

### SECTION XIII: INFORMATION ON COMMODITIES

*The following information relating to the industry overview has been provided for background purposes only. The information is either based on Directors' beliefs or has been extracted from a combination of data sourced from third party industry data providers and data released by public organisations including:*

***Third party industry data:***

<i>CRU International Limited</i>	<i>Industry data relating to the Metals and Minerals business segment.</i>
<i>Merlin Trade &amp; Consultancy Ltd.</i>	<i>Industry data relating to the Energy Products business segment (in particular in relation to coal).</i>
<i>SSY Consultancy and Research</i>	<i>Industry data relating to the Energy Products business segment.</i>
<i>Informa Plc</i>	<i>Industry data relating to the Agricultural Products business segment.</i>

***Data released by public organisations:***

<i>World Gold Council (Metals and Minerals)</i>	<i>Information was taken from the publicly available "Gold Demand Trends 2010" released 17 February 2011.</i>
<i>International Energy Association (Energy Products)</i>	<i>Information was taken from the publicly available "Oil Market Report" released 10 February 2011.</i>
<i>BP plc (Energy Products)</i>	<i>Information was taken from the publicly available "Statistical Review of World Energy 2010" released June 2010.</i>
<i>U.S. Department of Agriculture (Agricultural Products)</i>	<i>Information was taken from the publicly available "World Agricultural Supply and Demand Estimates" released 12 January 2011.</i>

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#### **Metals and Minerals**

Metals are typically classified into base metals (including non-ferrous base metals such as aluminium, copper, lead, nickel and zinc and ferrous base metals such as iron and ferroalloys) and precious metals (including gold, silver, platinum and palladium). Each metal is mined in the form of ore and subsequently processed into finished metal via specialised concentrating, smelting and refining techniques, before being sold to end users in a variety of industrial applications. The mining and processing of metals can take place within a vertically-integrated system or via multiple parties, each undertaking specific production steps. The extent of vertical integration differs between commodities.

Where ore is processed into finished metal by multiple parties, the transfers of intermediate products such as concentrate or blister that occur between parties may be direct or may involve marketers acting as intermediaries. Finished metals may be sold by producers directly to end users or via intermediaries.

#### ***Zinc/copper/lead and by-products***

##### ***Copper***

Copper is a base metal with desirable properties of malleability, high thermal and electrical conductivity, resistance to corrosion and strength, which make it attractive for use in electrical wiring and piping.

Copper ore is found in two commercially viable forms: sulphide ore and oxide ore. Sulphide ore is normally mined and processed into copper concentrate and is then smelted and refined into copper cathode (or metal) (99.99 per cent. copper). Oxide ore is mined and converted into copper cathode directly via a process known as Solvent Extraction Electrowinning ("SXEW"). Copper concentrate and copper metal are both traded products.

Copper metal is employed in a variety of end uses, with the construction and electric and electronic components sectors being key. Copper consumption can be divided into three main product groups: copper wire rod comprising wire and cable products, which is the key source of global primary

consumption; copper products such as plumbing, pipes, tubes, sheets, strips, rods, bars and sections; and copper alloy products including bronze (copper and tin) and brass (copper and zinc) products.

Copper is found throughout the world and, according to CRU, approximately 28 per cent. of global copper concentrate production in 2010 came from Chile, with China and Peru also being major producers of concentrates. According to CRU, China, Chile and Japan were the largest producers of copper metal globally in 2010. In 2010, according to CRU, global copper concentrate production in terms of contained copper totalled 12.4 million MT, whilst copper metal production totalled 18.7 million MT.

The Directors believe that Chinese consumption continues to be the key driver of copper metal demand, primarily due to industrial production and continued modernisation and investment in infrastructure. According to CRU, in 2010, China was the largest consumer of copper metal globally, accounting for approximately 39 per cent. of total global consumption, whilst the U.S. and Germany were also key consumers.

