

Power Assets is an investor in high quality energy businesses around the world. We operate a portfolio of carefully selected companies with predictable income streams in well-regulated, mature markets. Our associate or joint venture companies are based in the UK, Hong Kong, Australia, New Zealand, mainland China, Thailand, the Netherlands, Portugal and Canada. They operate in the electricity generation, transmission and distribution businesses, as well as gas distribution.



However we are far more than just a holding company. With over a century of experience in the energy sector we are invested in the long-term success of our companies in more ways than one. We provide strategic support, share best practice across the Group and provide the financial backing needed for our businesses to innovate and succeed in today's fast-evolving power sector. In 2015, we acquired one of Portugal's leading wind farm operators, enhancing our renewables portfolio and presence in mainland Europe.

Tsai Chao Chung, Charles Chief Executive Officer



## UNITED KINGDOM

#### **UK Power Networks**

Power Assets share: 40% Joined since: Oct 2010 Network length: 187,300 km No. of customers: 8,203,000

#### Northern Gas Networks

Power Assets share: 41.29% Joined since: Jun 2005 Gas pipeline length: 36,100 km No. of customers: 2,700,000

#### Wales & West Utilities

Power Assets share: 30% Joined since: Oct 2012 Gas pipeline length: 34,800 km No. of customers: 2,511,000

#### Seabank Power

Power Assets share: 25% Joined since: Jun 2010 Gas-fired combined cycle gas turbine: 1,134 MW

The UKPN warehouse and logistics team is instrumental in its high efficiency performance.



## CEO'S REPORT



UKPN invests systematically in network improvement.

The UK remains the Group's biggest market, with four operating companies spanning electricity generation, and electricity and gas distribution sectors. The four companies serve a total of 13.4 million customers and operate 187,300 km of electricity distribution networks and 70,900 km of gas distribution pipelines. The Group's UK companies exceeded expectations in financial results and operational efficiencies, as well as customer service.

Under the RIIO (Revenue = Incentives + Innovation + Outputs) regime, customer service is an important metric that determines the financial incentives that electricity and gas distribution networks receive from the regulator, Office of the Gas and Electricity Markets (Ofgem). Customer service performance is rated through the Broad Measure of Customer Satisfaction (BMCS). This year the Group's UK operating companies were once again recognised as industry leaders in the provision of outstanding customer service by Ofgem, industry and consumers, qualifying to receive meaningful BMCS incentives.

#### **UK Power Networks**

UK Power Networks (UKPN) owns, operates and manages three of the 14 regulated electricity distribution networks in the UK. It also operates a number of private electricity networks including the Heathrow, Gatwick and Stansted Airport networks and networks for the Ministry of Defence. With regulated networks in London, the South East and the East of England, UKPN is one of the largest electricity distribution network owners in the UK.

UKPN distributed 79,625 GWh of power in 2015. The number of connected customers increased to 8.2 million and network length to 187,300 km.

During 2015, work continued on UKPN's business transformation programme, a major project to upgrade the IT systems and business processes across the company with the second and third of five planned releases going live on target. The first release (in 2014)



## Kingsgate House substation project

During the year UKPN completed work on a major project: a 132 kV/11kV main substation in collaboration with Land Securities, a major customer. With a new three-storey underground substation and associated 6 km of new 132 kV cable circuits, the project will provide additional capacity in a high-profile part of central London. The work was successfully completed to an exacting customer specification with construction and energisation achieved in 18 months.

automated a major proportion of back-office tasks and rendered them paperless. The 2015 releases introduced new systems and processes associated with connecting new customers and asset management.

The company remained on track with its timetable of network maintenance, replacement and reinforcement works spending over £500 million on improvement projects.

UKPN improved customer service and qualified for awards under Ofgem's BMCS incentive scheme. Its scores, based

on monthly telephone polls of customers, stood at an average of 8.5 out of a maximum of 10. Supply standards also improved with UKPN achieving an average of just 31 customer minutes lost and 40 customer interruptions.

UKPN retained its status as an employer of choice and was listed in the well-recognised 'Sunday Times top 25 best big companies to work for' competition, the first utility network company to achieve this status in the UK.

