	–
– related parties under China Energy	– 國家能源集團下屬的 關聯方	5,073	17,298
Wealth management products in financial institutions	金融機構的理財產品	55,000	–
Others	其他	182,691	207,354
Less: Loss allowance	減：壞賬撥備	(907,014)	(771,059)
Financial assets measured at amortised cost	以攤餘成本計量的金融資產	1,069,608	1,053,330
Prepayments to sub-contractors (Note (iv))	支付給分包商的預付款 (附註(iv))		
– related parties under China Energy	– 國家能源集團下屬的 關聯方	19,924	44,400
– third parties	– 第三方	294,209	528,826
Prepayments for purchase of inventories	採購存貨的預付款		
– related parties under China Energy	– 國家能源集團下屬的 關聯方	21,563	5,427
– third parties	– 第三方	142,629	68,844
The short-term portion of input value-added tax to be deducted	待抵扣進項稅短期部分	69,747	–
		1,617,680	1,700,827

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

27. DEPOSITS, PREPAYMENTS AND OTHER RECEIVABLES (CONTINUED)

Notes:

- (i) The balances represent deposits placed with customers for contracts bidding. The deposits will be released to the Group upon the completion of the related bidding.
- (ii) Advances to an associate of RMB19,523,000 (2018: RMB18,353,000) as at 31 December 2019 are unsecured, bear interest rates at 6.60% (2018: 6.60%) per annum, and are repayable within one year.
- (iii) Advances to third parties mainly represent receivables of RMB385,714,000 from a former subsidiary, disposed during the year of ended 31 December 2017. The receivables are interest-free and repayable before 2020.
- (iv) The balances represent prepayments to the sub-contractors in connection with the Group's construction contracts. The prepayments will be settled upon the delivery of goods and services by the sub-contractors.
- (v) The balances from related parties under China Energy are interest free, unsecured. All of them are expected to be received within one year or are receivable on demand.
- (vi) For the financial assets above, an impairment analysis is performed at each reporting date by considering the probability of default by applying a loss rate approach with reference to the historical loss record of the Group. The loss rate is adjusted to reflect the current conditions and forecasts of future economic conditions, as appropriate. For staff advance and interest receivables from third parties, dividend receivables and wealth management products in financial institutions included in deposits, prepayments and other receivables, they have specific due date or settlement schedule, and management considers the probability of default as minimal. The expected loss rate applied for the rest of the deposits and other receivables is calculated based on possible default events within the next 12 months or expected lifetime.

Movement in the loss allowance account in respect of financial assets included in deposits, prepayment and other receivables during the year is as follows:

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Balance at 1 January	於1月1日結餘	(771,059)	(810,726)
Impairment losses, net	本年計提	(95,786)	(201,832)
Amounts written off	本年核銷	46,755	-
Reclassify from/to non current assets (Note 23)	重分類至/自其他非流動資產 (附註23)	(86,924)	241,499
Balance at 31 December	於12月31日結餘	(907,014)	(771,059)

27. 按金、預付款項及其他應收款項(續)

附註：

- (i) 該款項是關於合同投標或合同履約而支付給客戶的保證金。相關投標或合同工程完工之後，該保證金則將返還給本集團。
- (ii) 於2019年12月31日，給聯營公司的墊款約為人民幣19,523,000元(2018：人民幣18,353,000元)，年息率為6.60%(2018：6.60%)無抵押，要求在一年內償還。
- (iii) 對第三方的應收款項主要是應收於截至2017年12月31日止年度處置的前附屬公司的款項人民幣385,714,000元，該應收款無息且在2020年之前需要償還。
- (iv) 該款項是關於集團建造合同支付分包商的預付款項。預付款將在分包商交付貨物和提供服務時結算。
- (v) 來自國家能源集團下屬關聯方的餘額免息，無抵押，預期於1年內或按要求償還。
- (vi) 對於上述金融資產，在每個報告日，通過參照集團的歷史損失記錄考慮違約概率，採用損失率方法，進行減值分析。參考目前的情況和對未來經濟情況的預測對損失率作出調整。對於給員工的墊款、應收第三方的利息、應收股利、金融機構的理財產品、預付款和其他款項，它們有具體的到期日或結算時間表，管理層認為違約的可能性很小。對於除上述之外款項性質的其他應收款項預期損失率根據未來12個月或預期未來內可能發生的違約事件計算。

本年按金、預付款項及其他應收款項中的金融資產壞賬損失變動如下：

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

28. RESTRICTED DEPOSITS

Restricted deposits mainly represent guarantee deposits, cash pledged as collateral for bills payable, letter of credit margin deposits and blocked deposits.

28. 受限制存款

受限制存款主要為保函保證金存款、應付票據的抵押現金、信用證保證金存款和凍結存款。

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Restricted cash	受限制存款		
Released within 1 year	1年內解除限制	615,564	274,830
Released after 1 year	1年以上解除限制	14,578	-
		630,142	274,830

29. CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION

29. 銀行存款、庫存現金及其他現金流量信息

(a) Cash and cash equivalents comprise:

(a) 現金及現金等價物組成：

		2019 <i>RMB'000</i>	2018 <i>RMB'000</i>
Cash in hand	庫存現金	4	-
Cash at bank	銀行存款	1,616,873	292,285
Cash at a related party under China Energy (Note (i))	於國家能源集團下屬的關聯方 存放的現金(附註(i))	2,570,045	3,144,174
		4,186,922	3,436,459
Representing:	包括：		
Cash and cash equivalents as stated in the statement of cash flows	現金流量表中的現金及現金等 價物	3,145,422	3,436,459
Deposits with banks with original maturity of over three months	初始到期日三個月以上的銀行 存款	1,041,500	-
Cash at bank and in hand as stated in the statement of financial position	資產負債表中的庫存現金及 銀行存款	4,186,922	3,436,459

Note:

附註：

(i) Cash at a related party under China Energy represents the deposits in Guodian Finance Co., Ltd., a registered financial institution in the PRC.

(i) 國家能源集團下屬的關聯方是國電財務有限公司，該公司為在中國註冊的金融機構。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

29. CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION (CONTINUED)

(b) Major non-cash transactions:

During the year, the Group had non-cash additions to right-of-use assets and lease liabilities of RMB124,855,000 and RMB124,855,000, respectively, in respect of lease arrangements for land, buildings and structures and motor vehicles.

(c) Reconciliation of liabilities arising from financing activities

29. 銀行存款、庫存現金及其他現金流量信息(續)

(b) 主要的非現金交易：

在土地、樓宇及建築物和車輛的租賃安排方面，2019年，本集團使用權資產和租賃負債的非現金增加分別為人民幣124,855,000元和人民幣124,855,000元。

(c) 融資活動產生負債調節表

		Bank loans, other borrowings and interest payables 銀行貸款、其他借款及應付利息 RMB'000 人民幣千元 (Notes 30 and 32) (附註30及32)	Private placement notes 私人配售債務融資工具 RMB'000 人民幣千元 (Note 30) (附註30)	Corporate bonds 公司債券 RMB'000 人民幣千元 (Note 30) (附註30)	Lease liabilities 租賃負債 RMB'000 人民幣千元 (Note 17) (附註17)	Total 總計 RMB'000 人民幣千元
At 31 December 2018	於2018年12月31日	7,254,007	2,453,658	2,035,793	-	11,743,458
Effect of adoption of IFRS 16	採用IFRS 16之影響	-	-	-	26,930	26,930
At 1 January 2019	於2019年1月1日	7,254,007	2,453,658	2,035,793	26,930	11,770,388
Changes from financing cash flows:	融資現金流變化：					
Proceeds from bank loans and other borrowings	銀行貸款及其他借款所得	10,961,980	-	-	-	10,961,980
Proceeds from issuance of private placement notes and corporate bonds	發行私人配售債務融資工具和公司債券所得	-	1,000,000	900,000	-	1,900,000
Repayment of bank loans and other borrowings	償還銀行貸款及其他借款	(11,435,766)	-	-	-	(11,435,766)
Repayment of private placement notes	私人配售債務融資工具	-	(1,400,000)	-	-	(1,400,000)
Principal portion of lease payments	租賃付款的本金部分	-	-	-	(22,930)	(22,930)
Interest paid	支付利息	(401,170)	(121,838)	(107,854)	(5,156)	(636,018)
Total changes from financing cash flows	融資現金流變化總計	(874,956)	(521,838)	792,146	(28,086)	(632,734)
Other changes:	其他費用：					
Interest expenses (Note 8)	利息支出(附註8)	393,804	79,491	114,486	5,156	592,937
New leases	新租賃	-	-	-	124,855	124,855
Total other changes	其他費用總計	393,804	79,491	114,486	130,011	717,792
At 31 December 2019	於2019年12月31日	6,772,855	2,011,311	2,942,425	128,855	11,855,446

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

29. CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION (CONTINUED)

29. 銀行存款、庫存現金及其他現金流量信息(續)

(c) Reconciliation of liabilities arising from financing activities (Continued)

(c) 融資活動產生負債調節表(續)

Note: Bank loans, other borrowings and interest payables consist of bank loans, other loans from financial institutions, China Energy and related parties under China Energy and interest payables as disclosed in Notes 30 and 32 to the financial statements.

附註：銀行貸款、其他借款和應付利息包括銀行貸款，來自金融機構的其他貸款，來自國家能源集團及其下屬關聯方的其他貸款和應付利息，見財務報表附註30和32。

		Bank loans, other borrowings and interest payables 銀行貸款、 其他借款及 應付利息 RMB'000 人民幣千元 (Notes 30 and 32) (附註30及32)	Private placement notes 私人配售債務 融資工具 RMB'000 人民幣千元 (Note 30) (附註30)	Corporate bonds 公司債券 RMB'000 人民幣千元 (Note 30) (附註30)	Total 總計 RMB'000 人民幣千元
At 1 January 2018	於2018年1月1日	7,283,944	2,448,470	2,035,361	11,767,775
Changes from financing cash flows:	融資現金流變化：				
Proceeds from bank loans and other borrowings	銀行貸款及其他借款所得	9,879,000	-	-	9,879,000
Proceeds from issuance of private placement notes	發行私人配售債務融資工具和公司債券所得	-	1,000,000	-	1,000,000
Repayment of bank loans and other borrowings	償還銀行貸款及其他借款	(9,908,876)	-	-	(9,908,876)
Repayment of private placement notes	私人配售債務融資工具	-	(1,000,000)	-	(1,000,000)
Interest paid	支付利息	(373,982)	(104,994)	(103,000)	(581,976)
Total changes from financing cash flows	融資現金流變化總計	(403,858)	(104,994)	(103,000)	(611,852)
Other changes:	其他費用：				
Interest expenses (Note 8)	利息支出(附註8)	371,164	110,182	103,432	584,778
Capitalised borrowing costs (Note 8)	資本化貸款成本(附註8)	2,757	-	-	2,757
Total other changes	其他費用總計	373,921	110,182	103,432	587,535
At 31 December 2018	於2018年12月31日	7,254,007	2,453,658	2,035,793	11,743,458



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

29. CASH AT BANK AND IN HAND AND OTHER CASH FLOW INFORMATION (CONTINUED)

(c) Reconciliation of liabilities arising from financing activities (Continued)

Note: Bank loans, other borrowings and interest payables consist of bank loans, other loans from financial institutions, China Energy and related parties under China Energy and interest payables as disclosed in Notes 30 and 32 to the financial statements.

