
En+
GROUP
Strength in evolution
Annual Report 2018

En+ Group is a leading vertically integrated aluminium and power producer

About the Report

In this Annual Report, the terms “En+”, “En+ Group”, “we”, the “Company” and the “Group” in various forms shall mean En+ GROUP PLC and its subsidiaries whose results are included in the consolidated financial statements prepared in accordance with the International Financial Reporting Standards.

This is the Annual Report of EN+ GROUP PLC. The Annual Report outlines the Company’s strategy, business model, and internal control and risk management processes. During 2018, the Company’s business was impacted by the imposition of the OFAC Sanctions (defined below) beginning in April of 2018 and lasting through to the end the year. The OFAC Sanctions were lifted from the Company on 27 January 2019. The Company has since adopted an enhanced compliance program and mechanisms, including at the Board level, to facilitate ongoing compliance with US sanctions and requirements following the removal of sanctions from the Company and its subsidiaries.

The Corporate Governance section covers the role and activities of the Board of Directors (the “Board”), committees of the Board, and management team in running the business. The detailed Financials, accompanied by a report from the Group’s auditors, are included in this Report.

Unless stated otherwise, financial results included in the 2018 Annual Report are presented and calculated based on the consolidated financial statements prepared in accordance with the International Financial Reporting Standards.

Some numbers in the tables, charts and diagrams in this Report may differ from the sums of addends due to rounding.

The En+ Group Annual Report was approved by the Board of Directors on 26 April 2019.

WARNING

The information presented in this Annual Report only reflects the Company’s position during the review period from 1 January 2018 to 31 December 2018 (the “Review Period”) pursuant to the requirements of the Listing Rules (the “LR”) published by the UK’s Financial Conduct Authority (the “FCA”) in its capacity as a competent authority under the Financial Services and Markets Act 2000 (as amended) and the FCA’s Disclosure Guidance and Transparency Rules (the “DTRs”). The LR and the DTRs together are the “Rules”, unless otherwise specified. Accordingly, all forward-looking statements, analyses, reviews, discussions, commentaries, and risks presented in this Annual Report (excluding this warning and the Corporate Governance section, or unless otherwise specified) are based on the financial information available to the Company covering the Review Period only. The forward-looking statements in this report are subject to risks and uncertainties, and are not guarantees of future performance.

Shareholders and potential investors should be aware that on 6 April 2018, the Office of Foreign Assets Control of the Department of the Treasury of the United States of America (the “OFAC”) designated certain persons and certain companies which are controlled by some of these persons added to its Specially Designated Nationals List (the “OFAC Sanctions”). The designated persons/entities included Mr Oleg Deripaska, a non-executive director of the Company and its ultimate beneficial owner at the time that OFAC imposed sanctions, as well as the Company, United Company RUSAL Plc. (“RUSAL”), JSC EuroSibEnergo, and two of the Company’s direct major shareholders at the time, B-Finance Ltd. (a BVI company), and Basic Element Limited (a Jersey company), each controlled by Mr Deripaska.

On 27 January 2019, OFAC removed the Company, UC RUSAL Plc, and JSC EuroSibEnergo from the OFAC Sanctions. In removing the Company from the OFAC Sanctions, OFAC stated:

- “Under the terms of their removal from OFAC’s List of Specially Designated Nationals and Blocked Persons (“SDN List”), En+, RUSAL, and ESE have reduced Oleg Deripaska’s direct and indirect shareholding stake in these companies and severed his control. This action ensures that the majority of directors on the En+ and RUSAL boards will be independent directors – including
- US and European persons – who have no business, professional, or family ties to Deripaska or any other SDN, and that independent US persons vote a significant bloc of the shares of En+.

The companies have also agreed to unprecedented transparency for Treasury into their operations by undertaking extensive, ongoing auditing, certification, and reporting requirements. All sanctions on Deripaska continue in force.”

The Company and RUSAL are continuing their compliance with requirements pursuant to the Terms of Removal, a binding agreement between OFAC, the Company, RUSAL, and JSC EuroSibEnergo including ongoing auditing, monitoring, and reporting requirements associated with the Terms of Removal. The Company is implementing enhanced compliance programs and mechanisms, including at the Board level, to address ongoing compliance with US sanctions and the requirements of the Terms of Removal. Due to the ongoing requirements and continued scrutiny by the US Congress of the OFAC Sanctions removal, there is some risk that OFAC decides to re-impose the Sanctions on the Company. If the sanctions are re-imposed, it is highly likely that the impact may be materially adverse to the business and prospects of the Group.

A year of evolution of the company in 2018, and a continuing focus on product evolution, have created a stronger En+ for 2019 and beyond

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En+ Group is a leading vertically integrated aluminium and power producer

We are unique among global natural resources companies. Our business advantage stems from the full integration of world- class hydro power assets that reliably and sustainably supply the energy required for the production of aluminium. In turn, our substantial production capabilities make us the largest aluminium producer outside of China

3.9 mtpa
total aluminium capacity

19.6[1] GW
total installed electricity capacity

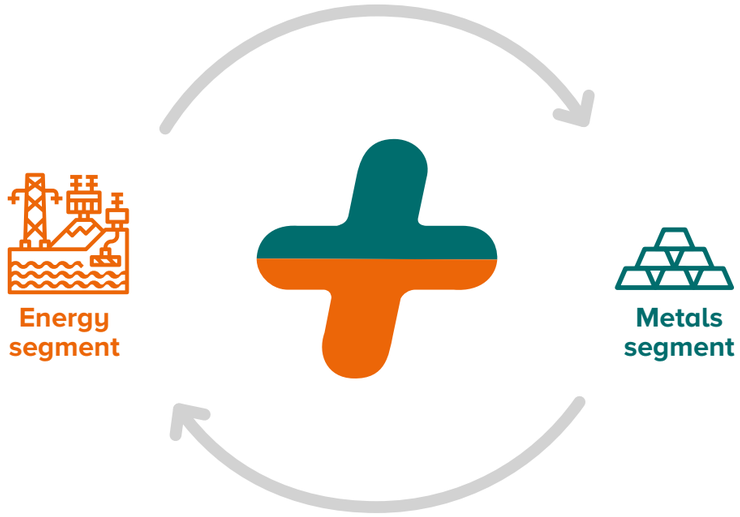
With a well-established presence across five continents and a strong operational hub in Siberia, combining the assets of both our Metals and Energy segments, the Group is able to capture opportunities arising from its world class assets and scale.

The Group's Metals segment has a well-diversified sales platform which allows it to efficiently access and operate in all key aluminium markets including the United States, Western Europe, Japan and South East Asia.

The Group has a world-class market research and analytics platform which provides valuable input to the Group's long-term operational and financial planning.

At the same time, our Energy segment operates the largest and the most cost-efficient network of power plants in the Siberian region, which allows it to efficiently and reliably cater to its core clients in Siberia, including the largest smelters operated by our Metals segment.

Complementarity between our two businesses



1. Including Onda HPP with installed power capacity 0.08 GW and production level of 0.4 TWh in 2018 (located in European part of Russia, leased to RUSAL).

Our history

2019
OFAC announced the removal of the Company and its subsidiaries from the SDN List on January 27

2018
On April 6, the Office of Foreign Assets Control (OFAC) of the Department of the Treasury of the United States of America designated certain legal and natural persons to its Specially Designated Nationals List (the SDN List), including, among others, the Company and its subsidiaries

2017
The En+ Group successfully completed its initial public offering of global depository receipts on the London Stock Exchange and the Moscow Exchange on November 3. The offer price was set at USD 14 per share. The proceeds from the IPO amounted to USD 1,500 million, making it the biggest IPO of 2017 in London. In line with pre-IPO commitments, the proceeds from the primary tranche of the offering were used for deleveraging: shortly after the listing, the Group repaid its VTB loan in full, totalling USD 942 million

2013–2017
- 100% of Krasnoyarsk HPP consolidated
- 92.5% of Irkutskenergo consolidated
- Dams previously leased by Irkutskenergo acquired
- Debt portfolio proactively managed – over USD 2.5 bn debt refinanced at lower rates with longer tenor
- New long-term power supply agreements between EuroSibEnergo, Irkutskenergo and RUSAL signed

2010
IPO of RUSAL on the Hong Kong Stock Exchange

2008
Share acquisition of 25% plus one share of Norilsk Nickel

2007
- En+ Group acquired a controlling stake in Irkutskenergo
- Merger of RUSAL, SUAL, and Glencore's alumina assets to create United Company RUSAL
- EuroSibEnergo was formed to hold the Group's power assets

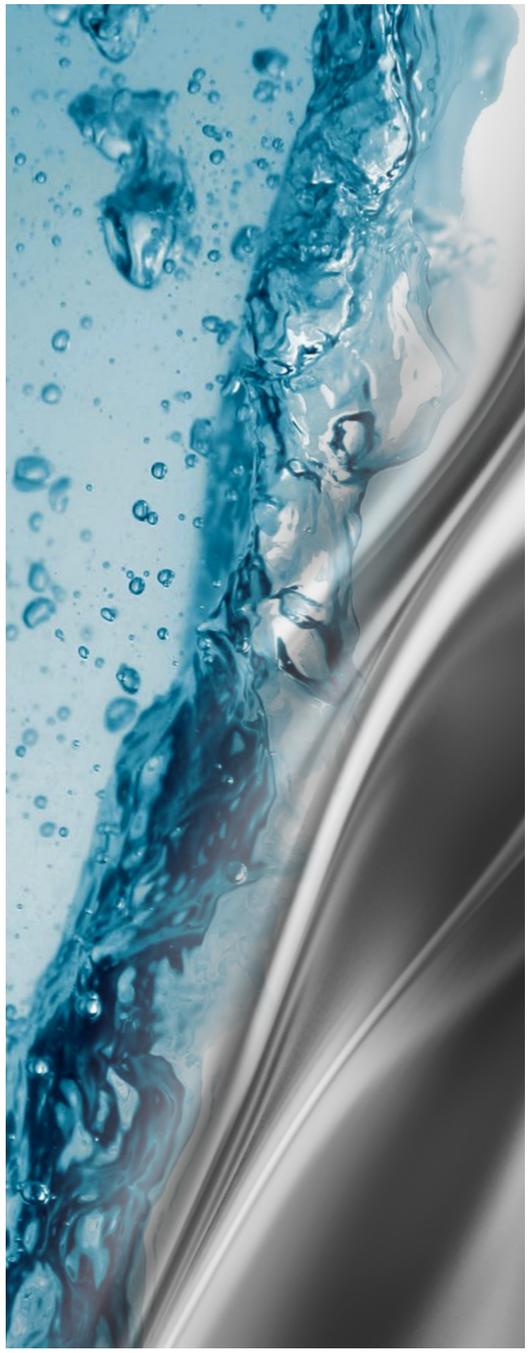
2006
RUSAL and RusHydro entered into a cooperative agreement to jointly run the BEMO project, under which Boguchany HPP on the Angara River and Boguchany Aluminium Smelter in the Krasnoyarsk Territory were constructed

2004
En+ Group became the sole owner of RUSAL

2003
The Group acquired a controlling stake in Krasnoyarsk HPP

2002
Basic Element established En+ Group and combined its power assets and stakes in aluminium assets (originally called SIBAL) into the new company

2018 Key events and figures



2018 milestones

25 January 2018 – RUSAL priced its USD 500 million Eurobond issue. The placement was more than three times oversubscribed.