### **Utility Week Awards**

UKPN has achieved noteworthy success since inception at becoming a top-class performer in the electricity distribution industry. Its track record of excellence was recognised at the 2015 annual Utility Industry Awards ceremony at the Grosvenor House Hotel. UKPN was awarded the prestigious 'Utility of the Year' for the second time in four years.

The company, which was described by the judges as having a "golden year", was praised for its outstanding customer service, exemplary safety performance, focus on innovation as well as speed of response.

UKPN also won three other awards, including the Smart Utilities Award, the Customer Care Award and Marketing Initiative of the Year. It was highly commended in the Staff Development category for its innovative Stay Safe training scheme.



## Northern Gas Networks

Northern Gas Networks (NGN) runs the North of England Gas Distribution Network, one of the eight distribution networks in the UK, transporting about 13% of the UK's gas. NGN also maintains and modernises gas mains within its network and provides essential gas connections and gas emergency services.

NGN's total gas throughput in 2015 was 69,400 GWh with a slight increase in the number of customers to 2.7 million.

Operational and safety performance remained strong during the year with all key statutory targets achieved. NGN remained the most efficient of the eight UK gas distribution networks and has achieved encouraging incentives arising from outstanding performance.

During 2015, NGN incurred £119.7 million on network improvement, replacement projects and the installation of new IT infrastructure. This included a network extension project launched in 2009 to help alleviate fuel poverty in its areas of coverage as well as a large-scale mains replacement programme, decommissioning over 500 km of old iron mains and replacing them with modern plastic pipes.

## Wales & West Utilities

Wales & West Utilities (WWU) is a gas distribution business operating gas distribution pipelines in Wales and the South West of England, covering 17% of the UK's surface area, comprising 42,000 sq km of a diverse mix of urban and rural geography.

WWU supplied 57,962 GWh of gas to 2.5 million customers with an employee and contractor base of

NGN's award-winning plant purifies biogas for injection into the grid.



NGN engineers evaluating green 'pre-heating' technologies during trials.

approximately 2,000. All RIIO targets for 2015 with respect to customer service and the environment were achieved and the company is ahead of schedule on a number of longer-term targets.

WWU pressed ahead with its efforts to promote biomethane connections as part of its effort to promote sustainable energy. It installed its 12<sup>th</sup> biomethane network connection during the year, the highest among gas distribution networks in the UK.

The year saw WWU build on the economies achieved during the previous year through the use of IT. A major real-time management information reporting system was rolled out to provide across-the-board visibility of the company's outputs and performance under the RIIO regulatory regime. A number of mobile apps were launched to improve customer service excellence and the quality of data collection from the field force. The company's Online Quotation portal handled some 5,800 enquiries in the year, this portal reduces the amount of waiting time for customers wanting a connection to the gas network.



WWU uses innovation conferences to showcase its developments.

Customer service excellence remained a key focus and WWU retained its top spot in the UK on this parameter for the most recent regulatory year reported to Ofgem (2014/15), achieving an improved BMCS customer satisfaction survey score of 9.05. Its leadership, green efforts and innovation were recognised by Ofgem with a favourable discretionary reward.

#### Seabank Power

Seabank Power (SPL) is the Group's UK generation business, located near Bristol. The company operates two combined-cycle gas turbine generation units – a 766 MW module and a 368 MW module.

During the year SPL achieved steady results, generating 1,991 GWh units of electricity and plant availability stood at 98.8%. Operationally SPL delivered very high availability, enabling it to achieve its income targets. Forced outage, starting performance and plant trips were all significantly better than target.

All electricity generated by SPL is supplied to SSE Generation Ltd. under a long-term power purchase agreement (PPA) based on availability. Despite load factors fluctuating because of the varying marginal cost of electricity generated by different fuel types, the PPA ensures a steady income stream, insulating SPL from these market fluctuations.

A lifetime extension maintenance overhaul will take place on Module 2 generation unit in 2016.

# Celebrating a decade's commitment to service

2015 saw WWU celebrate a decade of operations. Headquartered in Newport in South Wales, it now serves 2.5 million supply points, covering a population of 7.5 million. With network pipelines extending nearly 35,000 km, WWU also provides gas emergency services, responding to over 90,000 gas escapes per year, of which over 80% are domestic faults not on the network.