(d) Total cash outflow for leases:

29. 銀行存款、庫存現金及其他現金流量信息(續)

(c) 融資活動產生負債調節表(續)

附註： 銀行貸款、其他借款和應付利息包括銀行貸款，來自金融機構的其他貸款，來自國家能源集團及其下屬關聯方的其他貸款和應付利息，見財務報表附註30和32。

(d) 租賃活動現金流出：

		2019 <i>RMB'000</i> 人民幣千元
Within operating activities	經營租賃現金流出	30,639
Within financing activities	融資租賃現金流出	28,086
		58,725

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

30. BORROWINGS

30. 借款

(a) The long-term interest-bearing borrowings comprise:

(a) 長期帶息借款包括：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Bank loans	銀行貸款		
– secured (<i>Note (i)</i>)	– 抵押(<i>附註(i)</i>)	155,600	279,500
– unsecured	– 無抵押	–	59,200
Other loans from financial institutions (secured) (<i>Note (i)</i>)	來自金融機構的其他貸款(抵押) (<i>附註(i)</i>)	329,894	360,055
Other loans from China Energy (unsecured)	來自國家能源集團的其他貸款 (無抵押)	600,000	100,000
Other loans from a related party under China Energy (secured) (<i>Note (i)</i>)	來自國家能源集團下屬的關聯方的 其他貸款(抵押)(<i>附註(i)</i>)	–	171,526
Other loans from related parties under China Energy (unsecured)	來自國家能源集團下屬的關聯方的 其他貸款(無抵押)	–	160,000
Private placement notes (unsecured) (<i>Note (iii)</i>)	私人配售債務融資工具(無抵押) (<i>附註(iii)</i>)	2,011,311	2,453,658
Corporate bonds (<i>Note (ii)</i>)	公司債券(<i>附註(ii)</i>)	2,942,425	2,035,793
		6,039,230	5,619,732
Less: Current portion of long-term borrowings	減：長期借款的即期部分	(638,173)	(1,926,414)
		5,401,057	3,693,318



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

30. BORROWINGS (CONTINUED)

(a) The long-term interest-bearing borrowings comprise: (Continued)

Notes:

- (i) Secured long-term interest-bearing borrowings as at 31 December 2019 were secured by concession assets (Note 18), trade and bills receivables (Note 26) and long-term service concession receivables (Note 23).
- (ii) In August 2012, the Company issued corporate bonds of RMB4,000,000,000, which comprise 10-year corporate bonds of RMB2,000,000,000 issued at par and with a coupon rate of 5.15% per annum. The effective interest rates of the bonds is 5.24% per annum respectively. The corporate bonds is guaranteed by China Energy.

In September 2019, the Company issued 5-year corporate bonds of RMB900,000,000 with a coupon rate of 3.97% per annum. The effective interest rates of the bonds is 4.05% per annum. The corporate bonds are guaranteed by China Energy and GD Power Development Co.,Ltd. (“**Guodian Power**”) provided China Energy with counter-guarantee according to its shares in the Company. At the same time, Beijing Guodian Longyuan Environmental Engineering Co.,Ltd. (“**Longyuan Environmental**”) provides the same amount of counter-guarantee for Guodian Power in the form of letter of counter-guarantee.

- (iii) In 2016, the Company issued two tranches of 3-year private placement notes with face values of RMB1,000,000,000 and RMB400,000,000, respectively. The private placement notes are unsecured and issued at par and with coupon rates of 4.35% and 4.30% per annum, respectively. The effective interest rates of the placement notes are 4.67% and 4.63% per annum, respectively. The Company repaid two tranches of 3-year private placement notes with face values of RMB1,000,000,000 and RMB400,000,000 in February 2019 and March 2019.

In November 2018, the Company issued 3-year targeted financial instruments with a face value of RMB1,000,000,000 issued at par and with a coupon rate of 6% per annum. The effective interest rate of the targeted financial instruments is 6.15%.

30. 借款(續)

(a) 長期帶息借款包括：(續)

附註：

- (i) 於2019年12月31日，抵押的長期帶息借款為以特許經營權資產(附註18)、應收賬款及票據(附註26)、應收服務特許權長期應收款項(附註23)抵押。
- (ii) 於2012年8月，本公司發行公司債券人民幣4,000,000,000元，包括按面值發行的十年期公司債券人民幣2,000,000,000元，票面年利率為5.15%。此等債券的實際年利率為5.24%。該公司債券由國電擔保。

於2019年9月，本公司發行五年期公司債券人民幣900,000,000元，票面年利率為3.97%。實際票面年利率為4.05%。該公司債券由國家能源集團擔保以及廣東電力發展有限公司(「**國電電力**」)根據所持股份向國家能源集團提供反擔保。同時由本公司一家全資附屬公司龍源環保以反擔保函形式向國電電力提供同等金額反擔保。

- (iii) 於2016年，本公司分別發行了第一期和第二期面值總額分別為人民幣1,000,000,000元和400,000,000元的私人配售債券融資工具。期限為三年，無擔保，並按面值發行。票面利率分別為4.35%和4.30%。此等債券的實際年利率分別為4.67%和4.63%。公司已在2019年2月和3月分別償還了三年期私人配售債券融資工具人民幣1,000,000,000元和人民幣400,000,000元。

於2018年11月，本公司發行了面值總額為人民幣1,000,000,000元，期限為三年的定向債券融資工具。票面年利率和實際年利率分別為6%和6.15%。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

30. BORROWINGS (CONTINUED)

(a) The long-term interest-bearing borrowings comprise: (Continued)

In October 2019, the Company issued 3-year targeted financial instruments with a face value of RMB1,000,000,000 issued at par and with a coupon rate of 4.05% per annum. The effective interest rate of the targeted financial instruments is 4.37%. The targeted financial instruments are guaranteed by China Energy and Guodian Power provided China Energy with counter-guarantee according to its shares in the Company. At the same time, Beijing Guodian Longyuan Environmental provides the same amount of counter-guarantee for Guodian Power in the form of letter of counter-guarantee.

(b) The short-term interest-bearing borrowings comprise:

30. 借款(續)

(a) 長期帶息借款包括：(續)

於2019年10月，本公司發行了面值總額為人民幣1,000,000,000元，期限為三年的定向債券融資工具。票面年利率和實際年利率分別為4.05%和4.37%。該定向債券融資工具由國家能源集團擔保以及廣東電力發展有限公司(「國電電力」)根據所持股份向國家能源集團提供反擔保。同時由本公司一家全資附屬公司龍源環保以反擔保函形式向國電電力提供同等金額反擔保。

(b) 短期帶息借款包括：

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Bank loans	銀行貸款		
– secured (Note (i))	– 抵押(附註(i))	190,000	925,000
– unsecured	– 無抵押	5,030,000	4,534,000
Other loans	其他貸款		
– China Energy (unsecured) (Note (ii))	– 國家能源集團(無抵押) (附註(ii))	–	500,000
– related party under China Energy (unsecured) (Note (ii))	– 國家能源集團附屬(無抵押) (附註(ii))	460,000	150,000
Current portion of long-term borrowings	長期借款的即期部分	638,173	1,926,414
		6,318,173	8,035,414

Notes:

- (i) Secured short-term bank loans as at 31 December 2019 were secured by trade and bills receivables (Note 26).
- (ii) Other loans from a related party under China Energy as at 31 December 2019 are unsecured, bear interest rate at 4.13% (2018: loans from China Energy and a related party under China Energy bearing interest rates at 4.35% to 4.75%) per annum, and are repayable within one year.

附註：

- (i) 於2019年12月31日，抵押的短期帶息借款為以應收賬款及票據(附註26)抵押。
- (ii) 於2019年12月31日從國家能源集團附屬公司借入的其他貸款為無抵押貸款，年利率為4.13%(2018年：從國家能源集團及其附屬公司借入的貸款，年利率為4.35%-4.75%)，並於一年內支付。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

30. BORROWINGS (CONTINUED)

(c) The effective interest rates per annum on borrowings are as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Long-term	長期		
Bank loans	銀行貸款	4.75%–6.00%	4.75%–6.50%
Other loans	其他貸款	4.23%–5.40%	4.51%–5.63%
Private placement notes	私人配售債務融資工具	4.37%–6.15%	4.63%–6.15%
Corporate bonds	公司債券	4.05%–5.24%	5.24%
Short-term	短期		
Bank loans	銀行貸款	3.83%–5.22%	4.35%–6.13%
Other loans	其他貸款	4.13%	4.35%–4.75%

30. 借款(續)

(c) 借款年實際利率如下：

(d) The long-term borrowings are repayable as follows:

(d) 長期借款還款情況如下：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Within 1 year or on demand	1年內或要求時立即還款	638,173	1,926,414
After 1 year but within 2 years	1年以上但2年以內	1,609,885	709,277
After 2 years but within 5 years	2年以上但5年以內	3,774,442	2,976,334
After 5 years	5年以上	16,730	7,707
		6,039,230	5,619,732

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

31. TRADE AND BILLS PAYABLES

31. 應付賬款及票據

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Bills payable to:	應付票據：		
– sub-contractors and equipment suppliers	– 分包商及設備供貨商	269,482	182,649
– raw material suppliers	– 原材料供貨商	1,640,878	1,126,460
		1,910,360	1,309,109
Trade payables to:	應付賬款：		
– sub-contractors and equipment suppliers:	– 分包商及設備供貨商：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	81,302	54,046
– associates	– 聯營公司	–	1,038
– third parties	– 第三方	3,961,817	5,018,632
		4,043,119	5,073,716
– raw material suppliers:	– 原材料供貨商：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	19,151	29,488
– associates	– 聯營公司	4,215	3,651
– third parties	– 第三方	3,964,193	3,354,783
		3,987,559	3,387,922
		9,941,038	9,770,747

As at 31 December 2019 and 2018, the trade and bills payables of the Group were generally repayable within three months. All trade and bills payables were expected to be settled within one year.

於2019年及2018年12月31日，本集團的應付賬款及票據應一般於三個月內償還。預計所有應付賬款及票據將在一年之內結清。

An ageing analysis of the trade and bills payables as at the end of the reporting period, based on the invoice date, is as follows:

根據發票日期，報告期末應付賬款和應付賬款的賬齡分析如下：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Within 1 year	1年內	7,520,724	7,632,120
1 to 2 years	1至2年內	1,587,956	970,255
2 to 3 years	2至3年內	197,360	266,456
Over 3 years	3年以上	634,998	901,916
		9,941,038	9,770,747



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

32. OTHER PAYABLES

32. 其他應付款

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Interest payables	應付利息		
– China Energy	– 國家能源集團	392	665
– related parties under China Energy	– 國家能源集團下屬的關聯方	697	2,040
– third parties	– 第三方	6,272	12,021
Payables for purchase of property, plant and equipment and lease prepayments	購買物業、廠房及設備的應付款項及預付土地租賃款		
– related parties under China Energy	– 國家能源集團下屬的關聯方	13,492	13,492
– third parties	– 第三方	182,992	236,913
Deposits from	按金		
– sub-contractors (Note (i))	– 分包商(附註(i))	52,008	60,394
Other accruals and payables	其他預提金額與應付款項		
– China Energy (Note (ii))	– 國家能源集團(附註(ii))	601,700	601,700
– related parties under China Energy	– 國家能源集團下屬的關聯方	39,040	66,762
– associates	– 聯營公司	–	58
– third parties	– 第三方	241,178	320,432
Dividends payables	應付股息		
– non-controlling equity owners of subsidiaries	– 附屬公司非控股權益所有者	31,560	35,477
Current portion of lease liabilities	租賃負債中流動部分	30,852	–
Financial liabilities measured at amortised cost	按攤銷成本計量的金融負債	1,200,183	1,349,954
Provision for an outstanding litigation	未決訴訟的準備金	–	27,922
Payables for staff related costs	應付員工的相關成本	137,746	127,211
Payables for other taxes	應付其他稅項	111,641	95,841
Current portion of deferred income	遞延收益流動部分	20,375	–
		1,469,945	1,600,928

Notes:

- (i) The balances represent deposits from sub-contractors for contract bidding. The deposits will be released to sub-contractors upon the completion of the related bidding.
- (ii) The balances mainly represented an amount of RMB600,000,000 due to China Energy for repayment of a bank loan of RMB600,000,000 on behalf of Guodian Solar Co., Ltd. (“**Guodian Solar**”, a subsidiary of the Group disposal of in prior year) in the year ended 31 December 2016. All amounts due to China Energy are interest-free, unsecured and have no fixed terms of repayment.

附註：

- (i) 該款項指收取分包商的按金。招標結束之後，按金即還給分包商。
- (ii) 該款項為截止2016年12月31日止年度，國家能源集團作為保證人代為支付國電光伏有限公司(「**國電光伏**」，為本集團以前年度出售的附屬公司)6億元人民幣銀行借款而形成的墊款。所有款項均不帶息、無抵押且未規定還款期。

All of the other payables of the Group are expected to be settled within one year or are repayable on demand.

預計本集團的所有其他應付款項將於一年之內結清，或提出要求之後立即支付。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

33. CONTRACT LIABILITIES

33. 合同負債

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Contract liabilities arising from:	合同負債產生自：		
Sale of industrial products	銷售工業產品	1,159,802	942,167
Construction service	建造服務	1,014,841	665,988
		2,174,643	1,608,155

Contract liabilities represent advance received for the provision of construction service and sale of industrial products. The increase in contract liabilities in 2019 was mainly due to the increase in short-term advances received from customers in relation to the sales of wind turbines and the provision of construction services at the end of the year.