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6 April 2018 – The OFAC Sanctions were imposed on the Company and its subsidiaries, RUSAL and JSC EuroSibEnergo.

FOR MORE INFORMATION SEE PAGE 6

18 May 2018 – The Board of En+ Group unanimously endorsed Independent Chairman Lord Barker's proposals and strategy to secure the Company's removal from the US SDN List.

FOR MORE INFORMATION SEE PAGE 6

16 June 2018 – Phase 1 of the Dian-Dian bauxite deposit was launched (capacity: 3 mtpa). Phase 2 of the project will extend operations to 6 mtpa.

FOR MORE INFORMATION SEE PAGE 24

21 June 2018 – Recommissioning of Friguia Bauxite and Alumina Complex in Guinea. The plant reached 50% of its design capacity in 4Q. Capacity recovery is planned to continue in 2019.

FOR MORE INFORMATION SEE PAGE 24

19 October 2018 – En+ Group installed a modernised runner at Krasnoyarsk HPP. Earlier in the month, the Company commissioned the fourth modernised hydro power unit at Ust-Ilimsk HPP. Both upgrades were performed under the New Energy program, which will increase the power production efficiency of the HPPs while cutting the Group's CO_2 emissions.

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19 December 2018 – OFAC notified the US Congress of its intention to lift the OFAC Sanctions from the Company.

FOR MORE INFORMATION SEE PAGE 6

20 December 2018 – General meeting of the Company, during which, inter alia, the Barker Plan was approved and Company's continuance from Jersey to Russia

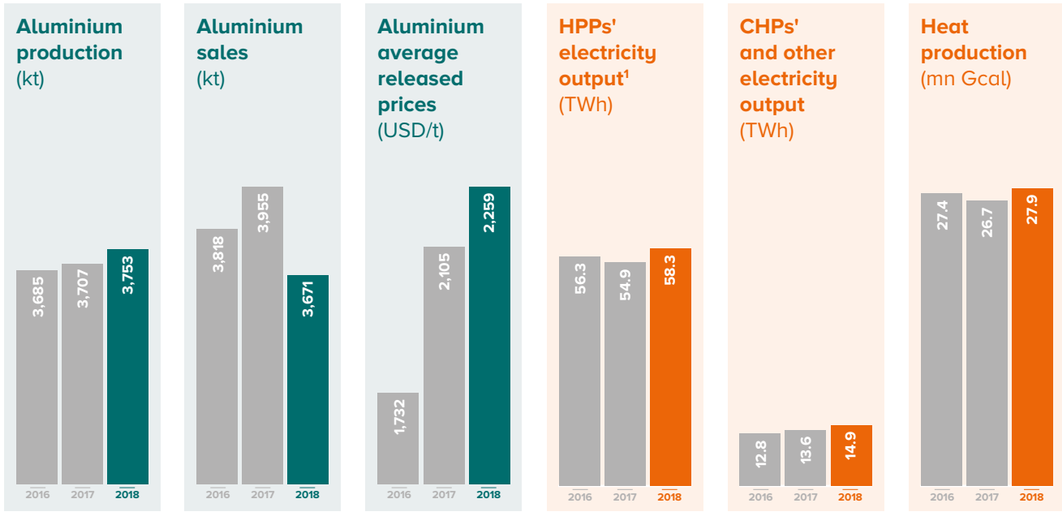
FOR MORE INFORMATION SEE PAGE 6

27 January 2019 – The OFAC Sanctions were lifted from the Company and its subsidiaries, RUSAL and JSC EuroSibEnergo. The New Board of Directors is appointed.

28 January 2019 – En+ Group and Glencore plc implemented the first stage of the share swap transaction.

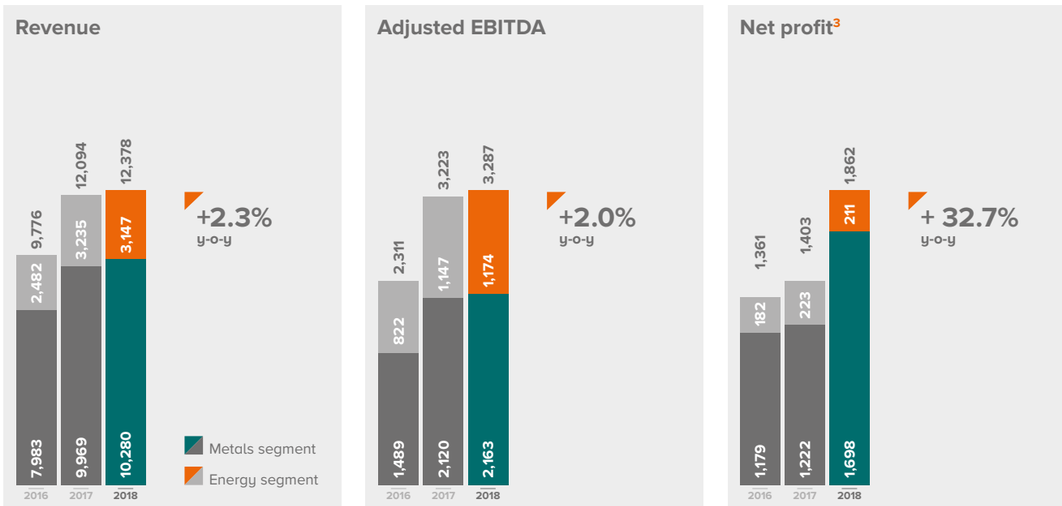
2018 Operational and Financial performance

Metals Segment



Energy Segment

Group Financial results[2] (USD mn)



1. Excluding Onda HPP, with an installed power capacity of 0.08 GW, located in the European part of the Russian Federation and leased to RUSAL as of October 2014.
2. After consolidation adjustments.
3. Excluding dividends from RUSAL.

Post sanctions development

En+ Group was under sanctions for 287 days, during which the Company underwent one of the most significant corporate transformations in Russian and global history

Lord Barker of Battle,
Executive Chairman

The lifting of sanctions on the whole En+ Group is a turning point in this great company's fortunes. It is a clear victory for muscular corporate governance and sets the group on a new path as an independent, international leader in its sector.

27 January 2019
OFAC announces the lifting of sanctions

OFAC announced that En+ and its subsidiaries had been removed from the SDN List

19 December 2018
OFAC notifies congress of its intention to remove En+ from the SDN List

1 November 2018
The Board agreed on measures for executing the Barker plan to secure the Comapny's removal from the US SDN List and approved the appointment of Vladimir Kiriukhin as CEO of the Group

27 June 2018
The composition of the Board was reformed

4 June 2018
In line with the Barker Plan, Maxim Sokov left the post of the Group's President

18 May 2018
The En+ Group Board unanimously endorsed Independent Chairman Lord Barker's proposals and strategy to secure the Company's removal from the US SDN List

6 April 2018
The US Treasury's Office of Foreign Asset Control ("OFAC") announced that En+, RUSAL, and EuroSibEnergo would be placed on its Specially Designated Nationals and Blocked Persons List (the "SDN List")

KEY PARAMETERS OF THE BARKER PLAN

Restructuring of En+ Group ownership and governance	The En+ Group and RUSAL boards are to consist of a majority of independent directors	Mr Deripaska can nominate no more than 4 directors to the En+ Group Board, out of 12	Ongoing commitment to transparency and regulatory auditing	Glencore to exchange interest in RUSAL for 10.55% ownership in En+ Group

NEW VOTING AND SHAREHOLDER STRUCTURE[1]

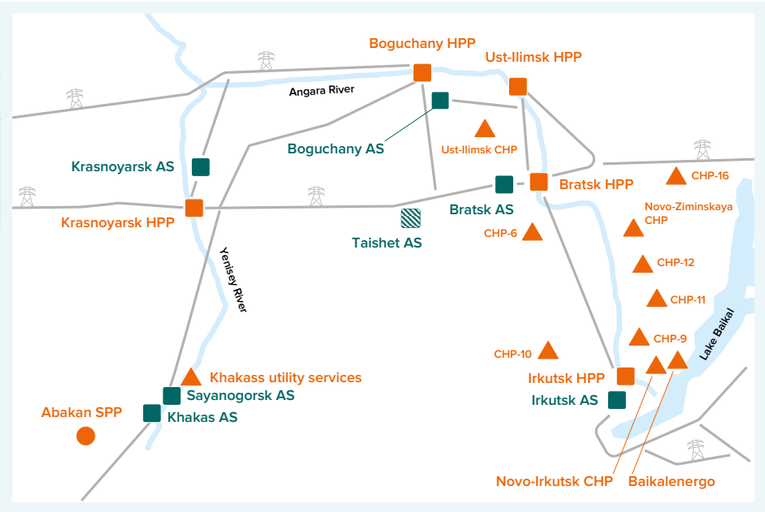
2/3
Independent votes

1. As at 26 January 2019.
2. GDRs issued as part of the Glencore swap transaction.

Note: percentages may not add up to 100% due to rounding.