There are three exchanges where copper metal is traded: the LME, the SHFE and the COMEX/NYMEX. The Directors believe that copper is the second largest traded contract on the LME and prices established on the LME are used for reference globally throughout the industry; however, there are variances in regional supply and demand as well as differences in metal qualities. The exchanges have a network of approved warehouses around the world for use as a last resort, and the stock levels in these warehouses provide an important indicator of market tightness and overall demand. Based on the LME information the Directors believe that at the end of 2010, global closing copper metal stocks on the LME totalled 377k MT, down from 502k MT at the end of 2009.

Copper concentrate is a non-fungible product and cannot be directly traded on an exchange. Pricing of the metal equivalent within the concentrate is made with reference to the quoted exchange price for copper metal.

### *Zinc*

Zinc ore is found in several different forms, although 95 per cent. of global mined zinc production is zinc blende (a zinc sulphide ore). Zinc ore is typically mined and processed into zinc concentrate and is then smelted and refined to produce zinc metal. Metal is produced in various refined product forms dependent upon consumer requirements. High grade metal is 99.95 per cent. zinc and SHG metal is 99.99 per cent. zinc. Zinc concentrate and zinc metal are both traded products.

The construction sector is the main end user of zinc metal, whilst the transport and infrastructure sectors are also significant end users. Zinc's main application is in the manufacture of galvanised steel, where a zinc coating is added to steel to protect against corrosion, increasing the performance and lifespan of steel products. Other applications include brass production (a zinc and copper alloy), die-casting and the manufacture of batteries.

According to CRU, zinc is found throughout the world, with approximately 29 per cent. of global zinc concentrate production coming from China, with Australia and Peru also being the significant contributors to global zinc concentrate production in 2010. According to CRU, China was also the largest producer of zinc metal in 2010, accounting for approximately 41 per cent. of global production. Further, according to CRU, in 2010, global zinc concentrate production in terms of contained zinc totalled 12.4 million MT, whilst zinc metal production totalled 12.7 million MT.

The Directors believe that Chinese demand remains the key driver of zinc metal demand due to the continued growth in the high zinc-consuming construction and transport sectors. For example, according to CRU, in 2010, China was by far the largest consumer of zinc metal globally, accounting for approximately 5 MT, or 42 per cent., of total global consumption, whilst the U.S. and Japan were also key consumers.

There are two exchanges on which zinc metal is traded: the LME and the SHFE. The prices established are used for reference globally throughout the industry; however, there are variances in regional supply and demand as well as differences in metal qualities. The LME has a network of approved warehouses around the world for use as a last resort and the stock levels in these warehouses provide an important indicator of market tightness and overall demand. Based on the LME information, the Directors believe that as at the end of 2010, global closing zinc metal stocks on the LME totalled 701k MT, up from 488k MT as at the end of 2009.

Zinc concentrate is a non-fungible product and cannot be directly traded on an exchange. Pricing of the metal equivalent within the concentrate is made with reference to the quoted LME cash price for zinc

metal, with the worldwide standard being 85 per cent., less a treatment charge which is tied to the zinc metal price. A price adjustment is also made for by-product metals contained in the concentrate.

### *Lead*

Lead is amongst the most widely used metals in the world due to its electro-chemical properties, malleability, high density, low melting point, corrosion and weather resistance and ease of recycling.

The primary mined lead ore is galena, which is processed into lead concentrate and subsequently smelted and refined to produce lead metal (99.99 per cent. lead). Primary lead production is currently sourced almost entirely from polymetallic mines as a co-product or by-product. There are currently only two operational mines globally which are primarily lead mines.

In 2010, Glencore estimates that more than half of total global lead metal production was secondary or recycled lead. Glencore expects that secondary lead production as a proportion of total lead production will continue to increase steadily in the medium- to long-term. The supply of secondary lead is dependent upon the availability of feedstock sources, with the major source being scrap lead-acid batteries which have reached the end of their life cycle. According to CRU, recycling lead results in approximately 98 per cent. lead recovery from the scrap.

Metal is produced in various refined product forms, dependent upon consumer requirements. Producers tend also to produce zinc, with the production of the two commodities closely linked because of the fact that they are refined through the same metallurgical process. Lead concentrate and lead metal are both traded products.