Included in the contract liabilities are amounts of RMB1,428,850,000 due to related parties under China Energy (2018: RMB1,111,881,000 due to related parties under China Energy and associates).

合同負債指為提供建造服務和銷售工業產品而收到的預收款。2019年合同負債增加的主要原因是年底銷售風電機與提供建造服務收到的短期預付款增加。

本集團合同負債包括應支付給國家能源集團下屬的關聯方的款項約為人民幣1,428,850,000元(2018年：人民幣1,111,881,000元應支付給國家能源集團下屬的關聯方及聯營公司)。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

34. INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION 34. 合併財務狀況表中的所得稅

(a) Tax recoverable/payable in the consolidated statement of financial position represents:

(a) 合併資產負債表中可收回／應付稅項：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Net tax recoverable at 1 January	於1月1日應付稅項淨額	(127,734)	(88,676)
Provision for the year (<i>Note 10(a)</i>)	本年度撥備(<i>附註10(a)</i>)	129,135	167,609
(Over provision)/under provision in respect of prior years (<i>Note 10(a)</i>)	過往年度(過度撥備)/撥備不足(<i>附註10(a)</i>)	(32,777)	16,254
Income tax paid	繳納的所得稅	(136,940)	(222,921)
Net tax recoverable at 31 December	於12月31日可收回稅項淨額	(168,316)	(127,734)
Representing:	包括：		
Income tax payable	應付所得稅	52,636	48,565
Tax recoverable	可收回稅項	(220,952)	(176,299)
		(168,316)	(127,734)

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

34. INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

34. 合併財務狀況表中的所得稅(續)

(b) Deferred tax assets and liabilities recognised:

(b) 已確認的遞延稅項資產及負債：

The components of deferred tax assets/liabilities recognised in the consolidated statement of financial position and the movements during the year are as follows:

合併資產負債表中確認的遞延稅項資產／負債以及在本年度的變化情況如下所述：

		Provision for impairment of assets	Tax losses	Unrealised profits on intra-group transactions 集團內部交易未 實現利潤	Deferred income	Provision for warranty	Intangible assets	Others	Total
		資產減值撥備 RMB'000 人民幣千元	稅項虧損 RMB'000 人民幣千元	RMB'000 人民幣千元	遞延收益 RMB'000 人民幣千元	質保金撥備 RMB'000 人民幣千元	無形資產 RMB'000 人民幣千元 (Note) (附註)	其他 RMB'000 人民幣千元	合計 RMB'000 人民幣千元
At 1 January 2018	於2018年1月1日	329,443	39,395	41,220	32,813	177,408	(126,994)	63,126	556,411
Credited/(charged) to profit or loss (Note 10(a))	計入/(扣減)損益 (附註10(a))	162,478	105,635	(6,224)	(7,111)	(18,087)	(2,336)	(33,527)	200,828
At 31 December 2018 and 1 January 2019	於2018年12月31日及 2019年1月1日	491,921	145,030	34,996	25,702	159,321	(129,330)	29,599	757,239
(Charged)/credited to profit or loss (Note 10(a))	(扣減)/計入損益 (附註10(a))	(118,841)	(15,055)	(17,713)	(5,986)	(34,940)	(17,781)	9,137	(201,179)
Charged to other comprehensive income	扣減其他綜合收益	-	-	-	-	-	-	(85,705)	(85,705)
At 31 December 2019	於2019年12月31日	373,080	129,975	17,283	19,716	124,381	(147,111)	(46,969)	470,355

Note:

Deferred tax liabilities in respect of intangible assets arose from the temporary differences in development costs and concession assets.

Reconciliation to the consolidated statement of financial position

附註：

關於無形資產所產生的遞延所得稅負債是由於開發成本與特許權資產的暫時性差異而產生的。

調節至合併財務狀況表

	2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Net deferred tax asset recognised in the consolidated statement of financial position	686,097	911,188
Net deferred tax liability recognised in the consolidated statement of financial position	(215,742)	(153,949)
	470,355	757,239



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

34. INCOME TAX IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)

(c) Deferred tax assets not recognised

In accordance with the accounting policy set out in Note 2(w), the Group has not recognised deferred tax assets in respect of unused tax losses and certain deductible temporary differences of RMB5,437,902,000 (2018: RMB4,448,098,000), as it is not probable that future taxable profits against which the losses or the temporary differences can be utilised will be available in the relevant tax jurisdictions and entities. As at 31 December 2019, the expiration of tax losses of the Group, if unused, is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
2019	2019	–	79,975
2020	2020	441,142	463,372
2021	2021	186,351	206,187
2022	2022	388,212	389,109
2023	2023	1,692,504	1,698,620
2024	2024	840,609	–
		3,548,818	2,837,263

(d) Deferred tax liability not recognised

At 31 December 2019, taxable temporary differences relating to undistributed profits and PRC statutory reserves of the PRC subsidiaries and associates amounted to RMB4,906,234,000 (2018: RMB3,972,466,000). No deferred tax liability was recognised in respect of these taxable temporary differences as dividends from subsidiaries and associates are not subject to withholding tax and the Group has no plan to dispose of these subsidiaries and associates in the foreseeable future.

34. 合併財務狀況表中的所得稅(續)

(c) 未確認的遞延稅項資產

根據附註2(w)中規定的會計政策，本集團未確認遞延稅項資產包括的未利用的稅項虧損與某些可抵扣的暫時性差異約為人民幣5,437,902,000元(2018年：人民幣4,448,098,000元)，因為在相關稅務管轄區域及實體內，將來不很可能產生可以使用此等未利用稅項虧損或暫時性差異的應納稅利潤。於2019年12月31日，本集團未利用的稅項虧損的期限如下：

(d) 未確認的遞延稅項負債

於2019年12月31日，關於中國附屬公司與聯營公司的未分配利潤及中國法定公積金的應納稅暫時性差異約為人民幣4,906,234,000元(2018年：人民幣3,972,466,000元)。關於此等應納稅暫時性差異，未確認任何遞延所得稅項負債，因為從附屬公司及聯營公司取得的股息不需繳納預繳稅，且在可預見的未來，本集團並無任何計劃出售此等附屬公司及聯營公司。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

35. PROVISION FOR WARRANTY

The movement of provisions for product warranty during the year is as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
At 1 January	於1月1日	667,341	847,516
Additional provisions made	額外撥備	353,753	69,676
Provision utilised	已使用撥備	(428,495)	(249,851)
At 31 December	於12月31日	592,599	667,341
Less: Current portion of provision for warranty	減：質保金撥備的即期部份	(320,736)	(92,597)
		271,863	574,744

Under the terms of the Group's sales agreements, the Group will rectify product defects of wind turbines, steam turbines and distributed control system products arising within one to five years of the date of sale. Provision is therefore made for the best estimate of the expected settlement under these agreements in respect of sales made within one to five years prior to the end of the reporting period.

The amount of the provision takes into account the Group's recent claim experience and the experiences of other companies for similar products and is only made where a warranty claim is probable.

35. 質保金撥備

本年度質保金撥備的變化如下：

根據本集團銷售協議條款規定，產品售出日期之後1-5年內風機、汽輪機與分布式控制系統產生的產品缺陷，本集團將進行保修。因此，就在報告期末之前的1-5年內的銷售，根據協議項下的預期償付金額的最佳估計作出了撥備。

根據本集團近年來的理賠經驗以及其他公司關於類似產品的處理經驗，確定此等質保撥備，並僅對很可能產生質保要求的情形提取撥備。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

36. DEFERRED INCOME

36. 遞延收益

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
At 1 January	於1月1日	318,933	368,557
Additions	增加	15,154	6,059
Credited to profit or loss	計入損益	(20,110)	(55,683)
At 31 December	於12月31日	313,977	318,933
Less: Portion classified as current liabilities	減：遞延收益的即期部分	(20,375)	-
Non-current portion	非即期部分	293,602	318,933

Deferred income mainly represents government grants relating to the construction of property, plant and equipment, as well as technology research funding related to environmental protection related assets, which would be recognised as income on a straight-line basis over the expected useful life of the relevant assets. The deferred income recognised is included in "other revenue" in profit or loss.

遞延收益主要包括政府給予關於物業、廠房及設備的建造補貼，以及關於相關環保資產的技術研發基金，根據直線法在相關資產的預計使用壽命期內確認收入。確認為遞延收益的款項包括在損益中的「其他收入」內。

37. OTHER NON-CURRENT LIABILITIES

37. 其他非流動負債

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
Long-term retention payables to third parties	應付第三方的長期質保金	687,786	510,522
Other non-current financial liabilities	其他非流動負債	6,370	6,370
		694,156	516,892

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

38. CAPITAL, RESERVES AND DIVIDENDS

38. 資本、儲備及股息

(a) Movements in components of equity

The reconciliation between the opening and closing balances of each component of the Group's consolidated equity is set out in the consolidated statement of changes in equity. Details of the changes in the Company's individual components of equity between the beginning and the end of the year are set out below:

(a) 權益組成部分的變動

合併權益變動表中列出了本集團合併權益中各組成部分的期初及期末餘額的調節情況。本公司權益各組成部分的年初及年末變化情況如下所述：

		Share capital	Capital reserve	PRC statutory reserve	Accumulated losses	Fair value reserve (non- recycling)	Total equity
		股本	資本儲備	中國法定 公積金	累計虧損	公允價值儲備 (不重新計入)	權益總額
		RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元	RMB'000 人民幣千元
Balance at 1 January 2018	2018年1月1日結餘	6,063,770	798,740	129,332	(4,448,505)	11,482	2,554,819
Changes in equity for 2018	2018年權益變化						
Profit for the year	本年度利潤	-	-	-	298,225	-	298,225
Other comprehensive income	其他綜合收益	-	-	-	-	(41,447)	(41,447)
Total comprehensive income	綜合收益總額	-	-	-	298,225	(41,447)	256,778
Balance at 31 December 2018 and 1 January 2019	2018年12月31號及 2019年1月1號餘額	6,063,770	798,740	129,332	(4,150,280)	(29,965)	2,811,597
Changes in equity for 2019	2019年權益變化						
Profit for the year	本年度利潤	-	-	-	705,762	-	705,762
Other comprehensive income	其他綜合收益	-	-	-	-	287,080	287,080
Balance at 31 December 2019	2019年12月31日餘額	6,063,770	798,740	129,332	(3,444,518)	257,115	3,804,439

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

38. CAPITAL, RESERVES AND DIVIDENDS (CONTINUED) 38. 資本、儲備及股息(續)

(b) Dividends

(i) Dividends payable to equity shareholders of the Company attributable to the year

The directors of the Company did not recommend the payment of a final dividend in respect of the years ended 31 December 2019 and 2018.

(ii) Dividends payable to equity shareholders of the Company attributable to the previous financial year, approved during the year

The directors of the Company did not approve or pay any dividend in respect of the previous financial year during the years ended 31 December 2019 and 2018.

(b) 股息

(i) 本年應付本公司權益股東股息

本公司董事會不建議派發截至2019年及2018年12月31日止年度末期股息。

(ii) 本年批准的上一個財年影響權益股東支付的股息

截至2019年及2018年12月31日止年度本公司董事會未批准或派發以前年度相關的股息。

(c) Share capital

Registered and issued share capital

(c) 股本

已註冊及發行的股本

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Ordinary shares, registered, issued and fully paid:	已註冊、發行且全部繳足的普通股：		
Domestic shares of RMB1.00 each At 1 January 2018, 31 December 2018 and 31 December 2019	國內股份，每股人民幣1元 於2018年1月1日，2018年12月31日及2019年12月31日	4,754,000	4,754,000
H shares of RMB1.00 each At 1 January 2018, 31 December 2018 and 31 December 2019	H股，每股人民幣1元 於2018年1月1日，2018年12月31日及2019年12月31日	1,309,770	1,309,770
Total At 31 December 2019 and 2018	總計 於2019年及2018年12月31日	6,063,770	6,063,770

The holders of ordinary shares are entitled to receive dividends as declared from time to time and are entitled to one vote per share at meetings of the Company. All ordinary shares rank equally with regard to the Company's residual assets.