WWU's area of coverage is extremely diverse, including a few areas of high urban density and rural areas noted for difficult terrain, low supply point density, poor road infrastructure and communications black spots. Central to its success over the past decade have been WWU's values of safety, sustainability and service. These are combined with an ongoing emphasis on delivering value for money and investing in people.

During the year the company marked the 10-year milestone through engagement with local communities and renewed its commitment to excellence in the decade ahead.



## HONG KONG

#### The Hongkong Electric Company

Power Assets share: 33.37% Year established: 1889 Total installed capacity: 3,737 MW Network length: 6,200 km No. of customers: 572,000



Lamma Winds has generated over 8 million units of power cumulatively.

## The Hongkong Electric Company

The Hongkong Electric Company (HK Electric) has been in operation for over 125 years and is Power Assets' flagship business in Hong Kong. It generates, transmits and distributes affordable and reliable electricity to its customers in Hong Kong. With an excellent customer service track record and emissions performance HK Electric plays a vital role in the economic and commercial success of the territory.

HK Electric recorded a slight drop of electricity sales in 2015 at over 10,800 GWh, as a result of various energy conservation initiatives.

Following a public consultation exercise held the year before, the Government announced in June 2015 the future strategy for electricity generation in Hong Kong, wherein the proportion of natural gas in the fuel mix was increased to 50% in 2020. The Group welcomes the decision and HK Electric will work with the Government to maintain high energy supply standards while minimising emissions.

Another public consultation was conducted by the Government to determine the regulatory regime following the expiry of the current period in 2018. The majority of the responses submitted agreed that maintaining the current Scheme of Control Agreement (SCA) was the best way forward as it has proved effective in achieving the Government's energy objectives while encouraging investment.

HK Electric has been Hong Kong's energy partner for over 125 years.

HK Electric began the process of building a new gas-fired generating unit at Lamma Power Station, its primary generating facility, as part of its HK\$13 billion five-year development plan. Preparation for the site and construction will commence in early 2016 for commissioning in 2020. The new unit will enable HK Electric to meet the Government's future fuel mix and emissions targets while ensuring power supply reliability.

During the year under review the company continued to increase its use of natural gas and low-sulphur coal and continued to run a range of emissions control measures. In 2015, the company once again outperformed all its statutory targets with respect to emissions of sulphur dioxide, nitrogen oxides, and respirable suspended particulates.

A modern subterranean network controlled out of a central System Control Centre is responsible for maintaining HK Electric's highly reliable supply of electricity to its customers. The company has since 1997 consistently achieved a reliability rating exceeding 99.999%. To maintain and enhance reliability it invested in an upgrade to the IT systems and infrastructure controlling the operations of the transmission and distribution network.





the sake of bringing in choices.

- The majority of the respondents also supported the duration of the future contractual arrangement should be maintained at ten-year, with an option exercisable by the Government to extend for five more years.
- More than half of the submissions supported maintaining the rate of return at the current level to provide the necessary incentive to the power companies to make investment.

We are encouraged that the responses from the community have shown strong support for the current contractual arrangement and the work of the power companies.



The HK Electric team of volunteers celebrates 11 years of community service.

The company's team of employee volunteers contributed a record 6,708 hours in community involvement efforts during the year. Their efforts centred on helping the elderly and supporting green causes, and also extended to youth services and fundraising for charities.

With the continued softening of fuel prices and cost savings from operating efficiencies HK Electric reduced net tariffs across the board by 1.5 cents per unit of electricity from January 2016.

## Shaping Hong Kong's power sector

During the year the Hong Kong Government launched a public consultation to determine the regulatory framework for Hong Kong's electricity sector as a whole after 2018. Following extensive stakeholder discussions HK Electric also submitted its response to the Government. And later in the year, the result of the consultation showed that among the responses submitted to the government, there was broad agreement on the following themes:

- Almost all respondents considered that the current contractual arrangement by Scheme of Control Agreement had generally worked well and achieved the Government's energy policy objectives.
- The majority of the respondents considered that currently the power supply was reliable and safe at affordable price in Hong Kong. They did not see a need for introducing competition just for

HK Electric once again achieved or surpassed its eighteen pledged standards that form the foundation of its excellent customer service, a record now maintained for 16 years. This performance has once again qualified it for financial incentives under the SCA.