A worldwide presence with core assets in Siberia

En+ is a global leader in aluminium production and renewable energy with a well-established presence across five continents, a robust operational hub in Siberia, and 98,000 people employed



No. 1
aluminium producer excluding China

5.8%
of global aluminium production

No. 1
independent hydro power producer globally

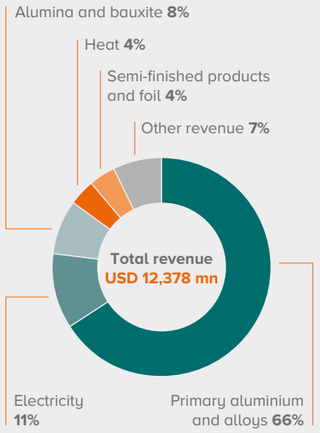
34.7%
En+ Group's share in Siberia's total power generation

c. 98,000
people

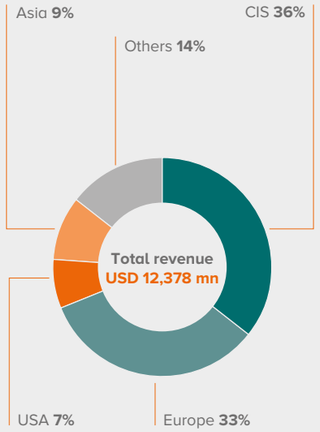
60+
sites

12
countries

2018 Revenue by product[1] (%)



2018 Revenue by region[1] (%)



1. From external customers.

ASSETS OVERVIEW

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Metals segment

Aluminium
12 aluminium smelters
Total capacity: **3.9 mtpa**
Production level in 2018: **3.8 mt**
FOR MORE INFORMATION SEE PAGE 23

Alumina
9 alumina refineries
Total capacity: **10.4[2] mtpa**
Production level in 2018: **7.8 mt**
FOR MORE INFORMATION SEE PAGE 24

Bauxite
7 bauxite mines
Total capacity: **20.6 mtpa**
Production level in 2018: **13.8 mt**
FOR MORE INFORMATION SEE PAGE 24

Energy segment

Hydropower
5 hydro power plants
Installed capacity: **15.1 GW**
Production level in 2018: **58.3[3] TWh**
FOR MORE INFORMATION SEE PAGE 44

Thermal power
16 combined heat and power plants
Installed capacity: **4.5 GW**
Production level in 2018: **14.9 TWh**
FOR MORE INFORMATION SEE PAGE 44

Solar
1 solar power plant
Installed capacity: **5.2 MW**
Production level in 2018: **6 mn kWh**
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2. RUSAL attributable capacity.
3. Excluding Onda HPP with installed power capacity 0.08 GW and production level of 0.4 TWh in 2018 (located in European part of Russia, leased to RUSAL).

Our business model

OUR RESOURCES & INPUTS

ASSETS

3.9 mt
Al capacity

19.6 GW
Electricity capacity

15.1 GW
Hydro capacity

RAW MATERIALS

20.6 mtpa
Bauxite production capacity

10.4 mtpa
Alumina production capacity

PEOPLE

c. 98,000
employees

RAW MATERIALS

Bauxites and nephelines are key raw materials for alumina production.

In 2018, the Group was approximately 70% self-sufficient in bauxites and nephelines

On the energy side of the business the Group uses water for hydro power generation and coal for thermal generation. The Group is fully self-sufficient in coal resources

Bauxite

Aluminium production starts with the raw material bauxite, a clay-like sedimentary rock found in a belt around the equator. The bauxite is mined a few metres below the ground.

13.8 mnt
production in 2018

Nepheline

Nepheline, a hexagonal mineral that usually presents as a glassy crystalline silicate of sodium, potassium, and aluminium, can also be used as raw material for alumina.

4.3 mnt
production in 2018

Water

Meticulous calculations of hydro power operations were conducted prior to creating the Angara and Yenisey hydro power cascade in order to supply cheap electric energy to the region with minimal impact on the hydrological regime of Lake Baikal and the Yenisey River.

Coal

Coal is the main material powering En+ Group's CHPs.

16.2 mt
production in 2018

REFINING

En+ Group's long position in alumina capacity helps secure ample supply for the prospective expansion of our aluminium production capacity and allows us to take advantage of favourable market conditions through third-party alumina sales.

Alumina

Alumina, or aluminium oxide, is extracted from the bauxite through refining where alumina is separated from the bauxite by using a hot solution of caustic soda and lime

Alumina can also be extracted via the Nepheline Process.

7.8 mnt
production in 2018

Hydro power generation

Hydro power generation is a key area of the Group's energy business.

It allows using massive amounts of low-carbon energy to power alumina processing.

58.3 TWh
of electricity production in 2018

Thermal power generation

The Group's HPP portfolio is balanced with thermal power generation contributing to the power markets of regions of operations

14.9 TWh
of electricity production in 2018

27.9 mm Gcal
of heat production in 2018

PROCESSING

Primary aluminium and value added products

Aluminium is produced through the process of electrolysis, where electricity is run between a negative cathode and a positive anode (both made of carbon), which reacts with the oxygen in alumina and forms CO_2. Liquid aluminium is cast into extrusion ingots, sheet ingots, or foundry alloys, depending on the intended final product.

Key products:

- Primary aluminium
- ALLOW (certified low-carbon aluminium)
- Billets
- Slabs
- Wire ord
- Ingots
- Foil
- Powder

3.8 mnt
production in 2018

Electricity transmission and distribution

- Efficient management of investment resources
- Seamless connection to the grid of new capacities

SALES & MARKETING

En+ Group's aluminium smelting assets make it the largest aluminium producer outside of China, opening up ample marketing opportunities. We are aiming to further develop sales to key customers in major growth regions, focusing on value added products and direct business with end-users.

Total sales in 2018
3,671 kt

VAP sales in 2018
1,664 kt

Electricity Trading and retail

- Ability to capture additional margin
- Direct access to consumers

18.6 TWh
sales in 2018

CREATING GLOBAL VALUE

Low-carbon aluminium
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Renewable energy
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Income and shareholder value
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Social value
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Reducing the carbon footprint of the global aluminium industry
FOR MORE INFORMATION SEE PAGE 70

Strategic asset expansion
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NORNICKEL

Strategic investment in Nornickel (27.8%)

Nornickel is the world's largest palladium producer, the second nickel producer and one of the leading producers of platinum and copper. The Group's holding allows for significant diversification of earnings as well as broadening of the Group's strategic opprotunities.

USD 8,286 mln
Investment market value at 31.12.2018

Lord Barker of Battle,
Executive Chairman

Dear shareholders,

Your Company has emerged stronger from the challenges of 2018. We are ready to deliver on our strategy of continued growth, entrenching ourselves as the global leader in low carbon aluminium production and hydropower generation. This means we are exceptionally well placed to help shift the global economy to a more sustainable future.

Our performance in 2018 demonstrated the unique strength of the business, our superior assets and the tenacity of our highly skilled employees. Our integrated business advantage stems from world class hydro power generation reliably and sustainably supplying energy for aluminium production. While the scale of our operations makes us the largest aluminium producer outside China.

> Our performance in 2018 demonstrated the unique strength of the business, our superior assets and the tenacity of our highly skilled employees.

Resilient performance driven by our people and resources

Thanks to the skills and commitment of our employees throughout the year, the Group's underlying operational performance was strong. However, fourth quarter sales were significantly impacted due to the uncertainty caused by short license extensions as we reached agreement on the sanctions delisting. Nevertheless, our focus on maintaining a low-cost base partially offset the impact of these lower sales volumes. Due to the exceptional circumstances of last year the Board has taken the prudent decision not to recommend payment of a dividend for 2018 but does remain committed to its previously announced dividend policy.

Protecting the environment is at the very heart of the Group's green business model and conserving water resources is one of our fundamental priorities. Our key hydro power plants (HPPs) are located on the Angara River which is the only river flowing from Lake Baikal. Following several years of low water levels in Lake Baikal, inflows in 2018 moved closer to normal levels. This resulted in increased power generation by the Group's Angara cascade HPPs which also fed through to our performance.

Removal from the OFAC sanctions list and protection of minority shareholders

On 6 April 2018 the US Treasury's Office of Foreign Asset Control (OFAC) placed En+'s major shareholder, along with En+ and its subsidiaries, on the Specially Designated Nationals list. In our 2017 Annual Report, as Independent Chairman, I pledged to safeguard the interests of all shareholders and use all legal means to preserve your rights and protect the long-term value of your holdings.

To ensure the continued stability of the Group, we devised a radical plan to reduce the ownership of the former major shareholder to below 45% and his voting rights to just 35%. All related shareholders also agreed to irrevocably surrender their voting rights to independent US trustees. To meet OFAC's requirements for the delisting from the SDN list, we also established an unprecedented level of corporate governance for a major Russian company, setting a new best practice benchmark. This included establishing a 12-person Board, including eight independent directors, each highly respected in their fields.

Over many months we undertook a complex and ultimately successful process of negotiations with OFAC to enable the Group's removal from the SDN list.

Outstanding international independent Board

We were delighted to welcome Christopher Burnham, Carl Hughes, Joan MacNaughton, Nicholas Jordan, Igor Lojevsky, Alexander Chmel and Andrey Sharonov to the Board in January 2019. These talented and highly respected individuals have brought with them a wealth of experience. Their expertise includes mining, clean energy, governance, the low carbon economy, finance and audit. I am also confident they will make an invaluable contribution to ensuring we continue to deliver our growth and sustainability strategy and targets. Importantly they have the skills and experience to enforce the new robust reporting and verification regime in connection with the lifting of sanctions.

With the lifting of sanctions, I have taken on additional responsibility as Executive Chairman. In this role, I will ensure the Group delivers on its significant potential for value creation.

A new international benchmark for leading corporate governance

As part of the agreement we reached with OFAC, En+ Group has committed to unprecedented levels of transparency through auditing, monthly certification and reporting. I believe we have achieved the most robust and verifiable delisting process the US Treasury has so far implemented. We have also developed new standards of corporate governance that set a precedent for companies – in both emerging and developed markets – to aspire to. Far from being onerous, this new benchmark for corporate governance makes your Company even more investible, benefits all shareholders and supports En+ Group's creation of long-term value.

Investing for the future

Although a challenging year, in 2018 we did not pause in our commitment to investing in our business. This ensures we are strongly positioned for the future in terms of assets, technology and innovation. Our New Energy investment program is a key strategic priority and is progressing well. As a result, the Group's HPPs will increase their green energy production, using the same volume of water. This has enabled the Group to reduce the Group's CHPs greenhouse gas emissions by approximately 1.8 million tonnes of CO_2 in 2018.

We continue to improve existing smelting technology and develop new technologies with minimal environmental impact as well as new products. Our program in the year included the launch of the first stage of the Dian-Dian bauxite deposit, test launch of the Volgograd anode plant and the launch of the Friguia, Guinea, alumina refinery. Development of the Taishet Aluminium smelter continues. As well as our BEMO project (first stage launched in March 2019), which includes a smelter and hydropower plant, creating one of the world's largest energy and metals developments.

Sustainability at our core

I am particularly proud that, today, En+ Group is the world's largest producer of low carbon aluminium. Harnessing the natural power of Siberia's rivers and Lake Baikal, our hydropower plants produced 58.3 TWh of clean electricity in 2018. They account for 98% of the energy requirements of our aluminium smelters, located in the Russian Siberia. As a result the carbon footprint of our aluminium production is more than three times below industry average of 12.3 tonne of CO_2e per tonne of aluminium[1]. In order to satisfy the growing demand for a low-carbon aluminium we created the ALLOW brand with a certified carbon footprint. We target to achieve a 25% market share of the estimated 4-5 mln tonnes of the global demand for sustainable low carbon aluminium by 2021.