普通股持有人有權收取不時公佈的股息，且每股在本公司會議上享有一票投票權。所有普通股對公司的剩餘資產享有同樣權利。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

38. CAPITAL, RESERVES AND DIVIDENDS (CONTINUED) 38. 資本、儲備及股息(續)

(d) Nature and purpose of reserves

(i) Capital reserve

Capital reserve mainly represents share premium, contributions from China Energy, and the difference between the considerations of acquisition or disposal of equity interests from/to non-controlling equity owners which is considered as equity transactions and the carrying amount of the proportionate net assets.

(ii) PRC statutory reserve

According to the Company's Article of Association, the Company is required to transfer 10% of its net profit as determined in accordance with accounting rules and regulations of the PRC to its statutory reserve until the reserve balance reaches 50% of the registered capital. The transfer to this reserve must be made before distribution of a dividend to equity shareholders. This reserve fund can be utilised in setting off accumulated losses or increasing capital of the Company and is non-distributable other than in liquidation.

(iii) Exchange reserve

Exchange reserve comprises all foreign exchange differences arising from the translation of the financial statements of operations that have functional currency other than the RMB which are dealt with in accordance with the accounting policies as set out in Note 2(z) to the financial statements.

(iv) Fair value reserve (non-recycling)

The fair value reserve (non-recycling) comprises the cumulative net change in the fair value of equity investments designated at FVOCI under IFRS 9 that are held at the end of the reporting period (Note 2(n)).

(d) 儲備性質及用途

(i) 資本儲備

資本儲備主要包括股份溢價、國家能源集團出資、以及向非控股權益所有者購買或出售權益的對價與相應淨資產賬面金額之間的差額。

(ii) 中國法定公積金

根據本公司的《公司章程》規定，要求本公司將根據中國會計準則及法規確定的淨利潤10%轉為本公司的法定公積金，直至公積金剩餘總額達到註冊資本的50%。必須在向權益股東分配股息之前，提取該公積金。該公積金可以用於彌補本公司的累計虧損或增資，並且除清算之外不得進行分配。

(iii) 匯兌儲備

匯兌儲備包括根據財務報表附註2(z)規定的會計政策換算非人民幣為功能性貨幣的業務的財務報表時所產生的所有匯兌差額。

(iv) 公允價值儲備(不重新計入)

公允價值儲備(不重新計入)包括於報告期末持有的，且根據國際財務報告準則第9號，將其指定為按公允價值計量且其變動計入其他綜合收益計量的金融資產(不重新計入)的公允價值的累計淨變動(附註2(n))。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

38. CAPITAL, RESERVES AND DIVIDENDS (CONTINUED) 38. 資本、儲備及股息(續)

(e) Distributability of reserves

In accordance with the Company's Article of Association, the net profit after tax of the Company for the purpose of dividends payment will be the lesser of (i) the net profit determined in accordance with the accounting rules and regulations of the PRC; and (ii) the net profit determined in accordance with IFRSs. As of 31 December 2019, the retained profits available for distribution are Nil (2018: Nil).

(f) Capital management

The Group's primary objective when managing capital is to safeguard the Group's ability to continue as a going concern, so that it can continue to provide returns for equity shareholders and benefits for other stakeholders, by pricing products and services commensurately with the level of risk and by securing access to financing at a reasonable cost.

The Group actively and regularly reviews and manages its capital structure to maintain a balance between the higher equity shareholder returns that might be possible with higher levels of borrowings and the advantages and security afforded by a sound capital position and makes adjustments to the capital structure in light of changes in economic conditions.

The Group monitors its capital structure on the basis of liability-to-asset ratio, which is calculated as total liabilities divided by total assets. The liability-to-asset ratio of the Group was 78% (2018: 77%).

There were no changes in the Group's approach to capital management during the year. Neither the Company nor any of its subsidiaries are subject to externally imposed capital requirements.

(e) 儲備的可分配性

根據《公司章程》，作為股息分配的本公司稅後淨利潤應為以下兩者之中的孰低者：(i)按照中國會計準則及法規確定的淨利潤；(ii)按照國際會計報告準則確定的淨利潤。於2019年12月31日，可供分配的留存利潤額為零(2018年：零)。

(f) 資本管理

本集團資本管理的主要目標是，通過根據風險水準對產品和服務定價，以及按照合理的成本取得融資，以保障本集團持續經營的能力，從而可以持續向權益股東提供回報並向其他利益關聯方提供益處。

本集團積極並且定期地審查並管理本集團的資本結構，在較高的借款水準情況下向權益股東提供較高回報的同時，保持本集團具有較好的資本優勢及安全性，並按照經濟形勢不斷調整本集團的資本結構。

本集團根據負債對資產比率監控本集團的資本結構。本集團的負債對資產比率為78%(2018年：77%)。

本年度本集團的資本管理方法沒有發生變更。本公司或其任何附屬公司均未有受外界施加的資本要求。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

39. FINANCIAL INSTRUMENTS BY CATEGORY

39. 按類別劃分金融工具

The carrying amounts of each of the categories of financial instruments as at the end of the reporting period are as follows:

截至報告期末，各類金融工具的賬面價值如下：

2019

2019

Financial assets	金融資產	Financial assets at fair value through other comprehensive income			Total
		Debt investments	Equity investments	Financial assets at amortised cost	
		以公允價值計量且其變動計入其他綜合收益的金融資產	以攤餘成本計量的金融資產		
		債務工具	權益工具	的金融資產	合計
		RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元
Amounts due from associates (Note 21)	聯營公司之欠款(附註21)	1,200	–	–	1,200
Other equity investments	其他權益工具投資	–	1,229,800	–	1,229,800
Other non-current financial assets	其他非流動資產	–	–	938,204	938,204
Trade and bills receivables	應收票據及應收賬款	1,690,592	–	8,118,675	9,809,267
Financial assets included in deposits, prepayments and other receivables (Note 27)	按金、預付款項及其他應收款項(附註27)	–	–	1,069,608	1,069,608
Restricted deposits	受限制存款	–	–	630,142	630,142
Cash at bank and in hand	銀行存款及庫存現金	–	–	4,186,922	4,186,922
		1,691,792	1,229,800	14,943,551	17,865,143

Financial liabilities	金融負債	Financial liabilities at amortised cost		Total
		以攤餘成本計量的金融負債	合計	
		RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元
Borrowings – current	短期借款		6,318,173	6,318,173
Trade and bills payables	應付票據及應付賬款		9,941,038	9,941,038
Financial liabilities included in other payables and accruals (Note 32)	計入其他應付款項的金融負債(附註32)		1,200,183	1,200,183
Borrowings – non-current	長期借款		5,401,057	5,401,057
Lease liabilities-non-current	租賃負債—非流動部分		98,003	98,003
Other non-current liabilities	其他非流動負債		694,156	694,156
			23,652,610	23,652,610

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)

(除特別註明外，金額單位為人民幣)

39. FINANCIAL INSTRUMENTS BY CATEGORY 39. 按類別劃分金融工具(續)

The carrying amounts of each of the categories of financial instruments as at the end of the reporting period are as follows:
(Continued)

截至報告期末，各類金融工具的賬面價值如下：(續)

2018		2018			
Financial assets	金融資產	Financial assets at fair value through other comprehensive income			Total
		以公允價值計量且其變動計入其他綜合收益的金融資產			
		Debt investments	Equity investments	Financial assets at amortised cost	
		債務工具	權益工具	的金融資產	合計
		RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元
Amounts due from associates (Note 21)	聯營公司之欠款(附註21)	1,200	–	–	1,200
Other equity investments	其他權益工具投資	–	858,415	–	858,415
Other non-current financial assets	其他非流動資產	–	–	1,245,031	1,245,031
Trade and bills receivables	應收票據及應收賬款	2,193,067	–	9,722,379	11,915,446
Financial assets included in deposits, prepayments and other receivables (Note 27)	按金、預付款項及其他應收款項(附註27)	–	–	1,053,330	1,053,330
Restricted deposits	受限制存款	–	–	274,830	274,830
Cash at bank and in hand	銀行存款及庫存現金	–	–	3,436,459	3,436,459
		2,194,267	858,415	15,732,029	18,784,711
Financial liabilities	金融負債	Financial liabilities at amortised cost			Total
		以攤餘成本計量的金融負債			合計
		RMB'000			RMB'000
		人民幣千元			人民幣千元
Borrowings – current	短期借款		8,035,414		8,035,414
Trade and bills payables	應付票據及應付賬款		9,770,747		9,770,747
Financial liabilities included in other payables and accruals (Note 32)	計入其他應付款項的金融負債(附註32)		1,349,954		1,349,954
Borrowings – non-current	長期借款		3,693,318		3,693,318
Other non-current liabilities	其他非流動負債		516,892		516,892
			23,366,325		23,366,325



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES

Exposure to credit, liquidity, interest rate and currency risks arises in the normal course of the Group's business.

The Group's exposure to these risks and the financial risk management policies and practices used by the Group to manage these risks are described below:

(a) Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in a financial loss to the Group. The Group's credit risk is primarily attributable to cash at bank and in hand, restricted deposits, trade and bills receivables, deposits and other receivables, long-term trade receivables and contract assets. The Group's exposure to credit risk arising from cash at bank is limited because the counterparties are banks and financial institutions with high credit standing, for which the Group considers to have low credit risk.

The Group does not provide any guarantees which would expose the Group to credit risk.

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer rather than the industry or country in which the customers operate and therefore significant concentrations of credit risk primarily arise when the Group has significant exposure to individual customers. At the end of the reporting period, 39% and 10% (2018: 44% and 12%) of the total trade and bills receivables, deposits and other receivables, long-term trade receivables and contract assets was due from China Energy and related parties under China Energy, the Group's largest customer, and the five largest remaining customers respectively.

40. 財務風險管理及公允價值

本集團的正常業務過程中存在信用、流動性、利率以及貨幣風險。

本集團面臨的此等風險以及本集團的財務風險管理政策及措施如下所述：

(a) 信用風險

信用風險指交易對手違背其合約責任導致本集團財務虧損的風險。本集團的信用風險主要來自銀行存款及庫存現金，受限存款，應收賬款及票據，按金及其他應收款項，長期應收款和合同資產。本集團承受的銀行現金信貸風險有限，因為交易對手是信譽良好的銀行和金融機構，本集團銀行存款均存放于信用狀況良好的銀行及金融機構，本集團評估認為其信用風險較低。

本集團未提供任何會使本集團承受信用風險的其他擔保。

本集團的信用風險主要受到每個客戶的具體情況影響，而不會受到客戶所從事行業或所處國家的影響，因此，當本集團頻繁地接觸個別客戶時，信用風險的集中度就會增加。於報告期末，分別有39%與10% (2018年：44%與12%) 的應收賬款及票據、按金及其他應收款、長期應收款及合同資產來自於國家能源集團及國家能源集團下屬的關聯方(本集團最大的客戶)和其餘的前五大客戶。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(a) Credit risk (Continued)

Individual credit evaluations are performed on all customers. These evaluations focus on the customer's past history of making payments when due and current ability to pay and take into account information specific to the customer as well as pertaining to the economic environment in which the customer operates. The Group generally requires customers to settle trade receivables in accordance with contracted terms and other debts in accordance with agreements. Credit terms may be granted to customers, depending on the nature of business. Normally, the Group does not obtain collateral from customers.

The Group measures loss allowances for trade receivables and contract assets that do not contain a significant financing component at an amount equal to lifetime ECLs, which is calculated using a provision matrix. And for trade receivables and contract assets that contain a significant financial component, bills receivable, deposits and other receivables at an amount equal to 12-month ECLs or lifetime ECLs upon whether the credit risk has increased significant after the initial recognition.

(a) 信用風險(續)

已對所有客戶進行了單獨信用評估。評估針對客戶過去的到期款項支付歷史及目前的支付能力，並考慮了客戶的具體情況，以及客戶營業所在地的整體經濟環境。總體上，本集團要求客戶按照合同條款結算應收賬款，並按照協議規定結清其他欠款。根據業務性質，可能會給予客戶一定的付款信用期限。通常，本集團不向客戶收取抵押物。

本集團計量不包含重大融資成分的應收賬款和合同資產的損失準備金，其金額等於整個存續期預期信用損失，並使用準備金矩陣進行計算。對於含有重大融資成分的應收賬款及合同資產，應收票據、按金及其他應收款，根據初始確認後信用風險是否顯著增加來估計其12個月的預期信用損失或整個存續期的預期信用損失。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(a) Credit risk (Continued)

Maximum exposure and year-end staging

The tables below show the credit quality and the maximum exposure to credit risk based on the Group's credit policy and year-end staging classification as at 31 December.