The Directors believe that the vast majority of global lead metal consumption in 2010 was in the manufacture of lead-acid batteries. This is divided into Starting-Lighting-Ignition (“SLI”) batteries mainly used in the automotive industry and industrial batteries which are sub-divided into stationary batteries (used in back-up power supplies) and traction batteries (used for motive power in certain equipment). Other non-battery uses include chemicals, cable sheathing, alloys and rolled lead sheet.

Lead is found throughout the world and according to CRU approximately 43 per cent. of global lead concentrate production in 2010 was from China, whilst Australia and the U.S. are also key lead mining countries. According to CRU, China was also by far the largest producer of lead metal, accounting for approximately 43 per cent. of global production. Further, according to CRU, in 2010, global lead concentrate production in terms of contained lead totalled 4.1 million MT, whilst lead metal production totalled 9 million MT.

Glencore believes that, Chinese demand, both for SLI and industrial batteries, is the key driver of lead metal consumption levels, and remained resilient even through the global economic downturn of 2008/09. In 2010, according to CRU, China was by far the largest consumer of lead metal globally, accounting for 3.9 million MT, or 43 per cent. of total consumption whilst the U.S. and Germany were also key consumers.

Lead metal is traded on the LME. The prices established are used for reference globally throughout the industry; however, there are variances in regional supply and demand as well as differences in metal qualities. The LME does not distinguish between primary and secondary lead. The LME has a network of approved warehouses around the world for use as a last resort, and the stock levels provide an important indicator of market tightness and overall demand. Based on the LME information, the Directors believe that, at the end of 2010, global closing lead metal stocks on the LME totalled 208k MT, up from 147k MT as at the end of 2009.

Lead concentrate is a non-fungible product and cannot be directly traded on an exchange. Pricing of the metal equivalent within the concentrate is made with reference to the quoted LME cash price for lead metal, with the worldwide standard being 95 per cent., less a treatment charge which is tied to the lead metal price. A price adjustment is also made for by-product metals contained in the concentrate.

### *Gold*

Gold is a precious metal used both as an investment tool by central banks, governments, international financial institutions and retail investors and in jewellery. Gold is also used in fabrication activities, including electronics and dental applications. According to WGC, jewellery is the largest driver of gold demand, representing approximately half of total demand in 2010, of which a significant portion stemmed from India. Mining of gold ore is typically carried out by a small number of large integrated players that are also involved in its refining for industrial purposes.

There are three main sources of supply for gold: mining, recycled scrap and sales of gold held as reserves by central banks, governments and international financial institutions. Hedging by producers, based on their view of the gold price outlook, is also an important driver of the supply and demand balance. According to WGC, mine production accounted for close to two thirds of total supply in 2010 with recycled scrap representing the balance.

Gold is exchange traded and the benchmark price is fixed twice daily by the five fixing members of the LBMA.

### *Alumina/aluminium*

Aluminium is one of the most abundant metallic elements on earth, although it does not exist in nature as a metal. Instead, it is found in the form of bauxite, which can be refined into alumina. Alumina can subsequently be smelted into aluminium. Aluminium is an attractive industrial metal due to its high strength-to-weight ratio, resistance to corrosion, conductivity and recyclability. Bauxite, alumina and aluminium are all traded products.

The key end user markets for aluminium are transportation, construction, and foil stock and packaging. Aluminium consumption can be divided into three main product groups: rolled products such as slabs, plates, sheet and foil; drawn products such as rod, bar, wire and cables; and extruded products.

Mining bauxite is a relatively simple operation and the cost of bauxite forms a small proportion of the total cost of aluminium production. Bauxite is then refined into alumina, an oxide of aluminium, and subsequently alumina is processed into aluminium in an electrolytic smelter. The main costs of smelting aluminium are alumina, power, labour and other raw materials (lime, caustic soda and carbon pitch). The cost of production relative to the cost of freight tends to favour the processing of alumina close to the source of bauxite and the processing of aluminium close to a source of low-cost power. Aluminium is also recycled as a secondary metal from scrap. Typically, four to five MT of bauxite are used to produce two MT of alumina, and two MT of alumina are required to produce one MT of aluminium.