Aluminium plays a vital role in the world's climate change solution: helping develop more energy efficient buildings and cleaner transportation and vehicles. It is the metal that can be endlessly recycled without losing any of its properties or strength. This makes it a vital component of the circular economy. As a Group we are determined to continue to do more.

As one of the world's largest metal producers, we have a responsibility to take the lead on driving the industry's environmental mission and raising our own standards of environmental stewardship. That is why in 2015, ahead of the landmark Paris Agreement, we made five detailed commitments to reduce our carbon emissions by 2025.

We will continue to invest further. We will deepen our commitments to improving our environmental performance and staying ahead of customer expectations and future regulation and policy changes. I expect to make several announcements in the months ahead on how we will deliver on this high ambition and further develop our green agenda.

Strengthened business, confident outlook

In 2019 we will build on our substantial governance reforms to open-up new opportunities and new markets for our Group. We are a global business and look ahead with confidence to working with our people and strategic partners around the world to drive our business forward.

Lord Barker of Battle,
Executive Chairman

1. Smelters' direct emissions (scope 1) and indirect energy emissions (scope 2).

Our strategy

Our commitment to the highest standards of corporate governance and social responsibility underpins our strategy and business model. In order to deliver on its strategy, the Group intends to focus on the following strategic objectives in the near to medium term.

Optimise the electricity supply-demand balance through integrating our Metals and Energy segments

As the electricity needs of our Metals segment and the electricity production of our Energy segment are closely matched, vertical integration between the two segments unlocks significant value for the Group. Specifically, long-term power supply contracts between the two segments secure a stable supply of electricity for the Metals segment's aluminium smelters while providing a benefit for the Energy segment through securing a base electricity demand. In addition to supply contracts, the Group plans to further increase the level of coordination between its two businesses by aligning long-term capital expenditures for core operations in Siberia.

Focus on cost control below inflation

To keep costs below inflation, the Energy segment uses a cost-allocation priority system and has implemented cost optimisation measures such as maintaining a lean production system, reducing personnel costs, operating a consolidated procurement service, and centralising back-office functions. As one of the lowest-cost aluminium producers globally, the Group's Metals segment maintains and improves its cost efficiency by focusing on customer demand and securing long-term power and transportation contracts while achieving full bauxite and nepheline self-sufficiency in the medium term by launching bauxite production at the Dian-Dian mine and Friguia Alumina Refinery.

Reinforce the Group's leadership in the global aluminium industry by raising production efficiency and operating margins

The Metals segment will continue developing low-cost and low-risk brownfield expansion projects in aluminium (BEMO and Taishet), either in partnership or through non-recourse project financing. To further widen margins from the value-added products (VAPs) sold to end-customers and distributors (compared to the commoditised primary aluminium sold to global traders), the Metals segment seeks to increase the share of VAPs in its production and sales mix to 60% by 2021, in particular, through increasing its VAP capacity and improving the effectiveness of its Siberian smelters. In addition to increasing VAP sales, the Metals segment seeks to cooperate with strategic partners in order to develop downstream facilities, stimulate local aluminium markets, and promote new applications of aluminium products.

The Group's strategy is to achieve vertical integration and self-sufficiency across the aluminium value chain (energy, raw materials, and finished products), maintain and grow our high-margin, low-risk aluminium production and financial strength, and grow total shareholder returns and dividend payments

Actively explore power industry development opportunities

The Energy segment actively participates in diversified, low capital expenditure research and development projects with potential industrial and environmental applications in the energy sector. Smart grids, solar energy, and small HPP systems are some of the key focus areas.

Smart grids are modernised power grids that use communications and technology to generate data on power production and consumption, enabling increased efficiency, reliability, and sustainability of power production and supply.

The Group has participated in several solar development projects, such as a pilot solar plant in Abakan (the Khakassia Region) and a solar panel development project with Moscow State University. Other solar energy initiatives include the design of solar roof panels, small solar power plants with an installed capacity of up to 10 kW, and producing components for solar plants.

In addition, the Energy segment is exploring initiatives relating to small HPPs, including exploring new boundary sites and constructing small HPPs with installed capacities up to 150 MW, backed by CSA agreements (a renewables CSA program).

Ensure continuous improvement of the Group's environmental performance

Currently, the Group's power generation and aluminium production facilities have one of the lowest carbon footprints in the world. In 2018, the Metals segment's emissions of 2.11 tCO_2e/tAl were 7.5% lower than its 2014 levels (2.28 tCO_2e/tAl). The Group continues to implement state-of-the-art environmental technology, some of which has been developed for limiting heat transmission losses for the Energy segment and introducing a closed water cycle for the Metals segment. Specifically, the Energy segment aims to reduce greenhouse gas emissions from its Siberian CHPs by 12% from 2016 levels by 2020, and aims to cover 95% of aluminium production energy needs across the Group with hydro power sources by 2025.

Deleverage and support solid dividend payments through strong free cash flow generation

The Group operates a conservative capital allocation policy, focusing on operating efficiency, cash preservation, deleveraging, and value creation for its shareholders. In the medium term, En+ will continue to deleverage in order to secure a lower cost of debt and extend the maturity of its existing debt. The Group has made a commitment to pay dividends on at least a semi-annual basis at 75% of the free cash flow generated by the Energy segment (minimum USD 250 million per year) and 100% of dividends received from the Metals segment (RUSAL).

Operate sustainably

The Group is committed to maintaining the highest health and safety standards across the business to ensure the safety and welfare of our employees. This includes our responsibilities as stewards of unique, natural environments to protect the ecosystems that support our business across the world – most notably Russia's Yenisey and Angara rivers, and Lake Baikal, which holds 20% of the world's fresh water. Our environmental care is not limited to Russia, but stretches across our operations globally.

Our sustainability commitments also provide support to the communities in which En+ and RUSAL are central in contributing to social and economic life, both as an employer and a corporate citizen. Our combined heat and power assets in Siberia are a major legacy challenge, burning coal to provide heat to local communities in a region where no heat alternatives currently exist. We take these responsibilities very seriously and are developing a roadmap on emissions monitoring and reduction as well as the eventual replacement of our outdated equipment and assets, reflecting our commitment to local communities, who rely on us for improving their quality of life.

Vladimir Kiriukhin,
Chief Executive Officer

Dear shareholders,

2018 was a pivotal year for En+ Group. A few months after the successful IPO on the London Stock Exchange, the Company was placed under restrictions rarely seen in the global corporate sector. We faced added uncertainty beyond the global economic turbulence already exerting major pressure on our sales markets.

Despite the challenges, En+ Group achieved some outstanding results in 2018. We were able to increase our aluminium output by 1.3% to 3.8 mt, our electricity production grew 7.0% to 73.2 TWh, while higher water levels in Lake Baikal drove an increase in power generation from our hydro power plants by 6.2% y-o-y to 58.3 TWh. In spite of the exceptional circumstances faced by the Group throughout most of the year, we were able to maintain our leading position as the world's largest producer of low-carbon aluminium.

The impact of sanctions pressures were felt by the Group particularly in the second and fourth quarters of 2018, when sales were significantly lower y-o-y, especially for aluminium value added products. Nevertheless, the high average aluminium price in the year supported overall growth of Group revenue in 2018, by 2.3% y-o-y to USD 12,378 mln; adj. EBIDTA was up 2% to USD 3,287 mln; Net Profit grew 32.7% to USD 1,862 mln. The Group remains focused on deleveraging and reduced debt by 8.8% to USD 11,094 mln in 2018.

Significantly, En+ Group remained focused on reducing atmospheric emissions. At our Energy segment we reduced emissions through our large-scale New Energy HPP modernization program, involving the installation of more efficient power generation units and runners and other technical and supplementary equipment. In 2018 the program has enabled En+ Group to ramp up its power output by 1.6 TWh using the same water volumes, and also has led to GHG emissions reduction of 1.8 mt CO_2. At the Group's Metals segment we reduced CO_2 emissions from the aluminium smelters by 4% y-o-y and by 7.5% compared to 2014, when we first launched our sustainable development strategy. En+ Group is targeting a 15% reduction in specific GHG emissions from its smelters by 2025 compared with 2014.

Our sustained commitment to the Group's strategic objectives was demonstrated in 2018 as we implemented our efficient CAPEX program. In 2018, the Group's CAPEX was over USD 1 billion. The Company launched, as planned, the Dian-Dian bauxite mining facility in Guinea. Once the asset is fully operational, En+ Group will achieve 100% self-sufficiency in bauxite, further strengthening the Company's vertically integrated business model. We continued to invest in the Taishet Aluminium smelter, where first metal is expected by the end of 2020, and in the BEMO project, where the first stage facilities of the Boguchany Aluminium Smelter were launched in March 2019.

> **En+ Group is committed to growth. Following the transformational year of 2018 we intend to write a new page in the history of En+ Group.**

The core values of En+ Group are safety, respect and operational excellence. In 2018, we continued to improve our health and safety performance, though there is still much room for improvement. The Group takes an extremely thorough approach to investigating any accidents and consistently introduces global best practices to ensure that any dangerous incidents are never repeated.

En+ Group is committed to growth. As the largest producer of aluminium outside of China, the Group is able to maintain a strong competitive position on the global market. In 2018, we remained one of the lowest cost aluminium producers globally.

The fundamentals of the aluminium market continue to present a significant growth opportunity for the Group. Based on the current LME price, approximately 30% of aluminium production facilities outside China and 60% within China are lossmaking. This is as a result of supply disruptions and increasing cost pressures that many others in the industry are facing. In 2018, the demand for aluminium outside China rose 2.8%, to 30 mln tonnes, whilst production was flat at 27.6 mln tonnes. Exports from China may also decline, which will lead to a market in heavy deficit, with growing demand and clear potential for aluminium price upside.

Following the transformational year of 2018 we intend to write a new page in the history of En+ Group. Overseen by the new members of our Board, who will ensure we maintain global best in class corporate governance, our fully integrated, highly self-sufficient green business model powered by the experience and commitment of our people is set to deliver a successful and sustainable future for the Company.

Vladimir Kiriukhin,
Chief Executive Officer

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Business review

Strength in evolution

The composition of the Group's assets and operations enables our Energy and Metals segments to achieve strategic synergies

Industry position

Metals Segment

En+ Group's Metals segment[1], represented by RUSAL, produced approximately 5.8% of the global aluminium output and about 6.2% of the world's alumina production in 2018. RUSAL is a low cost, vertically integrated aluminium producer with core smelting operations located in the Siberian region of Russia. In 2018, the Company remained among the largest global producers of primary aluminium and alloys.

The Company is fully self-sufficient in alumina capacity with potential to additionally supply to third parties, and about 75% self-sufficient in bauxites and nephelines.