Small-to-medium enterprises (SME) and commercial customers form an important part of the company's customer base. In 2015, HK Electric rolled out a number of services customised to meet the needs of SMEs from business start-up and energy management to customer installation pre-check services. It also intensified efforts to promote the establishment of data centres in Hong Kong.

HK Electric's deep roots in Hong Kong have led it to undertake a number of initiatives to support the wider community. Through the Smart Power Fund, it helps old residential buildings conserve energy by providing subsidies for upgrade projects. In 2015, 15 applications worth HK\$2.2 million for energy efficiency improvement were approved under the Fund. During the year, the Smart Power Campaign continued to promote energy efficiency and conservation through a host of activities.

# AUSTRALIA

#### **Australian Gas Networks**

Power Assets share: 27.5% Joined since: Aug 2014 Gas pipeline length: 24,600 km No. of customers: 1,222,000

#### **SA Power Networks**

Power Assets share: 27.93% Joined since: Jan 2000 Network length: 88,500 km No. of customers: 852,000

#### Victoria Power Networks

Power Assets share: 27.93%

#### CitiPower

Joined since: Jul 2002 Network length: 7,500 km No. of customers: 327,000

#### Powercor

Joined since: Sep 2000 Network length: 86,600 km No. of customers: 768,000

#### Transmission General Holdings Australia

Power Assets share: 50% Joined since: Jul 2012 Network length: 22 km

SAPN's Oxiana substation connects the Prominent Hill gold and copper mine to the grid.



## CEO'S REPORT

Through a systematic strategy of investment in strong businesses in the transmission and distribution sector the Group now has four operating companies in Australia, serving approximately 3,169,000 customers over 182,600 km of electricity networks and 24,600 km of gas pipelines.

The Australian Energy Market Commission is presently implementing a regulatory reform that will shape the industry going forward. Key amendments include the introduction of competition in metering, adoption of smart meters, and cost-reflective network tariffs. The Group's companies engaged with the Australian Energy Regulator (AER) during the year to determine their parameters for the new period.

### Australian Gas Networks

Australian Gas Networks (AGN) is one of the market's leading distributors of natural gas in Australia.

During 2015, the first full year of operations of AGN as a Group company, it completed gas deliveries of 106.7 petajoules. The increase was attributable to a colder winter and the addition of 23,000 new customers. Increased revenues combined with tight control of operating and borrowing costs led to an increase in profit contribution.

Replacement of 430 km of old cast iron and HDPE (high-density polyethylene) pipes, which are susceptible to breakages and gas leaks, was completed, making a direct contribution to reducing AGN's greenhouse gas emissions.

AGN's approach to public safety, reliability and customer service is

driven by its motto of "Delivering for customers". In 2015, AGN exceeded its targets in response times to reported incidents and emergencies, as well as new connections.

To promote the use of natural gas, AGN conducted marketing campaigns in collaboration with other market participants. Customer incentives were offered, combined with education about the environmental benefits of gas appliances such as hot water systems, heaters and cooktops.

## **SA Power Networks**

#### SA Power Networks (SAPN) is South Australia's sole electricity distributor.

In 2015, SAPN distributed 10,347 GWh of electricity, a slight drop from 2014 levels. The AER has ranked South Australia as the third most efficient Distributor in Australia for electricity distribution. This is significant endorsement for a business as the most efficient business only serves a city CBD, whereas SAPN delivers services across a very large geographical area known for its challenging terrain and relatively extreme variations of weather. Data used in the AER report shows that SAPN continues to be the most efficient distributor on a state by state basis.

Following submission of its 2015-2020 proposal to the AER in October 2014, SAPN submitted relevant proposals to arrive at a final determination for the period.

Like other Group members SAPN places great emphasis on reliability and customer service excellence. In 2015, the company significantly exceeded its reliability target, measured in annual minutes without supply per customer.



CitiPower and Powercor invest in the networks of the future with a new Battery Storage Project.