(a) 信用風險(續)

最大信用風險敞口及年末所處階段

下表根據集團的信貸政策和截至12月31日的年末所處階段分類顯示了信貸質量和最大信用風險敞口。

As at 31 December 2019	於2019年 12月31日	12-month ECLs	Lifetime ECLs			Simplified approach	POCI	Total
		十二個月 預期信貸損失	期限內預期信貸損失					
		Stage 1	Stage 2	Stage 3				
		第一階段	第二階段	第三階段	簡化方法	初始確認時 已減值資產	合計	
		RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	
		人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	人民幣千元	
Long-term receivables	長期應收款	742,749	14,926	-	-	199,928	957,603	
Contract assets	合同資產	822,800	-	-	4,390,480	-	5,213,280	
Trade receivables	應收賬款	671,894	-	-	9,447,851	-	10,119,745	
Bills receivable	應收票據	1,690,592	-	-	-	-	1,690,592	
Financial assets included in deposits, prepayments and other receivables	押金、預付款項及其他 應收款項							
- Normal*	- 正常	575,008	-	-	-	-	575,008	
- Doubtful*	- 可疑	-	768,945	585,743	-	46,926	1,401,614	
Restricted deposits	受限制存款							
- Not yet past due	- 尚未逾期	630,142	-	-	-	-	630,142	
Cash at bank and in hand	銀行存款及庫存現金							
- Not yet past due	- 尚未逾期	4,186,922	-	-	-	-	4,186,922	
		9,320,107	783,871	585,743	13,838,331	246,854	24,774,906	

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(a) Credit risk (Continued)

(a) 信用風險(續)

As at 31 December 2018	於2018年 12月31日	12-month ECLs 十二個月 預期信貸損失	Lifetime ECLs 期限內預期信貸損失			Simplified approach	POCI 初始確認 已減值資產	Total 合計
		Stage 1	Stage 2	Stage 3	RMB'000 人民幣千元			
Long-term receivables	長期應收款	952,770	154,926	-	-	-	597,714	1,705,410
Contract assets	合同資產	310,940	-	-	-	3,942,025	-	4,252,965
Trade receivables	應收賬款	466,612	-	-	-	11,334,138	-	11,800,750
Bills receivable	應收票據	2,193,067	-	-	-	-	-	2,193,067
Financial assets included in deposits, prepayments and other receivables	押金、預付款項及其他應收款項							
- Normal*	- 正常	402,448	-	-	-	-	-	402,448
- Doubtful*	- 可疑	-	836,198	585,743	-	-	-	1,421,941
Restricted deposits	受限制存款							
- Not yet past due	- 尚未逾期	274,830	-	-	-	-	-	274,830
Cash at bank and in hand	銀行存款及庫存現金							
- Not yet past due	- 尚未逾期	3,436,459	-	-	-	-	-	3,436,459
		8,037,126	991,124	585,743	15,276,163	597,714	25,487,870	

* The credit quality of the financial assets included in deposits, prepayments and other receivables is considered to be "normal" when they are not past due and there is no information indicating that the financial assets had a significant increase in credit risk since initial recognition. Otherwise, the credit quality of the financial assets are considered to be "doubtful".

* 按金，預付款項和其他應收款項中的金融資產的信用質量在未到期且沒有信息表明該金融資產自初始確認以來信用風險顯著增加時，被認為是「正常」。否則，金融資產的信用質量被認為是「可疑」。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

40. 財務風險管理及公允價值(續)

(b) Liquidity risk

The Group's objective is to ensure continuity of sufficient funding and flexibility by utilising a variety of bank loans and other borrowings with debt maturities spreading over a range of periods, thereby ensuring that the Group's outstanding borrowing obligation is not exposed to excessive repayment risk in any one year.

The Company is responsible for the Group's overall cash management and the raising of borrowings to cover expected cash demands. The Group's policy is to regularly monitor current and expected liquidity requirements to ensure that it maintains sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet its liquidity requirements in the short and longer term.

In order to enhance the Group's liquidity and solvency position, the Group has taken a series of measures and the directors of the Company are satisfied that the Group will have necessary liquid funds to finance its working capital and capital expenditure requirements according to the Group's business plan and cash flow forecast. With regards to its future capital commitments and other financing requirements, the Group has unutilised banking facilities of RMB17,483,268,000 (2018: RMB14,348,033,000) as at 31 December 2019. The directors of the Company are of the opinion that the assumptions which are included in the cash flow forecast are reasonable. However, as with all assumptions in regard to future events, these are subject to inherent limitations and uncertainties and some or all of these assumptions may not be realised.

(b) 流動性風險

為保證本集團具有足夠的連續資金以及資金靈活性，本集團採用多元化的銀行貸款及其他借款，債務到期日期較為分散，從而使本集團的還款義務不會過度地集中於任何一個年度。

本公司負責本集團的整體現金管理以及滿足所有現金需求的借款事宜。根據本集團的財務政策，本集團定期監控流動資金及預計流動資金的需求性，確保本集團具有足夠的現金儲備，並在主要金融機構中具有適當的資金承諾額度，從而滿足本集團長期以及短期的流動資金需求。

為了增強集團的資金流動性和償債能力，本集團已採取了多重措施。根據本集團的商業計劃和現金流量預測，公司董事同意本集團採用必要的流動資金為其運營資本和資本支出需求提供資金支持。關於本集團未來的資金承擔及其他融資要求，於2019年12月31日，本集團未動用銀行授信約為人民幣17,483,268,000元(2018年：人民幣14,348,033,000元)。本公司董事們認為，現金流預計的假設條件是合理的。然而，關於未來事件的所有假設條件本身均具有限制性及不確定性，某些或者所有此類假設條件均可能不會實現。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(b) Liquidity risk (Continued)

The following tables show the remaining contractual maturities at the end of the reporting period of the Group's non-derivative financial liabilities, which are based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on rates current at the end of the reporting period) and the earliest date the Group can be required to pay:

(b) 流動性風險(續)

下表列出了於報告期末，本集團非衍生金融負債的剩餘合同期限，依據是合同未貼現現金流(包括根據合同利率計算的利息款額，如果採用浮動利率，即為根據報告期末的利率計算的利息款額)，以及可能要求本集團支付的最早日期：

		2019					
		Contractual undiscounted cash outflow 合同未折現現金流出					
		Within 1 year or on demand 1年或以下 RMB'000 人民幣千元	More than 1 year but less than 2 years 1-2年 RMB'000 人民幣千元	More than 2 years but less than 5 years 2-5年 RMB'000 人民幣千元	More than 5 years 5年以上 RMB'000 人民幣千元	Total 合計 RMB'000 人民幣千元	Carrying amount 賬面價值 RMB'000 人民幣千元
Long-term borrowings (Note 30(a))	長期借款(附註30(a))	45,238	1,870,714	4,022,540	267,620	6,206,112	5,401,057
Short-term borrowings (Note 30(b))	短期借款(附註30(b))	6,434,110	-	-	-	6,434,110	6,318,173
Trade and bills payables (Note 31)	應付賬款及應付票據(附註31)	9,941,038	-	-	-	9,941,038	9,941,038
Other payables (Note 32)	其他應付款(附註32)	1,169,331	-	-	-	1,169,331	1,169,331
Other non-current liabilities (Note 37)	其他非流動負債(附註37)	-	131,070	451,783	111,303	694,156	694,156
Lease liabilities (Note 17)	租賃負債(附註17)	38,152	26,595	55,159	43,162	163,068	128,855

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(b) Liquidity risk (Continued)

(b) 流動性風險(續)

		2018							
		Contractual undiscounted cash outflow 合同未折現現金流出							
		More than More than 1 year but less than 2 years			More than 2 years but less than 5 years		More than 5 years 5年以上	Total 合計	Carrying amount 賬面價值
		Within 1 year or on demand 1年或以下	1-2年	2-5年	RMB'000 人民幣千元	RMB'000 人民幣千元			
Long-term borrowings (Note 30(a))	長期借款(附註30(a))	35,736	825,518	3,394,519	16,206	4,271,979	3,693,318		
Short-term borrowings (Note 30(b))	短期借款(附註30(b))	8,157,733	-	-	-	8,157,733	8,035,414		
Trade and bills payables (Note 31)	應付賬款及應付票據(附註31)	9,770,747	-	-	-	9,770,747	9,770,747		
Other payables (Note 32)	其他應付款(附註32)	1,349,954	-	-	-	1,349,954	1,349,954		
Other non-current liabilities (Note 37)	其他非流動負債(附註37)	-	112,749	404,143	-	516,892	516,892		

(c) Interest rate risk

(c) 利率風險

The Group's interest rate risk arises primarily from long-term borrowings. Borrowings issued at variable rates expose the Group to cash flow interest rate risk.

本集團的利率風險主要來自於長期借款。浮動利率借款使本集團暴露於現金流利率風險之下。

The Group regularly reviews and monitors the mix of fixed and variable rate borrowings in order to manage its interest rate risks. During the year, however, management of the Group did not consider it is necessary to use interest rate swaps to hedge their exposure to interest.

為了管理本集團的利率風險，本集團定期審查並監控固定利率及浮動利率借款的組合。然而，本集團管理層認為在本年度無需通過利率掉期，對沖本集團的利率風險。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(c) Interest rate risk (Continued)

(i) Sensitivity analysis

At 31 December 2019, it is estimated that for a general increase/decrease of 100 basis points in interest rates of net floating borrowings, with all other variables held constant, the Group's loss after tax would have increased/decreased and accumulated loss would have increased/decreased by approximately RMB1,027,000 (2018: profit after tax would have decreased /increased and accumulated loss would have increased/ decreased by approximately RMB6,367,000). Other components of consolidated equity would not be affected by the general increase/decrease in interest rates.

The sensitivity analysis above has been determined assuming that the change in interest rates had occurred at the end of the reporting period and had been applied to the exposure to interest rate risk for non-derivative financial instruments in existence at the end of the reporting period. The impact on the Group's loss after tax (and accumulated losses) and other components of consolidated equity is estimated as an annualised impact on interest expense or income of such a change in interest rates.

The estimated 100 basis points increase or decrease represents management's assessment of a reasonable change in interest rates over the period until the next annual statement of financial position date. The analysis is performed on the same basis for 2018.

(c) 利率風險(續)

(i) 敏感度分析

於2019年12月31日，預計淨浮動利率借款的利率普遍上漲／下調100個基點，其他所有變量保持不變，本集團的稅後利潤將增長／下降及累計虧損則將增長／下降約為人民幣1,027,000元(2018年：稅後利潤將減少／增加及累計損失將增加/減少約為人民幣6,367,000元)。合併權益的其他組成部份不會受到利率上漲／下調的影響。

做出上述敏感度分析的假設條件是利率變化發生在報告期末且套用於當日存在的非衍生金融工具的利率風險的敞口。對本集團稅後虧損(及累計虧損)及合併權益其他組成部份的影響是根據此利率變化對利息費用或收入的年度性影響而估計的。

估計的100個基點上漲／下調，是管理層對利率至下一年度財務狀況表日期間可能發生的匯率變化作出的合理評估。與2018年分析方法相同。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

40. 財務風險管理及公允價值(續)

(d) Currency risk

The Group is exposed to currency risk primarily through sales and purchases which give rise to receivables and payables, as well as borrowings and cash at bank and in hand that are denominated in a foreign currency, i.e. a currency other than the functional currency of the operations to which the transactions relate. The currencies giving rise to this risk are primarily USD and HKD.

(i) *Recognised assets and liabilities*

The Group is exposed to currency risk primarily arising from cash at bank, receivables, payables and borrowings which are denominated in USD or HKD. Depreciation or appreciation of these foreign currencies against RMB would affect the financial position and operating results of the Group. The Group did not hedge its foreign currency exposure.

RMB is not a freely convertible currency and the PRC government may at its discretion restrict access to foreign currencies for current account transactions in the future. Changes in the foreign exchange control system may prevent the Group from satisfying sufficient foreign currency demands and the Group may not be able to pay dividends in foreign currencies to its equity shareholders.