Global aluminium demand increased by 3.6% in 2018 year-on-year to 65.6 million tonnes. Global aluminium supply was unchanged year-on-year and totalled 64 million tonnes in 2018 following a 7% year-on-year rise in 2017. Global supply (excluding China) grew by 1.8% to 27.7 million tonnes, while Chinese supply contracted by 0.6% to 36.4 million tonnes.

In China, production fell by more than 3 million tonnes between August and December 2018 as a result of low aluminium prices and more stringent environmental regulations. Around 60% of Chinese aluminium smelting production and 50% of the ROW is still struggling due to high power and alumina prices.

Aluminium inventories at LME warehouses dropped by 175 thousand tonnes to 926 thousand tonnes between January to mid-October 2018 – the lowest levels since December 2007. However, inventories rebounded to 1.273 million tonnes by the end of 2018. January saw a significant increase in LME cancelled warrants to 755 thousand tonnes, a multi-year low.

Top global aluminium producers[2]
(mt)

#1
aluminium producer outside of China

1. Throughout 2018, En+ Group held a strategic 48.1% shareholding in RUSAL which allows the exercise of corporate control. In January 2019, En+ Group's stake in RUSAL grew to 50.12% as a result of a SWAP transaction with Glencore. The transfer of an additional 6.75% of RUSAL shares to En+ Group is scheduled for no later than February 2020.
2. Based on the Company's internal data and peer companies' publicly available results, announcements, reports, and other information. The 2018 output for Chinese producers had not yet been published or made publicly available at the time of this Report's preparation; Aladdiny has been used for the estimation of their volumes.

Energy segment

With its Energy segment, En+ Group is the largest independent power producer in Russia in terms of installed capacity and the largest independent hydro power generation company in the world.

Russia has a well-developed power sector that is much needed by the country's highly energy-intensive economy. The installed capacity of the Unified Energy System of Russia in 2018 was 243.2 GW with a total electricity production of 1,070.9 TWh.

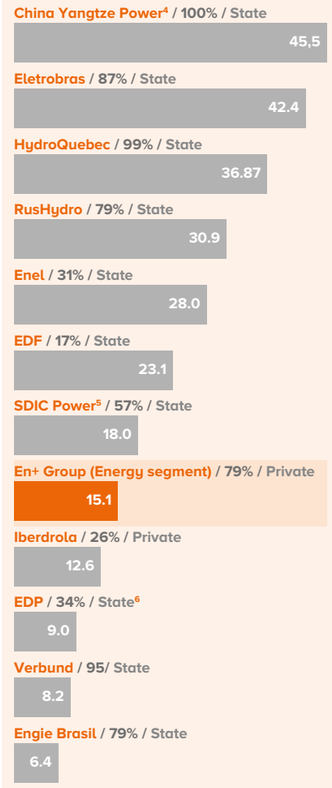
The Russian electricity market is dominated by thermal power generation assets (gas and coal). Thermal accounted for 68% of Russia's installed capacity in 2018, followed by hydro (20%) and nuclear (12%), while the Siberian region's capacity is roughly split between hydro (49%) and thermal (51%).

Hydro power generation is a key area of the Group's Energy business, with its assets primarily located in Siberia. In 2018, En+ Group remained the largest energy producer in Siberia, contributing 36.4% to the region's total installed capacity. Furthermore, 79.5% of the Group's capacity is hydro power, which enjoys a preferable position in the merit order ahead of coal-fired units.

Coal prices are the main driver of Day-ahead market prices, as coal handling plants are the marginal producers. The output of hydro power plants (HPP), driven by weather conditions, is also relevant, as it affects the production volumes needed from combined heat and power (CHP) plants.

In 2018, power production in Siberia increased by 1.3% year-on-year. The hydro power output in Siberia increased by 8.4% year-on-year, while thermal power and captive power plants decreased their electricity production by 4.9%. Electricity consumption in Siberia increased by 2.1%. In 2018, the average electricity spot prices in the second price zone increased by 2.7% from 865 RUB/MWh in 2017 to 888 RUB/MWh in 2018.

Top global power companies by installed hydro capacity
(2018, GW where available)[3]



#1
independent hydro power generator by installed capacity

3. Based on the Company's internal data and peer companies' publicly available results, announcements, reports, and other information.
4. SDIC power capacity as of 2017.
5. Subsidiary of China Three Gorges Corporation.
6. State-owned China Three Gorges Corporation and CNIC own 23.3% and 5.0% stakes, respectively.

Operational performance

Based on the current management structure and internal reporting system, the Group has determined two business segments:
Metals and Energy

METALS SEGMENT

Comprised of RUSAL. The power assets of RUSAL are included in the Metals segment.

ENERGY SEGMENT

Mainly comprised of power assets.

Metals Segment

Market overview

Global aluminium

During 4Q 2018, the aluminium price, along with the entire LME metals market, was affected by the investor sell-off resulting from rising trade tensions between the US and China. Many market participants believe this may continue to negatively impact future economic growth and industrial activity.

Aluminium demand and premiums

Global aluminium demand is expected to recover in 2019 after the trade war and supply shocks that occurred in the second half of 2018. Consumers will gradually adapt to the new environment as markets outside of China remain in heavy deficit while economic activity grows and subsequently diminishes supply risks. As a result, global aluminium demand is expected to rise by 3.7% year-on-year in 2019 to 68 million tonnes compared with the 3.6% growth to 65.6 million tonnes recorded in 2018.

Russian economic growth slowed at the end of 2018, but GDP still increased by an approximate 1.8%. Industrial production index growth amounted to 2.9% of GDP, while investments in fixed Russian assets rose by 3.0% after the recession. The increase was fuelled by the expanding construction industry as of 3Q 2018. This trend is expected to continue in 2019 and will help maintain a high demand for aluminium from both the building materials industry and the energy transmission sector. In 2018, primary aluminium demand in Russia and CIS countries grew by 9.9% to 1.1 million tonnes (including 0.9 million tonnes in Russia), with a further rise from 1.2 million tonnes to 1.25 million tonnes expected in 2019.

Global and regional headwinds weighed on Europe's economy in 2018, testing its resilience, while the US–China trade war and the risk of a no-deal Brexit continued to drag down business confidence in January. After a strong start to 2018, the economies of the EU-28 appear to have lost significant momentum in the second half of the year, although a reasonable growth of 1.5% was achieved in 4Q 2018.

Output in the construction industry increased all throughout 2018, with Germany's construction PMI hitting a seven-month high (53.3) in December. The steepest rise in the industry's activity was driven by an upturn in homebuilding demand.

The automotive sector endured disruption in 2018 as manufacturers struggled to address car certification and registration bottlenecks that arose from implementing the Worldwide Harmonised Light Vehicle Test Procedure (WLTP) for emissions. The changeover to the WLTP test cycle constrained production, and output slumped in the largest producing countries by 4.7% during the first nine months of 2018. In addition, the ongoing Section 232 investigation on auto sector tariffs presents a risk to vehicle production in 2019. Aluminium growth remained ahead of car manufacturing growth as primary aluminium demand rose by 2.2% to 9.6 million tonnes in Europe (including Turkey and excluding Russia).

North America witnessed strong growth in 2018, with economic and industrial activity accelerating sharply and GDP rising by an estimated 2.8%. Industrial production expanded at its fastest pace in several years in September and climbed at an approximate rate of 3.4% throughout the year. Although vehicle production slowed slightly by 0.5%, aluminium demand remained strong. Construction was relatively strong, with the number of new builds growing by nearly 6% from January to October 2018. The overall primary aluminium demand in North America expanded by 1.6% to 6.9 million tonnes.

Favourable domestic conditions have been supporting Japan's economic expansion, with the country's GDP increasing in 2018 by 0.8% year-on-year. While industrial production grew by 0.9%, this figure is below last year's due to weather-related problems in 1Q and 3Q. Despite a strong outlook for commercial and infrastructure spending ahead of the Olympics, a slowdown in new housing developments tempered the overall activity in the construction sector. At the same time, automotive production remained at the same level for the first eleven months of the year.

The Asean region saw a modest slowdown in growth in 2018, although primary aluminium demand resisted this trend. Continued investment in semis capacity has enabled the over performance of the aluminium industry compared to industrial growth. As a result, primary aluminium demand in Asia (excluding China and India) rose by 1.6% to 6.6 million tonnes in 2018.

The Indian economy expanded at a brisk rate of 7.4% in 2018, up from 6.2% in 2017 when demand was hindered by policy disruptions. Output growth from the construction sector increased by 8.1% on a yearly basis, whereas industrial sector output climbed at an estimated 5.3%. These factors combined drove a primary aluminium demand growth of 3.5% in 2018 to 2.2 million tonnes.

The Chinese economy grew by 6.6% year-on-year in 2018, however global instability and the trading conflict with the US deteriorated production activity, with Caixin's PMI consequently declining below 50 by the end of the year. Other sectors had a more mixed result: automotive production declined by 4.2%, FAI investments grew by 5.9%, and floor construction grew by 5.2% year-on-year in 2018. Aluminium demand was up by 4.6% to 35.8 million tonnes, but is estimated to accelerate to 5.1% year-on-year in 2019 to 37.6 million tonnes as a result of planned credit and capital stimulus by the government.

Aluminium premiums were highly volatile in 2018, responding to various market challenges such as the introduction of an additional 10% import duty in the US, sanctions against RUSAL, and several interruptions occurring at smelters. Overall, premiums in 2018 grew by 9%–10% on a comparable basis, except in Japan. In the second half of 2018, the premiums trended downwards, mainly due to market backwardation that contributed to a liquidation of traders inventories. Asian premiums were also affected by rising Chinese aluminium exports.

Aluminium supply and inventories

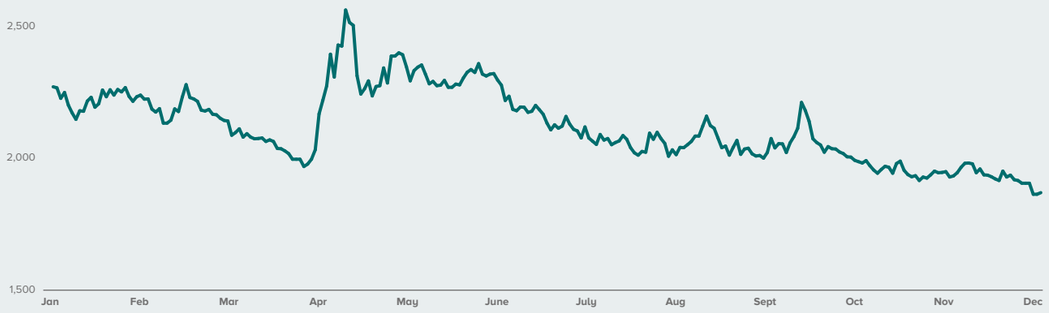
Global aluminium supply was relatively unchanged in 2018, only experiencing an 0.5% growth year-on-year to 64.1 million tonnes after the 7% rise in 2017. Globally (excluding China), supply grew by 1.8% to 27.7 million tonnes, while Chinese supply contracted by 0.6% to 36.4 million tonnes. The availability of aluminium scrap may also increase in 2019, as scrap prices are expected to rise alongside demand.