According to CRU, in 2010, global alumina (metallurgical grade) production totalled 81.6 million MT with China, Australia and Brazil being the largest producers. According to CRU, global aluminium production totalled 42 million MT with China, Russia and Canada being the key producers. Further, according to CRU, China produced approximately 36 per cent. of alumina (metallurgical grade) and 40 per cent. of aluminium globally in 2010. China benefits from low capex and short lead times for smelter development, though its aluminium is typically produced at a significantly higher cash cost due to limited access to low cost energy.

The Directors believe that Chinese demand continues to be the key driver of consumption, primarily due to industrial production and continued modernisation and investment in infrastructure. For example, according to CRU, in 2010, China was the largest consumer of aluminium globally, accounting for approximately 41 per cent. of total global consumption.

There are two primary exchanges on which aluminium is traded: the LME and the SHFE. Aluminium that is traded as a commodity generally must meet very specific criteria, principally purity of at least 99.7 per cent. As a result, commoditised aluminium tends to trade at a relatively consistent price between markets. The exchanges have a network of warehouses around the world and the stock levels in these warehouses provide an important indicator of market tightness and overall demand. Based on the LME information, the Directors believe that, at the end of 2010, global closing aluminium metal stocks on the LME totalled 4.3 million MT, down from 4.6 million MT at the end of 2009.

Historically, the price of alumina has been fixed to long-term contracts, which are generally priced by reference to a certain percentage of the LME aluminium price. Since the primary use of alumina is as an input into aluminium production, the two commodities are broadly correlated. In August 2010, Platts launched the first spot-price alumina index with certain major producers beginning to sell some production of alumina on contracts tied to a price index, indicating a movement toward a spot pricing system.

### *Ferrous alloys/nickel/cobalt/iron ore*

#### *Nickel*

Nickel is a base metal used primarily in the manufacture of stainless steel and other alloys due to its resistance to corrosion, strength and heat resistant properties. Nickel is also used in the production of coinage, batteries, plating, catalysts and fuel cells.

Nickel is found in two commercially viable forms, laterites (oxide ores) and pentlandites (sulphide ores). The Directors believe that, in 2010, approximately half of mined production was from each form. Nickel ore is processed into nickel concentrate, which is then smelted and refined to produce nickel metal containing 99.99 per cent. nickel, once purified through the Mond process<sup>(1)</sup>, hydrometallurgical techniques (leaching), electrowinning. Oxide ores can be leached directly, whereas sulphide ores must first be treated with bacteria to make them amenable to leaching. Metal is the form in which nickel is supplied to end user markets and is traded by nickel producing companies. Nickel metal is produced in various refined product forms, dependent upon consumer requirements.

The key end use for primary nickel production is in stainless steel production. There are several grades of stainless steel, each of which has different properties and alloy content. These can be split into two main groups – austenitic (70 to 75 per cent. of total stainless steel production, of which the 300-series contains 8 to 10 per cent. nickel and the 200-series contains 2 to 4 per cent. nickel) and ferritic/martensitic (25-30 per cent. of total stainless steel production containing no nickel).

Nickel is found throughout the world and according to CRU, the largest global producers of finished nickel<sup>(2)</sup> in 2010 were China, Russia and Japan. According to CRU, global finished nickel production in 2010 totalled 1.4 million MT.

The nickel industry is relatively consolidated and as a result the processing of nickel ore from mined ore to nickel metal and the subsequent sale to end users usually takes place within a vertically-integrated system. However, there are still some specialised market participants, undertaking discrete processing steps in the nickel value chain, between which transfers may be direct or may involve an intermediary.

Glencore believes that nickel demand is primarily driven by the expansion of the Chinese and Indian stainless steel industries and re-stocking in industrial sectors. For example, according to CRU, in 2010, China was the largest consumer of finished nickel globally, accounting for approximately 40 per cent. of the total 1.5 million MT consumed globally, whilst Japan and the U.S. were also key consumers.