(d) 貨幣風險

本集團的貨幣風險主要為採用外幣(即與交易相關的業務自功能性幣種不同的其他貨幣)計價的來源於銷售及購買活動產生的應收款項及應付款項，以及借款及銀行存款及庫存現金。與該風險相關的幣種主要包括美元及港幣。

(i) *已確認資產及負債*

本集團的貨幣風險主要來源於採用美元或港幣計價的銀行存款、應收款項、應付款項及借款。此等外幣相對於人民幣的貶值或升值均會影響到本集團的財務狀況及經營業績。本集團未對沖外幣風險。

人民幣並非自由兌換貨幣，中國政府可自行決定將來限制來往帳戶交易採用的外幣。關於外匯控制制度的變化，可能妨礙本集團滿足對外幣的需求，本集團可能無法採用外幣向股東支付股息。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)

(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(d) Currency risk (Continued)

(ii) Exposure to currency risk

The following table details the Group's exposure at the end of the reporting period to currency risk arising from recognised assets or liabilities denominated in a currency other than the functional currency of the entity to which they relate. For presentation purposes, the amounts of the exposure are shown in RMB, translated using the spot rate at the end of the reporting period. Differences resulting from the translation of the financial statements of foreign operations into the Group's presentation currency are excluded.

		2019		2018	
		USD	HKD	USD	HKD
		美元	港幣	美元	港幣
		RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元
Cash at bank and in hand	銀行存款及庫存現金	63,413	63,869	24,742	33,082
Trade receivables	應收賬款	25,342	-	15,776	-
Other receivables	其他應收賬款	-	-	-	131,788
Net exposure	淨敞口	88,755	63,869	40,518	164,870

(iii) Sensitivity analysis

The followings are the related foreign currency exchange rates to RMB during the year:

		2019		2018	
		Average rate	Reporting date spot rate	Average rate	Reporting date spot rate
		平均匯率	現匯匯率	平均匯率	現匯匯率
		RMB'000	RMB'000	RMB'000	RMB'000
		人民幣千元	人民幣千元	人民幣千元	人民幣千元
USD	美元	6.9197	6.9762	6.6987	6.8632
HKD	港幣	0.8860	0.8958	0.8561	0.8762

(d) 貨幣風險(續)

(ii) 貨幣風險敞口

採用實體相關功能貨幣以外的其他幣種計價的確認資產或負債，使本集團及於報告期末承受的貨幣風險在下表中詳細列出。為陳述之目的，採用報告期末的現匯匯率折算為人民幣來列示貨幣風險。未包括將境外業務的財務報表轉換成本集團報告貨幣所產生的差額。

(iii) 敏感度分析

下表列出了本年度相關外幣與人民幣之間的匯率：

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(d) Currency risk (Continued)

(iii) Sensitivity analysis (Continued)

A 5% strengthening of RMB against the following currencies would result in exchange losses by the amounts as shown below. Other components of equity would not be affected by the strengthening of RMB against foreign currencies.

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
USD	美元	(3,679)	(1,659)
HKD	港幣	(2,528)	(6,183)
		(6,207)	(7,842)

A 5% weakening of RMB against the above currencies would have had the equal but opposite effect on the above currencies to the amounts shown above, on the basis that all other variables remain constant.

The sensitivity analysis has been determined assuming that the change in foreign exchange rates had occurred at the end of the reporting period and had been applied to the Group's exposure to currency risk for financial instruments in existence at that date, and that all other variables, in particular interest rates, remain constant.

The stated changes represent management's assessment of reasonably possible changes in foreign exchange rates over the period until the next annual statement of financial position date. The analysis is performed on the same basis for 2018.

(d) 貨幣風險(續)

(iii) 敏感度分析(續)

人民幣對如下貨幣5%的升值，匯兌損失如下表所列。權益的其他組成部份不會受到人民幣相對於外幣升值的影響。

人民幣相對於上述貨幣5%的貶值，如果所有其他變量保持不變，則對上述貨幣產生相同但相反的影響，影響金額如上表所列。

做出上述敏感度分析的假設條件是，匯率變化發生在報告期末且套用於當日存在的金融工具的貨幣風險敞口，且所有其他變量保持不變，尤其是利率未發生變化。

所陳述的匯率波動情況是管理層對至下一財務報表日期間可能發生的匯率變化的合理評估。分析方法同2018年的分析方法相同。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED)

(e) Fair value measurement

(i) Financial assets and liabilities measured at fair value

Fair value hierarchy

The following table presents the fair value of the Group's financial instruments measured at the end of the reporting period on a recurring basis, categorised into the three-level fair value hierarchy as defined in IFRS 13 *Fair Value Measurement*. The level into which a fair value measurement is classified is determined with reference to the observability and significance of the inputs used in the valuation technique as follows:

- Level 1 valuations: Fair value measured using only Level 1 inputs, i.e., unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date
- Level 2 valuations: Fair value measured using Level 2 inputs, i.e., observable inputs which fail to meet Level 1, and not using significant unobservable inputs. Unobservable inputs are inputs for which market data are not available
- Level 3 valuations: Fair value measured using significant unobservable inputs

The Group has the financial manager performing valuations for the financial instruments, including the unlisted equity securities. The financial manager reports directly to the chief financial officer and the audit committee. A valuation report with analysis of changes in fair value measurement is prepared by the financial manager at each interim and annual reporting date and is reviewed and approved by the chief financial officer. To coincide with the reporting dates, the financial manager holds discussion of the valuation process and results with the chief financial officer and the audit committee twice a year.

40. 財務風險管理及公允價值(續)

(e) 公允價值計量

(i) 按公允價值計量的金融資產及負債

公允價值層級

下表呈列本集團於報告期末按經常基準所計量的金融工具公允價值。該等金融工具已歸入國際財務報告準則第13號「公允價值計量」所界定的三個公允價值層級。本集團參照以下估值方法所採用的輸入值的可觀察程度和重要性，從而釐定公允價值計量數值所應歸屬的層級：

- 第1層級估值：僅使用1級輸入數據進行計量的公允價值，即計量之日相同資產或負債的活躍市場中未經調整的報價
- 第2層級估值：使用2級輸入數據進行計量的公允價值，即不符合1級要求且未使用不可觀察的重要輸入數據的可觀察輸入數據。不可觀察輸入數據是不存在市場數據的輸入數據
- 第3層級估值：使用不可觀察的重要輸入數據進行計量的公允價值

本集團的財務經理負責對金融工具(包括非上市權益證券)進行估值。該財務經理直接向總會計師和審計委員會匯報。該財務經理負責於在各中期及年度報告日期編備內載公允價值計量變動分析的估值報告，以供總會計師審批。該財務經理為配合以上報告日期，與總會計師及審計委員會一年兩次商討估值程序和結果。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(e) Fair value measurement (Continued)

(i) Financial assets and liabilities measured at fair value (Continued)

Fair value hierarchy (Continued)

The following table presents the financial instruments of the Group that are measured at fair value as at 31 December 2019:

(e) 公允價值計量(續)

(i) 按公允價值計量的金融資產及負債(續)

公允價值層級(續)

下表列示於2019年12月31日本集團按公允價值計量的金融工具：

		Fair value measurements as at 31 December 2019 categorised into			
		Fair value at 31 December 2019 於2019年 12月31日的 公允價值 RMB'000 人民幣千元	於2019年12月31日歸屬以下層級公允價值計量數值		
			Level 1 第一級 RMB'000 人民幣千元	Level 2 第二級 RMB'000 人民幣千元	Level 3 第三級 RMB'000 人民幣千元
Financial assets:	金融資產：				
Bills receivable	應收票據	1,690,592	-	1,690,592	-
Equity investments in a listed company	對上市公司的 其他權益投資	882,738	882,738	-	-
Equity investments in unlisted companies	對非上市公司的 其他權益投資	347,062	-	-	347,062

		Fair value measurements as at 31 December 2018 categorised into			
		Fair value at 31 December 2018 於2018年 12月31日的 公允價值 RMB'000 人民幣千元	於2018年12月31日歸屬以下層級公允價值計量數值		
			Level 1 第一級 RMB'000 人民幣千元	Level 2 第二級 RMB'000 人民幣千元	Level 3 第三級 RMB'000 人民幣千元
Financial assets:	金融資產：				
Bills receivable	應收票據	2,193,067	-	2,193,067	-
Equity investments in a listed company	對上市公司的 其他權益投資	607,198	607,198	-	-
Equity investments in unlisted companies	對非上市公司的 其他權益投資	251,217	-	-	251,217



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(e) Fair value measurement (Continued)

(i) *Financial assets and liabilities measured at fair value (Continued)*

Fair value hierarchy (Continued)

As at 31 December 2019 and 2018, there were no transfers between Level 1 and Level 2, or transfers into or out of Level 3.

The fair values of bills receivable were measured using the discounted cashflows model. The significant observable input used when measuring the fair values of bills receivable is the benchmark interest rate for one-year loans.

The fair values of unlisted equity investments designated at fair value through other comprehensive income have been estimated using a market-based valuation technique based on assumptions that are not supported by observable market prices or rates. The valuation requires the directors to determine comparable public companies (peers) based on industry, size, leverage and strategy, and calculates an appropriate price multiple, such as the price/earnings (“**P/E**”) multiple, price/book value (“**P/B**”) multiple, enterprise value to earnings before interest, tax depreciation and amortisation (“**EV/EBITDA**”) multiple of comparable listed companies adjusted for lack of marketability discount. For the year ended 31 December 2019, the range of P/B multiple is 0.9 to 3.5 (2018: 1.2 to 3.5). The P/E multiple and EV/EBITDA multiple is 18.1 (2018: 21.8) and 9.9 (2018: 10.3) respectively. The discount rates for lack of marketability are 25% to 30% (2018: 30%). The fair value measurement is positively correlated to the above multiples and negatively correlated to the discount for lack of marketability.

(e) 公允價值計量(續)

(i) 按公允價值計量的金融資產及負債(續)

公允價值層級(續)

於截至2018年及2019年12月31日，本集團未發生第1、2層級之間的轉換，或轉入或由第3層級轉出。

應收票據公允價值使用貼現現金流量模型計量。在計量應收票據公允價值時使用的重要可觀察輸入值為一年期貸款的基準利率。

基於無法取得可觀察的市場價格或比率的假設，以公允價值計量且其變動計入其他綜合收益的非上市權益工具的公允價值採用市場可比較企業法。該估值方法需要由董事基於行業、規模、槓桿及策略確定可比較上市企業，並計算一個合理的價格乘數，例如市場價格與盈利的比率(「**市盈率**」)，價格與賬面值的比率(「**市淨率**」)，企業價值與利息、稅費、折舊與攤銷之前與利潤的比率(「**企業價值與息稅攤折前利潤率**」)進行確定，並根據就缺乏市場流通性的折讓進行調整。截至2019年12月31日止12個月期間，市淨率的範圍為0.9-3.5(2018年：1.2-3.5)。市盈率和企業價值與息稅攤折前利潤率分別為18.1(2018年：21.8)和9.9(2018年：10.3)。就缺乏市場流通性折讓的範圍為25%至30%(2018年：30%)。由於缺乏適銷性，公允價值計量與上述倍數呈正相關，與折價呈負相關。

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

40. FINANCIAL RISK MANAGEMENT AND FAIR VALUES (CONTINUED) 40. 財務風險管理及公允價值(續)

(e) Fair value measurement (Continued)

(i) Financial assets and liabilities measured at fair value (Continued)

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Unlisted equity securities At 1 January	非上市股本證券 於1月1日	251,217	162,187
Adjustment on initial application of IFRS 9	IFRS9初始應用的調整	-	11,482
Additional securities recognised	已確認其他證券	-	71,572
Changes in fair value recognised in other comprehensive income	在其他綜合收益中確認的公允價 值變動	95,845	5,976
At 31 December	於12月31日	347,062	251,217

(e) 公允價值計量(續)

(i) 按公允價值計量的金融資產及負債(續)

(ii) Financial assets and liabilities measured at other than the fair value

The carrying amounts of the Group's financial instruments carried at cost or amortised cost were not materially different from their values as at 31 December 2019 and 31 December 2018 except for the following financial instruments, for which their carrying amounts and fair value are disclosed below:

(ii) 非按公允價值計量的金融資產及負債

按成本或攤餘成本入賬的本集團金融工具的賬面金額與其於2018年12月31日和2019年12月31日的數值並無重大差異，唯以下各項金融工具外，該等金融工具的賬面金額及公允價值披露如下：

		At 31 December 2019 於2019年12月31日		At 31 December 2018 於2018年12月31日	
		Carrying amount 賬面金額 RMB'000 人民幣千元	Fair value 公允價值 RMB'000 人民幣千元	Carrying amount 賬面金額 RMB'000 人民幣千元	Fair value 公允價值 RMB'000 人民幣千元
Fixed rate long-term bank loans and other loans	固定利率長期銀行貸款 及其他貸款	1,085,494	1,025,181	1,130,281	1,102,297
Private placement notes and corporate bonds	私募債券和公司債券	4,953,736	4,904,156	4,489,451	4,484,484
Other non-current liabilities	其他非流動負債	694,156	647,401	516,892	492,557

The fair value measurement of the above financial instruments were categorized into Level 2 and the fair value was measured using the discounted cashflows model. The significant observable inputs used when measuring the fair values are the benchmark interest rate for the loans with same period of People's Bank of China.