Aluminium production outside China was flat in 2018 at 27.6 million tonnes, with 50% of aluminium productions outside of China operating at a loss, likely limiting potential restarts while further increasing the risk of supply disruptions. Aluminium inventories at LME warehouses dropped by 175 thousand tonnes to 926 thousand tonnes during January to mid-October 2018 – the lowest volume since December 2007. However, by the end of 2018, stocks rebounded to 1,273 thousand tonnes. January saw a significant increase in LME cancelled warrants to 755 thousand tonnes, a multi-year low.

In China, production fell by more than 3 million tonnes from August to December 2018 as a result of low aluminium prices and more stringent environmental regulation. Nonetheless, around 60% of China's aluminium smelting production is struggling due to the high prices of power and alumina. Regional Chinese inventories declined by 0.5 million tonnes year-on-year to 1.33 million tonnes at the end of 2018, then returned to an average monthly level of 2018.

Chinese aluminium exports in 2018 increased by 23.4% to 5.23 million tonnes, but are expected to face challenges and decline in 2019 due to lower arbitrage. A fall in inventories and production under the new stimulation programs to be introduced by the Chinese government are expected to significantly improve the domestic aluminium balance.

LME aluminium price dynamics[1] ($/t)



1. Bloomberg data.

Metals Segment

Business overview

Aluminium

RUSAL owns ten[1] aluminium smelters which are located in two countries: Russia (nine plants) and Sweden (one plant). The Company's core asset base is located in Siberia in Russia, accounting for approximately 93% of the Company's aluminium output in 2018. Among those, BrAZ and KrAZ together account for more than half of RUSAL's aluminium production. The Company also owns 85% of a smelter located in Nigeria.

The Group's primary aluminium production for the year ended 31 December 2018 demonstrates a slight increase (up 1.2% year-on-year) compared to the previous year, totalling 3,753 million tonnes.

Production of value-added products (VAP) went down (down 16.4% year-on-year) from 1.885 million tonnes in 2017 to 1.575 million tonnes in 2018, with the share of VAP decreasing from 50.8% to 42.0% in 2018.

Alumina

As at the end of 2018, the Group owns eight alumina refineries located in six countries: Ireland (one plant), Jamaica (one plant), Ukraine (one plant), Italy (one plant), Russia (three plants) and Guinea (one plant). In addition, the Company holds a 20% equity stake in QAL, an alumina refinery located in Australia. Most of the Group's refineries have ISO 9001 certified quality control systems. Four refineries and QAL are ISO 14001 certified for environmental management and three refineries have received OHSAS 18001 certification for their health and safety management systems.

The Company's strong alumina capacities help secure a sufficient supply for expanding the Company's aluminium production capacity and enable leveraging favourable market conditions through third-party alumina sales.

RUSAL's total attributable alumina output was 7,774 thousand tonnes in 2018 and 7,773 thousand tonnes in 2017. Despite a decline in production volumes from Achinsk Alumina Refinery, Windalco, and Aughinish Alumina Refinery, the launch of Friguia Bauxite and Alumina Complex made it possible to maintain production volumes at 2017 levels.

Bauxites and nephelines

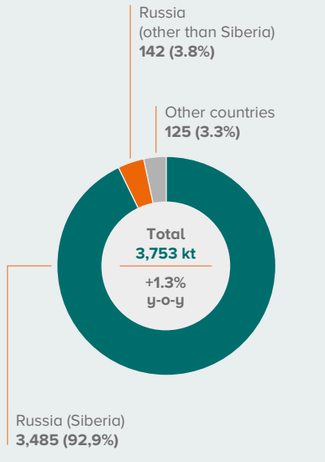
Bauxites and nephelines are key raw materials for alumina production. In 2018, the Group was approximately 75% self-sufficient in bauxite and nepheline production.

Bauxites

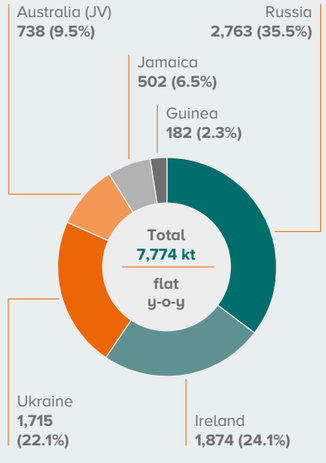
The Group operates seven bauxite mines. RUSAL's bauxite mines are located in four countries: Russia (two mines), Jamaica (one mine), Guyana (one mine) and Guinea (three mines). The Company's strong bauxite capacity helps secure a sufficient supply for expanding its alumina production capacity and enables leveraging favourable market conditions through third-party bauxite sales.

The Group's total attributable bauxite output[3] was 13,847 thousand tonnes in 2018, up from 11,645 thousand tonnes in 2017. A decrease in bauxite production at Windalco resulted from poor condition of the contractor fleet, while stabilised rail transportation at CBK (the acquisition of three additional locomotives and new wagons) after the accidents in October 2016 and April 2017 allowed increases in both the production volumes and export of bauxite in 2018. During the year, a haulage equipment renovation project was finished at BCGI, enabling a significant increase in production volumes from 2017 levels at 1,560 thousand tonnes, achieved following the launch of the new Dian-Dian mine and recommissioning of Friguia Bauxite and Alumina Complex.

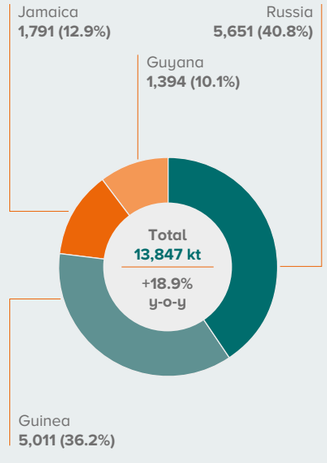
Aluminium production
(kt)



Alumina production[2]
(kt)



Bauxite production[2]
(kt)



In April 2018, the new Verkhne-Shugoskoe mine deposit was commissioned at Timan Bauxite.

In 2018, a mining equipment renovation project was completed at BCGI.

In June 2018, Dian-Dian mine was commissioned.

Launched mining at the new Verkhne-Shugoskoe deposit and the continued development of the existing Vezho-Vorykvinskoe deposit contributed to the capacity boost at Timan Bauxite in 2018.

Compagnie des Bauxites de Kindia successfully extracted its design capacity of 3,451 thousand tonnes in 2018 with an unchanged equipment structure.

Securing high quality bauxite supplies at adequate volumes and competitive prices for its alumina facilities is an important objective for the Company. Additional exploration activities are being undertaken to locate new bauxite deposits in the Group's existing mining areas and new project areas. Each of the Group's mining assets is operated under one or more licences.

As at 31 December 2018, the Group had JORC attributable bauxite resources totalling 1,834.6 million tonnes, of which 489.3 million tonnes were Measured, 714.8 million tonnes were Indicated, and 630.5 million tonnes were Inferred. The re-evaluation of resources was made following the new field development projects introduced at the Timan and North Urals bauxite mines.

Nephelines

RUSAL's nepheline syenite production was 4,294 thousand tonnes in 2018, as compared to 4,332 thousand tonnes in 2017.

The nepheline mine's production volume decrease by 38 thousand tonnes (down 0.9% year-on-year) was largely due to the mining works schedule.

Downstream projects

The new Downstream division was established by the Company in February 2018 to develop and improve the efficiency of producing value-added products from aluminium and aluminium-based alloys. The new division has brought together the Company's packaging materials, powder metallurgy, and wheel production facilities, as well as its secondary alloys production.

Foil and packaging

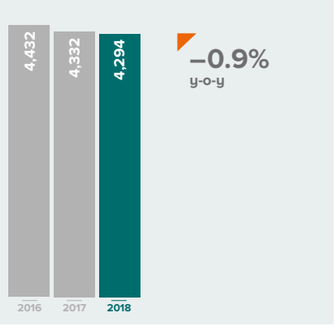
The volume of foil produced by the Group's facilities in 2018 amounted to 88.95 thousand tonnes of foil materials. A substantially reduced production by 12.11 thousand tonnes (down 12% year-on-year) was caused by sanctions-related restrictions that were in place at the time. The decrease affected exports and amounted to 8.59 thousand tonnes (down 16%).

Wheel business

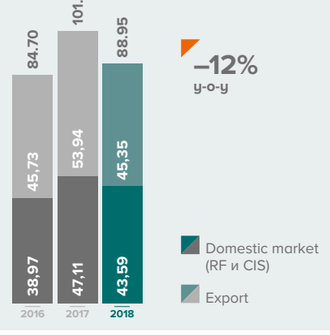
The production of aluminium wheels increased by 57.2% if it is set out for the period of RUSAL's ownership of the plant. On year-on-year basis the production volume amounted to 842 thousand wheels in 2017, meaning that the growth of production output in 2018 as compared to full 2017 would amount to 115.2% or 128.1 thousand wheels. The increase in the production volumes is explained by successfully implemented set of measures aimed at increasing the productivity, including the time losses of inefficient manufacturing processes, reducing the internal rejection rate and increasing the general efficiency of the production. The extra volume of the produced products was successfully sold to the consumers in line with increasing demand for the SKAD brand in the Russian aftermarket together with the growing new cars market (in 2018 up12.8% against 2017) and reducing import of wheels from China.

The production volume increase is attributable to successful initiatives aimed at increasing productivity, including time losses of inefficient manufacturing processes, reducing the internal rejection rate, and increasing the general efficiency of production. The extra volumes produced were successfully sold to consumers, meeting increasing demand for the SKAD brand in the Russian aftermarket amid the growing new cars market (up 12.8% year-on-year in 2018) and reducing wheel imports from China.

Nepheline mines
(kt Wet)



Foil production
(t)



1. Ten aluminium smelters currently in operation.
2. Pro-rata share of production attributable to the Group.
3. Bauxite output data was:
   – calculated based on the pro-rata share of the Company's ownership in corresponding bauxite mines and mining complexes. The total production of the Company's fully consolidated subsidiary, Bauxite Company of Guyana Inc., is included in the production figures, notwithstanding that minority interests in each of these subsidiaries are held by third parties
   – reported as wet weight (including moisture).