Its strong customer service delivery secured an award of A\$29 million under the AER's Service Performance Scheme. Over the previous five-year regulatory period SAPN has consistently been awarded under the scheme.

Upgrades to SAPN's Advanced Distribution Management System (ADMS) began in the year and will be completed in late 2016. Following the upgrade the ADMS will provide a real time view of the high voltage electrical network, enabling more proactive management.

### Victoria Power Networks

Victoria Power Networks through CitiPower and Powercor Australia operate electricity distribution networks in Victoria, Australia.

CitiPower and Powercor achieved steady performance across business parameters in 2015. Electricity distributed amounted to 5,944 GWh and 10,713 GWh respectively, while network availability stood at 99.99% and 99.97% for CitiPower and Powercor respectively.

In line with the ethos of providing the right energy solutions for customers, the two companies invested A\$8.5 million two separate energy storage projects. The large-scale storage systems, one of which is the largest in the region, will help reduce stress on the network, improve reliability of supply and reduce maintenance costs.

In order to expand the business a new energy solutions team was established. The team will expand existing businesses and also develop emerging streams such as commercial solar, wind, storage, and other energy network services.

### Australia Transmission General Holdings Australia (TGHA) built owns and operates the connection of

**Transmission General Holdings** 

built, owns and operates the connection of Victoria's Mt Mercer wind farm to the state's electrical transmission network which includes the Elaine Terminal Station in Victoria. The Terminal Station steps the voltage up from 132kV to 220kV allowing the electricity to be transmitted across the national grid.

During the year TGHA entered into an agreement to build, own and operate the transmission connection assets for the Ararat wind farm, located on rural land, approximately 180 km northwest of Melbourne and between 9 km – 17 km northeast of Ararat in Victoria. TGHA will construct a 220 kV/132 kV Ararat terminal station, control room and service building; and a 21 km 132 kV mono-pole transmission line. Construction work is scheduled to take 13 months. Design and construction have commenced and are on track.

# Residential solar energy creating a two-way grid

Consumer-end microgeneration remains popular in the region. By the end of the year SAPN had over 185,000 homes generating up to 700 MW of energy by means of residential solar panels connected to the network – comprising 21% of the total customer base.

Energy not used within individual households is exported to the network and consequently we are seeing an increasing prevalence of two way flows of energy across the distribution network. Work continues in identifying the most efficient way of managing these new energy flows.

Maintenance being conducted on low-voltage overhead lines on the Powercor network.

## MAINLAND CHINA

#### Zhuhai Power

Power Assets share: 45% Joined since: Apr 2009 Coal-fired: 1,400 MW

#### **Jinwan Power**

Power Assets share: 45% Joined since: Apr 2009 Coal-fired: 1,200 MW

#### **Siping Cogeneration**

Power Assets share: 45% Joined since: Apr 2009 Coal-fired cogeneration: 200 MW

#### **Dali Wind Power**

Power Assets share: 45% Joined since: Dec 2007 Wind turbine: 48 MW

#### Laoting Wind Power

Power Assets share: 45% Joined since: Jun 2008 Wind turbine: 49.5 MW

The Siping cogeneration plant meets new environmental targets.





Improvement work helps the Dali plant up productivity levels.

Power Assets has invested in five power companies in mainland China: wind farms in Dali (Yunnan province) and Laoting (Hebei province), coal fired plants in Zhuhai and Jinwan (Guangdong province), and a cogeneration plant in Siping (Jilin province). The five companies have a combined capacity of 2,898 MW.

In 2015, demand for coal-fired power in mainland China remained weak due to sluggish growth in the power market combined with surplus availability, affecting capacity utilisation across the board. Though benchmark tariffs were reduced during the year, the power plants were able to minimize the impact of the tariff reduction through reducing fuel costs and streamlining processes.

## Zhuhai, Jinwan and Siping power plants

The two coal-fired power plants in Zhuhai and Jinwan, and the Siping Cogeneration plant operate 7 generation units in mainland China.

The aggregate operational performance of the three power plants was above budget and their combined sales amounted to approximately 12,200 GWh of electricity and 4 million GJ of heat in 2015.