上述金融工具的公允價值計量被分為第二層級，公允價值使用貼現現金流模型來衡量。中國人民銀行同期貸款基準利率是衡量公允價值的重要可觀測輸入。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

41. COMMITMENTS

- (a) Commitments for the construction and acquisition of property, plant and equipment outstanding at 31 December 2019 not provided for in the financial statements were as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Contracted but not provided for	已訂約但未撥備予物業、 廠房及設備	152,578	24,231

(b) Operating lease commitments as at 31 December 2018

The Group leased certain of its land, buildings and structures, motor vehicles and other equipment under operating lease arrangement. As a lessee, the Group leases certain buildings through non-cancellable operating leases. These operating leases do not contain provisions for contingent lease rentals. None of the rental agreements contain escalation provisions that may require higher future rental payments.

41. 承擔

- (a) 合併財務報表中未列出的於2019年12月31日關於建造及購買物業、廠房及設備的資本承擔如下所述：

- (b) 於2018年12月31日，根據不可解除的經營租賃，未來應付的最低租賃付款總額如下所述：

集團經營租賃物包括土地，房屋及建築物，汽車和其他設備。本集團通過不可解除的經營租賃來租賃某些樓宇。該經營租賃合同不包含有關或有租金的條款。租賃合同中亦不包含將來可能需要交納更多應付租金款額的增值條款。

		2018 <i>RMB'000</i> 人民幣千元
Within 1 year	1年內	16,373
After 1 year but within 5 years	1年後但5年內	9,527
		25,900

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

42. CONTINGENT LIABILITIES

(a) Guarantees issued

At 31 December 2019, the Group provided bid and performance guarantees to customers for construction contracts and sale of wind turbines as follows:

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Bid guarantees provided to:	向如下公司提供的投標擔保：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	–	17,494
– third parties	– 第三方	200	26,342
Performance guarantees provided to:	向如下公司提供的履約擔保：		
– related parties under China Energy	– 國家能源集團下屬的關聯方	794,459	1,741,656
– third parties	– 第三方	257,173	703,481
		1,051,832	2,488,973

(b) Litigation contingencies

On 10 December 2019, Beijing Lucency Environment and Technology Co., Ltd. (“**Lucency**”), a subsidiary of the Group, delivered to Datong Huajian Water Treatment Co., Ltd. (“**Huajian Water Treatment**”), a non-controlling shareholder of Shanxi Xinyuan Environment Protection Resource Development Co., Ltd. the Notice of Termination of Certain Provisions of the Supplemental Contract on Equity Transfer and Amendment and Supplemental Agreement on the Supplemental Contract on Equity Transfer (“**Notice of Termination**”), notifying Huajian Water Treatment to terminate Items 1 to 10 under Article 1 of the Supplemental Contract on Equity Transfer and the Amendment and Supplemental Agreement on the Supplemental Contract on Equity Transfer, that is, terminating the entrusted operation and management relationship between Lucency and Huajian Water Treatment during 2020 to 2034, and require Huajian Water Treatment to return the remaining loans of RMB16,980,000.

On 18 February 2020, Lucency has submitted an arbitration application against Huajian Water Treatment to the Arbitration Commission to request for the ruling that some articles of the above contracts were terminated on 12 December 2019 and request for the ruling that Huajian Water Treatment repaid a loan of RMB16,980,000 to Lucency, and paid the relevant interest.

42. 或有負債

(a) 擔保款項

於2019年12月31日，本集團關於建造合同及風機銷售而向客戶作出的投標及履約擔保如下所述：

(b) 訴訟或有事項

2019年12月10日，集團附屬公司北京朗新明環保科技有限公司(以下簡稱**朗新明**)向山西新源環保資源開發有限責任公司的非控股股東大同華建水務有限公司(以下簡稱**華建水務**)發出了解除《關於股權轉讓的補充合同》部分條款、《關於〈股權轉讓的補充合同〉的修訂和補充協議》之通知函(以下簡稱**解除通知**)，通知華建水務解除《關於股權轉讓的補充合同》第一條第1至10項，並解除《關於〈股權轉讓的補充合同〉的修訂和補充協議》。即終止2020年至2034年朗新明和的華建水務之間的委託經營管理關係，要求華建水務歸還剩餘貸款人民幣16,980,000元。

2020年2月18日，朗新明向仲裁委員會提交了對華建水務的仲裁申請，要求裁定上述合同條款於2019年12月12日終止，並要求裁定華建水務向朗新明償還貸款人民幣16,980,000元，並支付相關利息。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

42. CONTINGENT LIABILITIES (CONTINUED)

(b) Litigation contingencies (Continued)

Pursuant to the Supplemental Contract on Equity Transfer, Huajian Water Treatment, shall entitle to revenue from the approved water sales volume of 80,000 tonnes per day with effect from 1 January 2015 as entrusted operation and management revenue. Since the basis of calculation of the entrusted operation and management revenue payable by Lucency to Huajian Water Treatment since 2015 (fixed water volume or actual treated water volume) is still under dispute between both parties, and negotiations are still underway, the amount of final entrusted operation and management revenue payable is uncertain. The amount of claim sued by Huajian Water Treatment of approximately RMB38,450,000 was not provided by the Group as at 31 December 2019.

On 25 March 2020, the arbitration has been duly accepted by the Arbitration Commission. Although the arbitration was so complicated that the outcomes cannot be determined at present, management believes that any results will not have a material adverse effect on the financial position, operating results and business of the Group. No provision has been recognised by the Group for this arbitration.

42. 或有負債(續)

(b) 訴訟或有事項(續)

根據《關於股權轉讓的補充合同》，華建水務應有權從2015年1月1日起，每天自經批准的8萬噸售水量中取得收益，作為委託經營管理收入。由於朗新明自2015年以來應向華建水務支付的委託經營管理收入(固定水量或實際處理水量)的計算基礎仍存在爭議，且談判仍在進行中，最終委託經營管理收入的金額仍不確定。截至2019年12月31日，截至2019年12月31日，本集團尚未向華建水務提供金額約人民幣38,450,000元的索賠。

2020年3月25日，仲裁委員會正式受理仲裁，由於仲裁過於複雜，目前無法確定結果，但管理層認為無論何種結果都不會對集團的財務狀況、經營業績和業務產生重大不利影響，故集團未對此項仲裁計提準備。

43. MATERIAL RELATED PARTY TRANSACTIONS

(a) Transactions with related parties

The Group is part of a larger group of companies under China Energy and has significant transactions and relationships with China Energy and related parties under China Energy.

Principal transactions which were carried out in the ordinary course of business are as follows:

43. 重大關聯方交易

(a) 與關聯方的交易

本集團是國家能源集團的眾多公司的一部份，與國家能源集團及國家能源集團下屬的關聯方之間具有重大交易量及重要關係。

在正常業務過程中與關聯方的其他主要交易如下所述：

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
<i>Sales of goods to</i>			
	出售商品予		
- China Energy	- 國家能源集團	16,713	33,793
- related parties under China Energy	- 國家能源集團下屬的關聯方	4,484,402	2,373,945
- associates	- 聯營公司	6,748	785
<i>Construction services provided to</i>			
	提供建造服務予		
- related parties under China Energy	- 國家能源集團下屬的關聯方	3,108,746	3,906,302
- associates	- 聯營公司	-	2,020

NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

43. MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED) 43. 重大關聯方交易(續)

(a) Transactions with related parties (Continued)

(a) 與關聯方的交易(續)

		2019	2018
		RMB'000	RMB'000
		人民幣千元	人民幣千元
<i>Services provided to</i>	<i>提供服務於</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	664,869	341,551
<i>Leases to</i>	<i>出租予</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	630,418	853,377
– associates	– 聯營公司	–	73,355
<i>Leases from</i>	<i>授租自</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	10,280	8,806
<i>Purchases of goods from</i>	<i>購買商品自</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	250,370	263,469
– associates	– 聯營公司	1,359	573
<i>Services provided by</i>	<i>服務提供自</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	61,889	52,357
– associates	– 聯營公司	4,426	4,382
<i>Interest expenses</i>	<i>利息費用</i>		
– China Energy	– 國家能源集團	23,048	23,649
– related parties under China Energy	– 國家能源集團下屬的關聯方	31,199	20,214
<i>Interest income</i>	<i>利息收入</i>		
– related parties under China Energy	– 國家能源集團下屬的關聯方	2,088	46,936
<i>Working capital provided to</i>	<i>提供週轉資金予</i>		
– associates	– 聯營公司	464	6,028
<i>Working capital repaid from</i>	<i>償還週轉資金自</i>		
– associates	– 聯營公司	–	13,180
<i>Loans received from</i>	<i>貸款借取自</i>		
– China Energy	– 國家能源集團	500,000	600,000
– related parties under China Energy	– 國家能源集團下屬的關聯方	1,360,000	1,640,000
<i>Loans repaid to</i>	<i>償還貸款於</i>		
– China Energy	– 國家能源集團	500,000	600,000
– related parties under China Energy	– 國家能源集團下屬的關聯方	1,381,526	745,000



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

43. MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED) 43. 重大關聯方交易(續)

(a) Transactions with related parties (Continued)

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
<i>Net deposits placed with</i>	<i>存入的存款淨額</i>		
- related parties under China Energy	- 國家能源集團下屬的關聯方	(574,129)	(768,208)
<i>Dividends paid to</i>	<i>支付股息予</i>		
- related parties under China Energy	- 國家能源集團下屬的關聯方	-	7,500
<i>Dividends received from</i>	<i>收取股息自</i>		
- related parties under China Energy	- 國家能源集團下屬的關聯方	36,871	5,915
- associates	- 聯營公司	49,028	83,802

(a) 與關聯方的交易(續)

(b) Outstanding balances, including commitment, with related parties

Details of the outstanding balances with related parties are set out in Notes 17, 21, 23, 25, 26, 27, 29, 30, 31, 32 and 33.

(b) 與關聯方的餘額、包括約定

附註17, 21, 23, 25, 26, 27, 29, 30, 31, 32與33對關聯方的餘額進行了詳細說明。

(c) Contributions to defined contribution retirement plans

The Group participates in various defined contribution retirement plans organised by relevant local government authorities and China Energy for its staff. As at 31 December 2019, there was no material outstanding contribution to post-employment benefit plans. Details of the defined contribution retirement plans are set out in Note 9(a) to the financial statements.

(c) 界定供款退休計劃的供款

本集團參加了相關政府機構及國家能源集團內部組織的各種界定供款退休計劃。於2019年12月31日，在退休福利計劃項下，沒有重大未支付供款。財務報表附註9(a)對界定供款退休計劃進行了詳細說明。

(d) Transactions with other government-related entities in the PRC

The Group operates in an economic regime currently dominated by entities directly or indirectly controlled, jointly controlled or significantly influenced by the PRC government and numerous government authorities and agencies (collectively referred to as "government-related entities"). China Energy, the parent and ultimate holding company of the Company, is a PRC state-owned enterprise and these government-related entities are also considered as related parties of the Group in this respect.