Nickel metal is traded on the LME. The prices established are used for reference globally throughout the industry; however, there are variances in regional supply and demand as well as differences in metal qualities. LME nickel contracts specify the purity (99.80 per cent. minimum), tonnage and form/shape (full plate cathode, cut cathode, pellets, briquettes), after which a price is determined based on the prevailing demand and LME stock levels. The LME has a network of approved warehouses around the world for use as a last resort and the stock levels provide an important indicator of market tightness and overall demand. Based on the LME information, the Directors believe that, as at the end of 2010, global closing nickel metal stocks on the LME totalled 137k MT, down from 158k MT as at the end of 2009.

Typically, the contracts covering nickel ore supplies are based on a percentage of the LME nickel price, depending on the nickel grade, and quoted on an FOB basis.

### *Chrome and ferrochrome*

Chrome is another key alloying element used in bulk quantities for the production of stainless steel. Chrome's most important property in the context of its industrial application is its ability to form a regenerative oxide film, protecting a metal surface against oxidation, corrosion and wear. Stainless steel contains a minimum of 10.5 per cent. chrome.

Ferrochrome is an alloy of chrome and iron. Global ferrochrome production accounts for the vast majority of chrome ore demand. A significant majority of ferrochrome production is then in turn used in the production of stainless steel and alloy steel. Glencore believes that rapid growth in stainless steel production in China and India in recent years has driven an increase in demand for ferrochrome. According to CRU, in 2010, approximately 9.1 million MT of ferrochrome by gross weight was produced globally.

The ferrochrome market is largely a negotiated market with price and volume agreed on a quarterly basis, typically under long-term contracts of one to five years. In the U.S., prices tend to follow those published in either of the two major industry journals, *Ryan's Notes* and *Metals Week*.

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(1) In this process, nickel is reacted with carbon monoxide to form nickel carbonyl, which is then passed at a high temperature into a chamber, causing the nickel carbonyl to decompose and form pure nickel in pellet or powder form.

(2) Finished nickel includes nickel metal and nickel metal substitutes such as ferronickel, nickel pig iron and nickel oxide sinter.

### *Cobalt*

Cobalt is used primarily in superalloys, including in the manufacture of parts for turbines and aero engines, given its temperature stability and its corrosion and wear resistance. Other applications include magnets, diamond tools and catalysts, as well as in a variety of chemical applications.

Cobalt is commonly found as a by-product of nickel and, to a lesser extent, copper, meaning production tends to increase or decrease in line with production of these metals. According to CRU, in 2010, approximately 77k MT of cobalt was produced globally, with the Katanga province in the DRC being the key producer of mined cobalt.

Cobalt has been traded on the LME since February 2010 and is classified as a minor metal.

### *Iron ore*

Iron is the fourth most abundant rock-forming element and composes about 5 per cent. of the Earth's crust. The principal ore minerals of iron are hematite, magnetite, siderite, and goethite. An estimated 98 per cent. of the ore shipped in the world is consumed in the manufacture of iron and steel. The remaining 2 per cent. is used in the manufacture of cement, heavy-medium materials, pigments, ballast, agricultural products or specialty chemicals. As a result, demand for iron ore is tied directly to the production of raw steel and the availability of high-quality ferrous scrap.

Mining iron ore is a high volume, low margin business, as the value of iron is significantly lower than base metals. It is highly capital intensive, requiring significant investment in infrastructure such as rail in order to transport the ore from the mine to a freight ship. For these reasons, iron ore production is concentrated in the hands of a few major players which enjoy significant economies of scale.

The Directors believe that, in 2010, the vast majority of global trade in iron ore was seaborne trade. The two major exporters are Australia and Brazil while the largest importers during 2010 were China followed by Europe and Japan.

## **Energy Products**

Energy products are hydrocarbons sourced from the organic remains of prehistoric organisms or vegetable matter. The main energy products include coal, coke, oil and natural gas.

### *Coal*

Coal is the most widely available and well-distributed fossil fuel in the world. According to Merlin, coal is the second largest primary source of energy after crude oil in consumption terms, and the largest in terms of reserves. Global consumption of coal is forecast to increase significantly between 2010 and 2020.