Metals Segment

Other business

Silicon production

The silicon output in 2018 was at 2017 levels. A slight deviation during the year was mainly due to a different maintenance schedule for key equipment and the cancelled recommissioning of the ore-thermal furnace No. 2 at Kremny Shelekhov after its overhaul due to a decline in RUSAL's needs for silicon.

Initiatives aimed at improving the quality of produced silicon in cooperation with RUSAL ETC were underway in 2018. The refining process technology was adjusted for Kremny Ural, achieving 100% refinement in two kilns.

A gas treatment centre (GTC) at Kremny Ural was constructed and commissioned, and pilot operation is now underway.

Project documentation for the construction of GTC-1 and GTC-2 for Kremny Shelekhov received a positive independent expert review. Civil and installation works are in progress.

Secondary alloys

A production output reduction was related to ceasing commercial scrap-based alloy production due to both its unprofitability and the sales market shrinking substantially, as this product was export-oriented.

In 2018, the Company decided to mothball its RUSAL RESAL capacities and move aluminium dross processing to third parties. Out of 14,313 kt of secondary metal, 5.5 kt were produced at third-party facilities.

Mining assets

RUSAL's mining assets comprise 15 mines and mine complexes, including bauxite mines, two quartzite mines, one fluorite mine, two coal mines, one nepheline syenite mine and two limestone mines.

The Company's long-standing position in alumina capacity is supported by its bauxite and nepheline syenite resource base.

The Company jointly operates the two coal mines with Samruk-Energo (the energy division of Samruk-Kazyna) under a 50:50 joint venture, Bogatyr Coal.

Bogatyr Coal

Bogatyr Coal, located in Kazakhstan, is a 50:50 joint venture between the Company and Samruk-Energo.

Bogatyr Coal, which produced approximately 44.87 million tonnes of coal in 2018, has approximately 1.75 billion tonnes of JORC Proved and Probable Ore Reserves and has Measured Mineral Resources and Indicated Mineral Resources of approximately 2.09 billion tonnes combined as at 31 December 2018. Bogatyr Coal generated sales of approximately USD 250 million in 2017 and USD 265 million in 2018.

Russian and Kazakh customers contribute to approximately 25% and 75% of our coal sales, respectively.

Investment in Norilsk Nickel

Norilsk Nickel is the world's largest palladium producer and second-largest nickel producer, as well as one of the leading producers of platinum and copper. RUSAL held a 27.82% shareholding in Norilsk Nickel as at the latest practicable date.

RUSAL's shareholding in Norilsk Nickel enables significant diversification of earnings through Norilsk Nickel's exposure to PGMs[1] and base metals while broadening RUSAL's strategic opportunities. The Company's objective is to maximise the value of this investment for all shareholders.

Company profile and financial results[2]

Norilsk Nickel's resource base in Taimyr and Kola Peninsula as at 31 December 2017 consists of 815 million tonnes of Proved and Probable Ore Reserves and 2,047 million tonnes of Measured Mineral and Indicated Mineral Resources. Its key assets are located in the Norilsk Region, Kola Peninsula, and Trans-Baikal Territory in Russia, with foreign production assets located in Finland and South Africa.

In 2018, Norilsk Nickel produced 219 thousand tonnes of nickel, 474 thousand tonnes of copper, 2,729 thousand troy ounces of palladium, and 653,000 troy ounces of platinum. Compared to 2017:

- Nickel production grew by 1%, primarily due to an increase in processed volumes of Russian feedstock as a result of downstream reconfiguration and processing accumulated work-in-progress inventories. Nickel production from the Company's own Russian feedstock increased by 3%
- Copper production grew by 18%, primarily due to the ramp up of the Bystrinsky Project, an increase in processed concentrate volumes purchased from Rostec, and reduced metal losses in recovering copper to copper concentrate. Talnakh Concentrator reached its design capacity following modernisation, and copper production from the Company's own Russian feedstock increased by 19%
- PGM production decreased (palladium down 2%, platinum dow 3%), primarily due to processing lower volumes of third-party feedstock. PGM production from the Company's own Russian feedstock in 2018 was approximately the same as in 2017

Norilsk Nickel's metal sales are highly diversified by region (Europe, Asia, North and South America, Russia, and the CIS) and by products (nickel, copper, palladium, platinum, semi-products, and other metals).

The market value of RUSAL's investment in Norilsk Nickel amounted to USD 8,286 million as at 31 December 2018, similar to the year prior.

RUSAL is a party to the Shareholders Agreement, which among other aspects governs the dividends distributions of Norilsk Nickel.

1. PGMs – platinum group metals.
2. Production and operational data in this section is derived from http://www.nornik.ru/en/

Taishet aluminium smelter, under construction.

Projects

BEMO project

The BEMO project involves the construction of the 3,000 MW Boguchany HPP and the Boguchany aluminium smelter (BoAZ) in the Krasnoyarsk Region in Siberia.

Construction of the BoAZ is divided into two stages (each stage with an annual capacity of 298 kt of aluminium). The first part of the first stage (149 kt of aluminium per annum, 168 pots) was launched in 2015 and the second part of the first stage was launched in March 2019. The second stage of BoAZ (approximately 300 kt per annum) will be considered with strategic partner RusHydro after the design capacity of first stage has been reached and is subject to the market condition and availability of project financing.

Boguchany is the fourth step of the Angara hydroelectric power chain, the largest major hydro power plant completed in Russia. Construction of the power plant was suspended during the Soviet Union due to insufficient financing, and was later resumed in May 2006 by RUSAL and RusHydro following their agreement to jointly run the BEMO project comprising Boguchany HPP (average annual electricity output at 17.6 billion kWh) and an aluminium smelter capable of producing 600 kt of metal per annum.

Boguchany HPP is 79 meters high, with its 2,587-meter-long composite gravity and rock-fill dam completed at the end of 2011 and its nine 333 MW hydro power units first commissioned from 2012 to 2014. The total installed capacity of all nine hydro units in operation amounts to 2,997 MW.

The plant commenced commercial supplies to the wholesale electricity and capacity market on 1 December 2012. Since its launch, Boguchany HPP has generated 67.62 TWh of electricity, and supplied 13.61 TWh to the wholesale electricity and capacity market in 2018.

Taishet aluminium smelter

Construction of Taishet Aluminium Smelter was started in 2006, although RUSAL decided to suspend the project in 2009 due to unfavourable market conditions. Following economic recovery and an improvement in the market conditions in 2016, RUSAL's Board of Directors decided to resume construction of Taishet Aluminium Smelter LC-1 (first series) and approved preparatory works to resume construction. Construction of Taishet Aluminium Smelter resumed in 2017.

The project includes construction of an aluminium smelter in Taishet in the Irkutsk Region (Eastern Siberia) with the annual design capacity of the LC-1 (first series) at 352 pots or 428.5 ktand an annual electricity consumption of 6,370 million kWh.

As at 31 December 2018, RUSAL had invested USD 792 million (excluding VAT) in the LC 1 (first series) construction project.

Metals Segment

Assets overview

Bauxite production sites

Compagnie des Bauxites de Kindia (CBK)

Kindia, the Republic of Guinea

Compagnie des Bauxites de Kindia is one of the Metals segment's largest feedstock assets, providing more than 25% of the total bauxite output.

The company became part of RUSAL in 2000, with production starting in 2001.

CBK operates bauxite deposits and infrastructure, including rail line and an ore transshipment port.

CBK operates using the blast free thin layer bauxite mining method, which has enabled the company to develop remote deposits with minimal infrastructure costs and reduce its environmental impact.

Exploration has been completed and reserves prepared for mining at the Central, Sankaran, Northwestern Balaya, Northeastern Balaya, and Southern Balaya areas.

Development plans

On 28 September 2017, the Company signed a memorandum to extend the concession agreement for the Guinean Compagnie des Bauxites de Kindia project for another 25 years, until 2051.

Total capacity and utilisation rate

3,500 ktpa, 99%

Production level, 2018

3,451 kt

North Urals Bauxite Mine (SUBR)

Severouralsk, Sverdlovsk Region, Russian Federation

North Urals Bauxite Mine began operations in 1934, exploiting deposits underground.

In 2015, the first start-up facility of the new Cheremukhovskaya-Glubokaya mine was launched. With a depth of 1,550 m, Cheremukhovskaya-Glubokaya is the deepest mine in Russia and among the five deepest globally.

The launch of the Cheremukhovskaya-Glubokaya mine has provided access to new ore deposits and enabled the company to lower its cash costs of bauxite at North Urals Bauxite Mine due to optimised technological transportation and ore production processes.

The Group's Bogoslovsk Aluminium Smelter and Urals Aluminium Smelter are the main consumers of North Urals Bauxite Mine bauxites.

Development plans

Completing the construction of the Cheremukhovskaya-Glubokaya mine and increasing the bauxite mining capacity to 2,500 ktpa by 2020.

Total capacity and utilisation rate

3,000 ktpa, 78%

Production level, 2018

2,326 kt

Dian-Dian

Boke Region, the Republic of Guinea

The Republic of Guinea has the world's largest reserves of bauxite. Dian-Dian is the world's largest bauxite deposit, with 564,000 kt of proven resources. The development licence is held by the Group's Metals segment.

Phase 1 of the Dian-Dian project includes the construction and commissioning of a bauxite mine with a 3,000 ktpa capacity and potential to increase to 6,000 ktpa.

Investments in Phase 1 will exceed USD 220 million.

In December 2013, the President of the Republic of Guinea awarded the project national priority status.

In June 2018, Phase 1 of the Dian-Dian mine was put into operation.

Development plans

Once completed, Phase 2 of the project will extend Dian-Dian's capacity to 6,000 ktpa.

Total capacity and utilisation rate

3,000 ktpa, 28%

Production level, 2018

840 kt (commissioned in June 2018)

Bauxite Company of Guyana (BCGI)

Georgetown, Guyana

The company was founded in December 2004 under an agreement between RUSAL and the government of Guyana. RUSAL owns a 90% stake in the company, while the remaining 10% belongs to the Guyanese government.

Currently, the company uses open-pit mining at the Kurubuka-22 deposit, part of the Kwakwani group of deposits, and also owns two production lines: a crushing and dehydration complex in Kurubuka and a loading and dehydration complex in Aroaima.

BCGI provides feedstock for the Group's European assets. The remainder of its output is distributed to third-party consumers across a wide geographical range, including the USA, Brazil, Italy, and Australia.

In 2018, the mining equipment at BCGI was refreshed.

Development plans

Further exploration activities and production increase at Kurubuka-22 (to 2,000 ktpa), and exploring potential deposits at Kurubuka-28 and Block-38.

Total capacity and utilisation rate

1,700 ktpa, 82%

Production level, 2018

1,394 kt

Metals Segment

Timan Bauxite

Ukhta, the Republic of Komi, Russian Federation

Timan Bauxite was launched in 1992 with the aim of developing bauxite deposits in the Middle Timan area, which holds approximately 30% of all Russian bauxite.