(d) 與中國其他政府相關實體之間的交易

在本集團目前從業的經濟體制之下，主導企業是由中國政府及各種政府機關及機構直接或間接控制、聯合控制或重大影響的實體(合稱為「政府相關實體」)。國家能源集團(本公司的母公司及最終控股公司)是中國的國有企業，此等政府相關實體因此也視為本集團的關聯方。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

43. MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED)

(d) Transactions with other government-related entities in the PRC (Continued)

Apart from transactions with China Energy and related parties under China Energy mentioned above, the Group conducts a majority of its business activities with other government-related entities in the ordinary course of business. These transactions are carried out at terms similar to those that would be entered into with non-government-related entities.

The Group prices its services and products based on the commercial negotiations. The Group has also established its approval process for sales of goods, provision of services, purchases of products and services and its financing policy for borrowings. Such approval process and financing policy do not depend on whether the counterparties are government-related entities or not.

Having considered the potential for transactions to be impacted by related party relationships, the Group's approval processes and financing policy, and what information would be necessary for an understanding of the potential effect of the relationship on these financial statements, the directors of the Company are of the opinion that further information about the following transactions that are collectively significant is required for disclosure:

– **Sales of goods and provision of construction services**

The Group sells its goods and provides construction services to a wide range of government-related power companies and manufacturing enterprises.

– **Deposits and borrowings**

The Group deposits most of its cash in government-related financial institutions, and also obtains short-term and long-term loans from these financial institutions in the ordinary course of business. The interest rates of the bank deposits and loans are regulated by the People's Bank of China.

43. 重大關聯方交易(續)

(d) 與中國其他政府相關實體之間的交易(續)

除上述與國家能源集團及其下屬關聯方之間的交易之外，在正常業務過程中，本集團大部份業務活動是與其他政府相關實體交易的。此等交易的執行條款與非政府相關實體的交易條款相似。

本集團根據市場談判條件對服務及產品定價。關於貨物銷售、服務提供、產品及服務的購買，本集團已建立了審批程序，並建立了關於借款方面的融資政策。此類審批程序及融資政策並不考慮交易對方是否是政府相關實體。

考慮到關聯方關係對交易的潛在影響、本集團的審批程序以及融資政策，以及為了解關聯關係對財務報表的潛在影響而需要的信息，本公司董事們認為，對於具有整體重大意義的如下交易，需要披露進一步的詳細信息：

– **貨物銷售及施工服務的提供**

本集團向各種政府相關電力公司及製造企業銷售貨物並提供建造服務。

– **存款及借款**

本集團的大部份現金存於政府相關的金融機構，且在正常業務過程中也從此類金融機構獲取短期及長期貸款。銀行存款及貸款利率由中國人民銀行制定。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

43. MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED) 43. 重大關聯方交易(續)

(d) Transactions with other government-related entities in the PRC (Continued)

– Purchases of materials and receiving construction services

The Group purchases materials and receives construction services from a wide range of government-related manufacturing enterprises and construction contractors.

– Service concession arrangements

The Group entered into a number of service concession agreements with local governments to construct and operate water treatment plants during the concession period. All transactions under the service concession arrangements were made with local governments and carried out at terms set out in the respective service concession arrangements.

(e) Key management personnel remuneration

Key management personnel are those persons holding positions with authority and responsibility for planning, directing and controlling the activities of the Group, directly or indirectly, including the Company's directors.

Remuneration for key management personnel, including amounts paid to the Company's directors as disclosed in Note 11 to the financial statements, and certain of the highest paid employees as disclosed in Note 12 to the financial statements, is as follows:

(d) 與中國其他政府相關實體之間的交易(續)

– 材料購買及獲得建造服務

本集團向各種政府相關製造企業購買材料並向各種政府相關建造承包商獲取建造服務。

– 服務特許權安排

本集團已與當地政府簽訂了多項特許權服務協議，在特許期限之內，負責建設以及經營污水處理廠。服務特許權協議項下的所有交易均是與地方政府作出的，且在各自的特許權安排中規定了交易執行條款。

(e) 主要管理人員薪酬

主要管理人員指對其所處職位具有權力與責任、可直接或間接地規劃、領導以及控制本集團的活動的個人，包括本公司的董事們。

關於主要管理人員的薪酬如下，包括財務報表附註11中披露的支付給本公司董事們的金額，以及財務報表附註12中披露的若干薪酬最高的僱員：

		2019 <i>RMB'000</i> 人民幣千元	2018 <i>RMB'000</i> 人民幣千元
Salaries and other emoluments	工資及其他薪金	5,177	6,804
Discretionary bonus	酌情花紅	2,311	2,009
Retirement scheme contributions	退休計劃供款	904	1,088
		8,392	9,901



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

43. MATERIAL RELATED PARTY TRANSACTIONS (CONTINUED)

(f) Applicability of the Listing Rules relating to connected transactions

The related party transactions with China Energy and related parties under China Energy in respect of the sale and purchase of goods, the provision and receipt of services, the lease and the deposits placed with Guodian Finance Co., Ltd., as disclosed in note 43(a), constitute connected transactions or continuing connected transactions as defined in Chapter 14A of the Listing Rules. The disclosures required by Chapter 14A of the Listing Rules are provided in the section “Connected transactions” of the Director’s Report of the Group for the year ended 31 December 2019.

44. SERVICE CONCESSION ARRANGEMENT

The Group entered into a number of service concession agreements with local governments (the “Grantors”) to construct and operate water treatment plants during the concession period, which is normally for 20 to 32 years of operation. The Group is responsible for construction and operation of water treatment plants during the concession period. At the end of the concession period, the Group needs to transfer water treatment plants to the Grantors at nil consideration. With respect to these service concession arrangements, the Group has evaluated and assessed that these arrangements fall under the scope of IFRIC 12, Service Concession Arrangements (“IFRIC 12”).

In accordance with IFRIC 12, the Group accounts for the revenue and costs relating to construction services in accordance with the accounting policy set out in Note 2(y) to the financial statements. The consideration received or receivables in exchange for the construction services is recognised as a financial asset for an unconditional contractual right to receive cash or another financial asset from or at the direction of the Grantor for the construction services and/or an intangible asset for a right or a licence to charge users of the water treatment service.

The Group has recognised intangible assets (Note 18) and service concession receivables (Note 23) related to the service concession arrangement representing the right the Group received to charge a fee for water treatment or sale of reclaimed water and the guaranteed minimum payment during the operating period of the water treatment plants respectively.

Service concession construction revenue recorded during the year amounted to RMB283,461,000 (2018: RMB14,271,000), which represents the revenue recognised during the construction stage of the service concession period. The Group has recognised a profit of RMB41,153,000 (2018: RMB2,746,000) for the construction of water treatment plants.

43. 重大關聯方交易(續)

(f) 與關聯交易有關的上市規則的適用性

如附註43(a)所示，與國家能源集團及其下屬關聯方在貨物買賣、提供和接受服務、租賃以及存放在國電財務有限公司的款項等方面的關聯方交易構成《上市規則》第14A章所定義的關聯交易或持續關聯交易。《上市規則》第14A章要求披露的信息，見本集團2019年12月31日董事會報告的「關聯交易」一節。

44. 服務特許權安排

本集團與地方政府(「授權方」)簽訂了多項服務特許權協定，在特許權期限之內，負責建設及營運水處理廠，該期限一般為20–32年。在特許權期限之內，本集團負責水處理廠的施工建設以及經營。特許權期滿之後，本集團需要以零對價將水處理廠轉讓給授權方。關於此等服務特許權安排，經本集團評估，此等安排符合《國際財務報告準則詮釋》第12號—「服務特許權安排」(「《國際財務報告準則詮釋》第12號」)。

根據《國際財務報告準則詮釋》第12號規定，本集團根據財務報表附註2(y)中陳述的會計政策處理建造服務相關的收入及成本。建造服務的已收或應收對價，就自授權方或按授權方的指示收取現金或其他金融資產的不附帶條件契約權確認為一項金融資產，和/或就向水處理服務之使用者收取費用的權利或許可確認為一項無形資產。

關於服務特許權安排，本集團已確認無形資產(附註18)及服務特許權應收款項(附註23)，分別表示本集團收取水處理費用或銷售中水的權利，以及水處理廠運營期間的保證最低付款額。

本年度服務特許權建造收入約為人民幣283,461,000元(2018年：人民幣14,271,000元)，即為在服務特許權期間的建造階段所確認的收入。本集團已確認有關建造水處理廠的利潤約為人民幣41,153,000元(2018年：人民幣2,746,000元)。



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED)

財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
(除特別註明外，金額單位為人民幣)

45. COMPANY-LEVEL STATEMENT OF FINANCIAL POSITION 45. 公司層面的財務狀況表

		2019 RMB'000 人民幣千元	2018 RMB'000 人民幣千元
Non-current assets	非流動資產		
Property, plant and equipment	物業、廠房及設備	975,429	1,027,779
Investment properties	投資性物業	855,403	888,220
Intangible assets	無形資產	20,208	21,281
Interests in subsidiaries	對附屬公司的投資	4,382,074	4,382,074
Interests in associates	對聯營公司的投資	89,600	89,600
Other equity investments	其他權益投資	1,228,051	855,265
Total non-current assets	非流動資產總額	7,550,765	7,264,219
Current assets	流動資產		
Inventories	存貨	426	331
Trade and bills receivables	應收賬款及票據	173,743	160,436
Deposits, prepayments and other receivables	按金、預付款項及其他應收款項	3,621,822	2,936,209
Cash at bank and in hand	銀行存款及庫存現金	325,734	311,486
Total current assets	流動資產總額	4,121,725	3,408,462
Current liabilities	流動負債		
Borrowings	借款	2,622,260	4,691,585
Trade and bills payables	應付賬款及票據	17,597	14,434
Other payables and accruals	其他應付款項	131,014	117,198
Total current liabilities	流動負債總額	2,770,871	4,823,217
Net current assets/(liabilities)	流動負債淨額	1,350,854	(1,414,755)
Total assets less current liabilities	資產總額減流動負債	8,901,619	5,849,464
Non-current liabilities	非流動負債		
Borrowings	借款	5,011,475	3,037,867
Deferred tax liabilities	遞延所得稅負債	85,705	-
Total non-current liabilities	非流動負債總額	5,097,180	3,037,867
NET ASSETS	資產金額	3,804,439	2,811,597
CAPITAL AND RESERVES	資本及儲備		
Share capital	股本	6,063,770	6,063,770
Reserves	儲備	(2,259,331)	(3,252,173)
TOTAL EQUITY	權益總額	3,804,439	2,811,597



NOTES TO THE FINANCIAL STATEMENTS (CONTINUED) 財務報表附註(續)

(Amounts expressed in RMB unless otherwise stated)
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46. SUBSEQUENT EVENT

Since the outbreak of the novel coronavirus (“**COVID-19**”) across Mainland China in January 2020, the Group temporarily suspended operations for approximately two weeks in early February 2020 to mid-February to protect the Group’s employees. The Group believes that the COVID-19 outbreak may have a material impact on its results of operations in the first quarter of 2020 considering that the Group suspended production temporarily and delayed the projects due to the delay of work resumption of its suppliers or customers. However, it is difficult to estimate the full impact at present given the dynamic nature of these circumstances. The Group will keep continuous attention on the situation of the COVID-19, assess and react actively to its impacts. The related impact will be reflected in 2020 interim and annual consolidated financial statements of the Group.

47. APPROVAL OF THE FINANCIAL STATEMENTS

The consolidated financial statements were approved and authorised for issue by the board of directors on 17 April 2020.

46. 期後事項

自2020年1月新型冠狀病毒疫情(「**COVID-19**」)在中國大陸爆發以來，為保護本集團員工，本集團於2020年2月初至2月中旬暫停運營約兩周。本集團認為，考慮到因供應商或客戶延期復工，本集團暫時停產並推遲項目，疫情可能對公司2020年第一季度經營成果產生重大影響。然而，鑒於這些情況是動態變化的，目前很難估計其全面影響。本集團將持續關注疫情的情況，積極評估及應對其影響。相關影響將反映在本集團2020年中期和年度合併財務報表中。

47. 批准財務報表

董事會於2020年4月17日批准及授權刊發合併財務報表。



国家能源集团
CHN ENERGY

國電科技環保集團股份有限公司

GUODIAN TECHNOLOGY & ENVIRONMENT GROUP CORPORATION LIMITED*

(於中華人民共和國註冊成立的股份有限公司)
(a joint stock limited liability company incorporated in the People's Republic of China)

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財務報告



公司公告



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