Coal is mined using two techniques: surface mining which is sometimes referred to as open cast mining, and underground or deep mining. The most appropriate mining technique is largely determined by the geology of the coal deposit. Once raw coal is mined, it is often crushed, sized and washed in processing plants where the product consistency and energy content of the coal is improved. Washing is a process where the denser mineral matter in coal is separated from the main carbon rich component of coal.

Coal is classified into four general categories, or rank: lignite, sub-bituminous, bituminous and anthracite, reflecting the progressive response of the coal to increasing heat and pressure and the time of its formation. Lignite and sub-bituminous coals are commonly referred to as "low-rank" coals, while bituminous and anthracite coals are commonly referred to as "hard" coals. Energy content and sulphur content are among the most important characteristics for coal classification—certainly for steam (or thermal) coal used for energy generation—and help to determine the best use of a particular type of coal, as well as helping determine the price of different qualities of coal. Other important characteristics include moisture, ash and nitrogen content. Bituminous coal represents approximately half of world reserves and can be further classified as either "thermal coal" or "metallurgical coal". Thermal coal, also known as "steam coal" or "energy coal", used in electricity generation and other energy-raising processes, according to Merlin, represented approximately 85 per cent. of the 5.4 billion tonnes of total global coal production in 2010. Metallurgical coal (which refers to all coals used in the steel industry, including "coking coal" used to produce coke and PCI (Pulverised Coal Injection) coals which are injected into the base of a blast furnace to make iron), accounts for most of the balance of production.

Coke is a material derived from the destructive distillation (“coking/carbonisation”) of coking coal. Coke’s main uses are as a fuel and a reducing agent in smelting iron ore in blast furnaces. This process takes place in coke ovens which are likely to be located close to iron- and steel-making plants rather than geographically proximate to coal mines.

According to Merlin, approximately 90 per cent. of proven global coal reserves are found in just eight countries, including the U.S., Russia, China, Australia and India.

According to Merlin, in 2010, global thermal coal production totalled 4.6 billion tonnes, with China being the largest thermal coal producer globally, accounting for approximately 47 per cent. of global thermal coal production, followed by the U.S. and Australia. The majority of thermal coal produced is consumed in the country of production due to its relatively widespread availability and high transportation costs relative to its energy value and price. In 2010, China was also by far the largest producer of coking coal globally, accounting for approximately 57 per cent. of the 0.8 billion tonnes produced (according to Merlin). In 2010, the total global production of coke was 0.6 billion tonnes (according to Merlin).

Of the limited export volumes, the vast majority is seaborne coal. According to Merlin, the two major seaborne thermal coal markets are the Atlantic region and the Asia-Pacific region. European countries and the U.S. are the key importers of thermal coal in the Atlantic region with the key suppliers being South Africa, Russia and Colombia. In the Asia-Pacific region, the key importers are Japan, South Korea, China and Taiwan and the key exporters are Indonesia and Australia (according to Merlin). For some time Australia has been the largest coal exporter globally along with the U.S., Indonesia, Russia, South Africa and China. However, increasing domestic electricity demand in the latter country has resulted in stronger domestic consumption, with China becoming a net coal importer in 2009 (according to Merlin). India is rapidly becoming an important coal importer receiving coal from both South African and Asia-Pacific suppliers (according to Merlin).

Unit ocean freight costs are a significant component of the price of seaborne export coal and coke. Participants in the coal and coke seaborne export markets either own vessels or lease freight on a “spot charter” or “time charter” basis. According to the shipping brokers Simpson Spence and Young, in 2010, the global seaborne dry bulk trade across all commodities was 3.3 billion tonnes, of which 0.9 billion tonnes was thermal and coking coal; a further 1 billion tonnes was iron ore. The global seaborne dry bulk trade is forecast to increase to 4.5 billion tonnes by 2015 across all commodities (according to Simpson Spence and Young).

Global coal demand is subject to a number of drivers, including primary energy consumption, the decommissioning and construction of new coal-fired power plants, the competitiveness of coal versus alternative energy sources and the regulatory environment, including carbon emission constraints in several countries. Increasing imports into China and India reflect their increasing demand, primarily due to increased electricity and steel production, as well as the higher quality of internationally-traded coals compared to India’s and China’s own domestic production. According to Merlin, in 2010, China was the largest consumer of thermal coal globally, accounting for almost half of total consumption.