Environmental requirements were tightened significantly in mainland China since 2014. In order to adhere to these guidelines the Zhuhai power plant conducted major retrofits of Units 1 and 2, minimising nitrogen oxide created when machines are running at low loading factor. Upgrades of existing flue gas desulphurisation equipment and modification of the electrostatic precipitators have significantly reduced both dust and sulphur dioxide emissions.

The Jinwan power plant recorded a 18% reduction in electricity sales compared to the previous year as a result of surplus power supply from the West and the slowdown of industrial growth in Guangdong province.

The Zhuhai power plant completed the upgrade of the coal jetty berthing and unloading facility and commissioned it on schedule.

The Siping cogeneration plant delivered satisfactory outputs with total power generated of approximately 809.7 GWh.

The plant also sold 3 million GJ of heat, which was on par with 2014 levels. Soft coal prices enabled the plant to counter the effects of tariff reductions imposed by the Government.

The Siping cogeneration plant completed the implementation of a comprehensive retrofit scheme for its cogeneration units to reduce emissions meeting Government requirements and confirmation from Environmental Protection Department has been obtained.

## Dali and Laoting wind farms

The Group's two wind farms, Dali and Laoting, have been operational since 2009.

The two wind farms generated 209 GWh of electricity in 2015 due to higher wind yield at both locations.

The turbine blade modifications implemented in 2014 at the Dali wind farm have resulted in significant improvements to plant productivity. Following further analysis a decision will be made on whether to extend the scope of the modification in 2016.

Total renewable energy generated by the two wind farms for 2015 has offset 199,433 tonnes of carbon emission.

## Green role model in mainland China

Jinwan has actively participated in the Guangdong Government's carbon trading scheme since 2013. It now holds a carbon emission quota of 2.242 million tonnes.

Following a comprehensive equipment upgrade in 2014 which included modifications to its economiser unit, installation of additional catalysts and other upgrades the Jinwan plant has reduced non-carbon emissions close to zero and is recognised as a role model in the region for sustainable operations.

In Year 2015, Beijing requires non-carbon emission levels at coal-fired units to be similar to those of gas-fired units, which cap dust emissions at 5 mg/cubic metre, sulphur dioxide emissions at 35 mg/cubic metre, and nitrogen oxide at 50 mg/cubic metre. In order to achieve higher environmental standards over a range of loading factor, the Jinwan plant conducted another upgrade of its systems during the year. In recognition of the plant's outstanding track record, it was granted a quota of 5.197 billion KWh of sent-out during the year, significantly higher than the allocation to other coal-fired plants in the region.

## Ratchaburi Power Company

Ratchaburi Power Company (RPCL) is a generation company situated in Ratchaburi province in southern Thailand. All the power generated by the plant is sold to the Electricity Generating Authority of Thailand under a 25-year take-or-pay power purchase agreement.

RPCL met its production budget during the year under review. Total electricity generated was 7,567 GWh and availability stood at approximately 91%. In addition, the power plant achieved savings in fuel costs through improved processes.

Safety drills were conducted throughout the year. Environmental protection, monitoring and mitigation complied with all relevant regulations.

RPCL maintains harmonious relations with the surrounding communities. In 2015, an attitude survey revealed that trust and satisfaction in the company was above 96.5%.



Emergency drill tests cooling procedures at RPCL.

# THAILAND

#### Ratchaburi Power

Power Assets share: 25% Joined since: Oct 2001 Gas-fired combined cycle gas turbine: 1,400 MW

## NETHERLANDS

#### Dutch Enviro Energy Holdings B.V.

Power Assets share: 20% Joined since: Aug 2013 Waste-to-energy units: 115 MW Biomass-fired units: 30 MW Energy-from-waste: 1,697 kt/yr Biomass energy: 150 kt/yr Liquid waste treatment: 232 kt/yr Paper residue incineration: 168 kt/yr

AVR engineers inspect equipment for operational efficiency.



## Dutch Enviro Energy Holdings B.V.

**CEO'S REPORT** 

Dutch Enviro Energy Holdings B.V., which in turn owns AVR-Afvalverwerking B.V.(AVR), is a market leader in the 'energy-fromwaste' business in the Netherlands, generating electricity, heat and steam by incinerating waste. AVR has a total installed thermal capacity 700 MWh (heat and steam), of which approximately 60% is classified as renewable energy.