Thermal coal is sold under term contracts or on the spot market. It is priced primarily on calorific value and sulphur content. Seaborne coal prices in each market normally fluctuate with changes in supply and demand, production and transportation costs, availability and prices of substitute fuels, general economic conditions, government regulation and weather. Price settlement between Asian power companies and Australian coal producers have typically acted as benchmarks for pricing in the Asia-Pacific coal market and have been used as a reference point in the Atlantic market.

Price indices are used by market participants to monitor spot prices in various geographic regions. The API#4 index is the benchmark price reference for coal exported out of South Africa’s Richards Bay Coal Terminal. In Europe, export market prices are reflected in the API#2 index for coals delivered into the “ARA” (harbours of Amsterdam, Rotterdam and Antwerp) region on a CIF basis. The API#2 index is reflective of prices in the Atlantic market, while API#4 reflects market conditions in both the Atlantic and Asian (mainly Indian) markets. In Australia, the API#6, GlobalCOAL’s NEWC contract and the Barlow Jonker Index are indicators of the spot price of thermal coal loaded FOB vessel at the port of Newcastle, Australia.

There are four future exchanges where internationally-traded coal qualities are traded: in Chicago, the CME; in Singapore, SGX and in London, ICE and LCH. However, a majority of coal trading is conducted off-exchange through brokers operating bilateral contracts and through the API swap market, which has trading volumes that exceed the physical underlying market.

## *Oil*

Crude oil is not a homogenous material, but rather is classified by its density (light to heavy) and sulphur content (sweet to sour). Light sweet crude oils are typically more expensive than heavy sour crude oils because they require less treatment to produce refined products.

The process of transforming crude oil into refined products typically involves multiple steps, including distillation, chemical processing and removal of unwanted elements and compounds. Crude oil is processed into a large number of refined oil products including petroleum gases, petrochemicals, gasoline, naphtha, mid-distillates, fuel oil, residual fuels, petroleum coke and niche refined petroleum products.

The extraction of crude oil and its processing into refined oil products can be performed by vertically-integrated companies or by players specialised in each segment of the oil value chain: in the latter scenario, transfers between specialised parties may be direct or may involve an intermediary.

Within the oil value chain, an important role is played by oil freight, which consists of the transportation of crude oil to refineries and refined products to distribution terminals. A key step of this process involves shipping in tankers, the cost of which has an important impact on the price of oil and oil products. Participants in the oil value chain often own tankers and, in addition, there is a market for tanker capacity which is sold on both a “spot charter” and “time charter” basis.

In 2010, global oil demand totalled an average of approximately 87.8 million bbls per day (according to IEA). Glencore believes that oil demand is largely driven by GDP growth. The main uses of oil products are transportation, power generation and heating. Non-OECD countries accounted for approximately half of oil consumption in 2010, and have shown uninterrupted demand growth for several years, even through the global economic downturn of 2008/09 (according to IEA).

World oil supply, which amounted to an average of approximately 87.3 million bbls per day in 2010, can be split into the Organisation of Petroleum Exporting Countries (“OPEC”) and Non-OPEC (according to IEA). OPEC nations supplied approximately 40 per cent. of the world’s oil supply in 2010 (according to IEA) and controlled approximately three quarters of the world’s known reserves at the end of 2010 (according to BP).

The trading of crude oil and oil products consists of direct physical trading and derivatives trading. Participants in the trading of crude oil and refined oil products markets include both physical traders, who handle physical commodity deliveries, and financial traders, who generally settle contracts in cash. Physical traders gain competitive advantages through the optionality offered by trading large physical volumes and the insight into market fundamentals that physical presence provides; financial traders gain competitive advantage through sophisticated research and superior quantitative analytics underpinning complex derivatives structure.

Price of benchmark crude oils such as West Texas Intermediate Crude and Brent Crude is dependent on supply and demand fundamentals; at the end of 2010, closing WTI and Brent spot prices were U.S.\$91.38 per bbl and U.S.\$94.75 per bbl, respectively. Other crude oils are usually priced at a premium/discount to those benchmarks to reflect differentials in terms of density, sulphur content and location.

## **Agricultural Products**

The agriculture industry includes the farming, processing, movement and storage of crops and products used primarily as food, animal feed or biofuel. The main product groups in which Glencore is active include grains, oilseeds, sugar, cotton and biofuels.

Grains have end uses both in human and livestock consumption and in the production of bioethanol, a substitute for gasoline. Grains for human and livestock consumption are generally milled before reaching end users. Wheat, barley and corn are three of the key grain crops. Oilseeds typically undergo crushing and refining to render them into various types of oils and meals for human consumption and animal feed. Rapeseed, soybean, sunflower and palm are key oilseed crops. Oil contained in these crops is also used to produce biodiesel. Cotton, although primarily used for textile and clothing manufacture, also provides edible oil and seed by-products for livestock feed; about two thirds of the harvested crop is composed of the seed. Sugar-based food crops, such as sugar cane and sugar beet, are used in both the food industry and bioethanol production.

Agricultural production is characterised by a very large number of small players. Even the largest farming players typically only have a fraction of the overall market share in any given country. Agricultural supply primarily evolves as a function of the crop price environment, weather conditions and availability of



croppable area. Higher prices serve as an incentive for farmers to increase production levels, as occurred in 2008 and 2009. However, concentration in processing is higher for many crops, with large integrated players enjoying economies of scale. Processing is typically carried out close to the origin.

Production of some crops is concentrated in a limited number of countries, such as the U.S., EU and Canada for wheat and the U.S., Argentina and Brazil for corn, while demand may come from all over the world. This makes trading and logistics an important component of the industry value chain. Freight, logistics and storage services are offered both for raw and processed products. Key components of these services include procurement, ocean freight and distribution.

In crop year 2009/2010, EU-27 countries were the largest producers of both wheat and barley, with 138 million MT and 62 million MT of production, respectively (according to Informa). However, according to USDA, only a small portion of this translated into exports due to the large domestic demand for own production. In the same crop year, the U.S. were the single largest producer and exporter of corn and also led other countries in soybean production and exports followed by Brazil and Argentina (according to Informa). Also in crop year 2009/2010, Brazil was the largest producer and exporter of sugar with 36k MT of production and 24k MT of exports in 2010 (according to USDA). The U.S. is the single largest exporter of cotton, with 12 million 480 lb. bales of exports in crop year 2009/2010, while China is the largest producer and importer owing to its leading position in the textile industry (according to USDA).

According to USDA, income growth and population growth are two primary drivers behind demand for food. Increasing income per capita, especially in emerging countries, typically leads consumers to move away from staple and traditional food towards diets that are richer in protein. The resulting increase in livestock production boosts animal feed demand. Also contributing to the global demand in recent years has been the growing use of crops for biofuel production. A relatively expensive source of energy *per se*, biofuel is subject to government subsidies in most countries and the demand for biofuels grew even throughout the global economic downturn of 2008/09.

According to Informa, certain Middle Eastern and Asian countries were among the largest importers of selected agricultural products in the crop year 2009/2010, mainly due to their fast economic growth and the lack of climatic and agronomic conditions necessary for the production of crops. China was the single largest importer of soybeans, with 51 million MT of imports, while Saudi Arabia was the single largest importer of barley with 7 million MT, due to the high demand for livestock fodder (according to Informa).

In addition to supply/demand dynamics, global agricultural trades are also influenced by a number of exogenous factors such as weather conditions, changing government regulations, foreign exchange rates and other macroeconomic factors such as energy prices.

Wheat, corn, soybean, soyoil, soymeal, barley, rapeseed and sugar are exchange-traded commodities. The main agricultural commodities exchanges include CME (Chicago), NYSE Euronext, Tokyo Grain Exchange (“TGE”), Singapore Mercantile Exchange (“SMX”) and the Australian Securities Exchange. Sunflower seed products and biodiesel are not exchange traded. Prices of these commodities are determined by reference to prices of exchange-traded commodities, among other factors.

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