In 2015, AVR produced 560 GWh of electricity, 5,186 TJ of heat and 453 kT of steam. 2015 marked the first full year for AVR as the supplier of district heating for Rotterdam (North and South) and Arnhem. During the year the company increased the number of households to which it supplied heating to 160,000. Its increased heat output reduced annual CO<sub>2</sub> emissions by 150 kT. The year saw AVR progress further in line with its strategy of zero waste. It launched a pioneering venture in the Netherlands to treat, not only the metals, but also the minerals out of the bottom ash remaining after incineration to render it suitable for use in construction and infrastructure projects. It completed successful tests on the quality of the CO<sub>2</sub> created in its incinerators, concluding they are suitable for use in industrial as well as horticultural applications.

AVR was awarded a subsidy from the National Government to modify its biomass plant in Rozenburg to deliver heat and/or steam in addition to electricity, doubling its energy efficiency from 30% to 60%. The project will be implemented in 2016-2017 and the plant is expected to start delivering energy from 2018.

## NEW ZEALAND

#### **Wellington Electricity Lines**

Power Assets share: 50% Joined since: Jul 2008 Network length: 4,700 km No. of customers: 167,000

Pole replacement in progress on the WELL network in New Zealand.

## Wellington Electricity Lines

Wellington Electricity Lines (WELL) owns and operates the electricity distribution network in New Zealand's key cities including Wellington, Upper Hutt, Lower Hutt and Porirua.

Wellington Electricity complied with all its statutory requirements in 2015 and continued to operate one of the most reliable networks in New Zealand. Electricity volumes delivered through the network were slightly higher than the previous year and sales stood at 2,344 GWh.

During the year WELL entered into a new field services agreement with Northpower Limited, a large multi-utility contractor in New Zealand, to provide fault repair and restoration services.

WELL launched a new consumer website, providing facts as well as upto-date information on power outages and other ongoing works. The company also operates a special website called 'Electrical Safety World' that provides information, experiments, games, and activities to teach students the principles of electricity and the practices of electrical safety.

### Iberwind

Iberwind is a wind energy company based in Portugal. It is based in Portugal's Oeiras council and was established after the acquisition of a portfolio of wind farms with 525 MW in operation and 156 MW under construction.

By the end of 2015, Iberwind's portfolio includes 31 wind farms, totalling more than 300 wind turbines, with an installed capacity of 684 MW in operation and 42 MW under construction. Its output represents approximately 15% of electricity produced by wind power in Portugal, and about 3% of the electricity consumed in the country. It serves the needs of over 550,000 households and avoids more than 1 million ton of CO<sub>2</sub>.

## Canadian Power Holdings

Canadian Power Holdings (Canadian Power) is an electricity generation business which operates the Meridian Cogeneration gas-fired plant in Saskatchewan. It holds a 49.99% share of TransAlta Cogeneration, which operates five power plants in Ontario and Alberta.

The Meridian plant generated 1,654 GWh of electricity and 1,432 kT of steam following scheduled outages for maintenance. The five plants operated by TransAlta Cogeneration generated a total of 3,974 GWh of electricity.

At the Meridian plant both gas turbines successfully completed routine "hot gas path" outages for planned Iberwind's Candeeiros and Pampilhosa wind farms are among the world's largest onshore wind farms, with an installed capacity of over 100 MW each.

# PORTUGAL

#### Iberwind

Power Assets share: 50% Joined since: Nov 2015 Wind turbine: 684 MW



replacement of high temperature parts in the gas turbine. New parts with the most modern designs were installed on both turbines and have already yielded significant performance improvements.

Canadian Power sells its electricity to four customers under long-term agreements and steam to five thermal customers. During the year, the Ottawa plant was rerated to 74 MW from 68 MW under a power purchase agreement implemented in 2014.

# CANADA

#### **TransAlta Cogeneration**

Power Assets share: 25% Joined since: Dec 2007 Total installed capacity: 1,148 MW

#### Meridian

Power Assets share: 50% Joined since: Dec 2007 Gas-fired combined cycle cogeneration: 220 MW



Duct burner equipment being staged prior to installation at a Canadian Power facility.