Due to favourable geological conditions, the bauxite deposit at Timan Bauxite can be developed using the open-pit method. Its production facilities are connected to the federal railroad between Moscow and Vorkuta, and its produced bauxite is delivered to the Urals Aluminium smelting plant operated by the Group's Metals segment.

The company's first deposit is currently almost depleted. Since 2016, the company has been investing into the development of the Verkhne-Shugorskoye deposit (Phase 2 of the Middle-Timan bauxite mine), with 65 mt of bauxite reserves.

In 2017, Timan Bauxite was one of the first pilot sites for implementing the Aluminium Stewardship Initiative standards.

In April 2018, the new Verkhne-Shugoskoe mine deposit was commissioned at Timan Bauxite, and 676.3 thousand tonnes of ore were mined by the end of the year. The deposit's total ore reserves are estimated at 14 mt of bauxite.

Development plans

Construction of treatment facilities at Timan Bauxite is planned to commence in 2019.

Total capacity and utilisation rate

3,300 ktpa, **101%**

Production level, 2018

3,325 kt

Alumina Refineries

Aughinish Alumina Refinery

Aughinish island, Ireland

Production at Aughinish Alumina commenced in September 1983 after a five-year construction period.

It is one of the most technologically-advanced and energy-efficient alumina refineries in the world, one of Europe's largest, and a major alumina asset of the Group.

Key infrastructure includes a deep water terminal on the Shannon estuary, a bauxite ore crushing and grinding plant, a single digestion processing unit, a hydrate processing plant, several gas-fired calcination units, and a gas-fired cogeneration plant.

In 2017, a second unloader was successfully installed and commissioned at Aughinish under a three-year project extensively upgrading its civil, mechanical, and power/control infrastructure.

In 2018, Aughinish brought online a new deep cone thickener in the mud circuit. This will help the settling the pond of plant to handle the different bauxites that are expected in the coming years.

Development plans

Major developments at Aughinish over the next three years will prepare the refinery for different bauxites whilst maintaining its reliability.

Total capacity and utilisation rate

1,990 ktpa, **94%**

Production level, 2018

1,874 kt

Nikolaev Alumina Refinery

Nikolaev, Ukraine

Nikolaev Alumina Refinery is the second largest producer of alumina the former Soviet states in terms of production capacity. The facility was launched in 1980.

The refinery's bauxite is predominantly sourced from the Metals segment's Compagnie des Bauxites de Kindia, while additional raw materials are delivered by Bauxite Company of Guyana also operated by the Group and from the Weipa mine in Australia.

Produced alumina is sent for smelting to the Group's facilities (Bratsk, Krasnoyarsk, and Sayanogorsk aluminium smelters) as well as to third parties.

Total capacity and utilisation rate

1,700 ktpa, **101%**

Production level, 2018

1,715 kt

WINDALCO

Jamaica

WINDALCO's bauxite and alumina production complex comprises refineries in Ewarton, St Catherine and Kirkvine, Manchester; bauxite mines in Swallenburg; the Port Esquivel shipping port in St Catherine, and agricultural farms in Manchester and St Ann.

Construction began on the Kirkvine Works plant in 1950. In 1952, commercial mining began and the first alumina was produced in December that same year.

Bauxite mined at the site is used at the refinery for alumina production. Alumina and hydrate are sold to both internal and external parties.

Development plans

Major development projects include expanding the mud stacking facility, constructing a sand removal system, and rehabilitating the digestion and ball mill areas.

Total capacity and utilisation rate

1,210 ktpa, **41%**
alumina

4,000 ktpa, **45%**
bauxite

Production level, 2018

502 kt
alumina

1,791 kt
bauxite

Metals Segment

Achinsk Alumina Refinery (AAR)

Achinsk, Krasnoyarsk Territory, Russian Federation

Achinsk Alumina Refinery (AAR) was launched in 1970 at the site of the Kiya-Shaltyr nepheline deposit and the Mazulsky limestone mine.

The refinery uses a unique method of alumina production through complex processing of nepheline ore, calcinated soda, and potassium sulphate. The method was designed by the Russian National Aluminium and Magnesium Institute, a part of the Group's Metals segment.

The alumina produced at AAR is predominantly delivered to the Group's Siberian aluminium smelters.

The equipment at AAR is constantly undergoing upgrades to raise the facility's production efficiency and lower its carbon footprint.

A new production process has been developed for producing highly dispersed precipitated aluminium hydroxide, a material used as a fire retardant. Slurries from Achinsk Alumina Refinery are used in this unique process for extracting alumina from nepheline, resulting in drastically low production costs. The new process has completed all the required laboratory and field tests. Consumers were sent samples of the material and reported its suitability for forming compounds. According to current estimates, there is a market for more than 15 ktpa for highly dispersed precipitated aluminium hydroxide in Russia alone. Work has begun on the first stage of a 5 ktpa production line at Achinsk Alumina Refinery.

Development plans

Exploration at the Kiya-Shaltyr and Mazulsky deposits, preparation of design documentation for the Goryachegorsky mine development.

In 2019, a reconstruction of gas scrubbers connected to sintering furnaces No. 5 and No. 8 is planned to commence at RUSAL Achinsk.

A new stage involving the construction of a mini-plant has been completed under a project developing an aluminium chloride production process for producing alumina from non-bauxite raw materials. The next stage is the construction of an experimental industrial unit with a capacity of 2 ktpa at Achinsk Alumina Refinery.

Total capacity and utilisation rate

1,069 ktpa, 80%

Production level, 2018

851 kt

Bogoslovsk Aluminium Smelter (BAS)

Krasnoturyinsk, Sverdlovsk Region, Russian Federation

Construction began in 1941 and first aluminium was produced in 1945.

The BAZ alumina refining facility was designed to process highly carbonated bauxites from SUBR (located 37 km from BAZ).

Alumina is the main product supplied from BAZ to the Group's Metals segment companies.

The facility's alumina production is based on a paralleled version of the Bayer process, sintering process, and alkaline method.

Aluminium production has been mothballed at BAZ in accordance with the 2012–2013 program for decommissioning inefficient facilities of the Metals segment.

Digester productivity has been increased through a reciprocating piston pump stock upgrade (GEHO and FELUWA units), and the condition of the bauxite slurry heaters has been improved. The productivity of sintering kilns has been increased by lowering slurry moisture.

Development plans

A rotary calcination furnace is scheduled for completion in 2018–2019. The project will enable cost cutting, improving alumina quality, and emissions reduction.

Total capacity and utilisation rate

1,030 ktpa, 97%

Production level, 2018

1,002 kt

Urals Aluminum Smelter (UAS)

Kamensk-Uralsky, Sverdlovsk Region, Russian Federation

The plant was built in 1939 to process bauxites mined in the Urals.

The plant was upgraded and scaled up in 2015–2017. As a result, alumina production increased by 15% to 885.5 kt from the 770 kt produced in 2014.

The plant was the first to use new machinery in Russia such as Krauss Maffei disk filters, 3,300 m3 flat bottom decomposers with mechanical stirring, and a rotary calcination furnace.

Aluminium production has been mothballed at UAZ under the 2012–2013 program for closing inefficient facilities of the Metals segment.

UAZ uses the paralleled version of the Bayer and sintering processes. The Bayer part solely uses bauxite feedstock from the Sredne-Timanskoye bauxite deposit.

Development plans

The refinery aims to increase the efficiency of autoclave leaching and calcination furnaces to decrease energy consumption and lower its carbon footprint.

Total capacity and utilisation rate

900 ktpa, 100%

Production level, 2018

910 kt

Metals Segment

Friguia Bauxite and Alumina Complex (FBA)

Fria, the Republic of Guinea

In 2002, RUSAL took over the management of FBA, which was then privatised in 2006.

The proven resources of bauxites are determined to be 325,000 kt. Mining was halted in April 2012.

On 28 April 2016, RUSAL and the Republic of Guinea signed an agreement to resume operations at Friguia Bauxite and Alumina Complex. Under the agreement, the Metals segment will develop an action plan to launch the plant and then gradually increase its production capacity to 550 ktpa – 600 ktpa of alumina within 12 months.

The plant successfully resumed operation after a long-term conservation (since 2012). The first production unit was recommissioned in May 2018 and the plant reached its 50% capacity in 4Q. Its capacity recovery is planned to continue in 2019.

Development plans

The Metals segment is developing an upgrade project extending the capacity of Friguia Bauxite and Alumina Complex.

Total capacity and utilisation rate

2,100 ktpa, 34%
bauxite

650 ktpa, 28%
alumina

Production level, 2018

720 kt
bauxite

182 kt
alumina

Queensland Alumina Ltd (QAL)

Gladstone, Queensland, Australia

Alumina production commenced in 1967.

Queensland Alumina is of the largest alumina refineries in the world, with a wharf and storage facility located adjacent to the refinery.

The Group's Metals segment owns 20% of the company, while the remaining 80% is owned by Rio Tinto Alcan.

Total capacity and utilisation rate

3,950 ktpa, 93%

Production level, 2018

738 kt
(in the Group's share)

Aluminium Smelters

Krasnoyarsk Aluminium Smelter (KrAZ)

Krasnoyarsk, Krasnoyarsk Territory, Russian Federation

Krasnoyarsk smelter is one of the largest in the world, launched in 1964 as part of a large-scale regional energy and metals cluster involving both upstream and downstream facilities for aluminium and energy production.

Presently, KrAZ is one of the Group's core smelting facilities deploying new, innovative technology and manufacturing unique products.

The smelter has 25 potrooms and three casthouses, using 90% of the energy generated by Krasnoyarsk HPP. Value-added products make up 42.3% of the smelter's full product range.

A large-scale environmental modernisation program has been carried out at KrAZ over the past decade to majorly reduce its pollutant emissions.

The smelter was converted to "dry" anode technology and equipped with dry gas scrubbing stations and automated alumina point feeders, while 66% of the potrooms were converted to RUSAL's proprietary Eco-Søderberg technology by the end of 2017.

During 2018, 254 S8BMe/S8Be pots were installed at KrAZ under the modernisation plan; 101 energy-efficient ShPVVe pots and 67 environmentally-friendly S8Ba pots were also installed at Bratsk Aluminium Smelter; and two RA-167 pots were installed in a trial area of Novokuznetsk Aluminium Smelter.

Over 80% of the reduction cells at Krasnoyarsk Aluminium Smelter have been converted to the new standard, with 254 being retrofitted in 2018.

Development plans

The construction of a new foundry complex to increase cylindrical billet production, including large 457 mm billets, is underway, and will reach its design capacity.

The large-scale environmental modernisation program was completed, reducing the facility's gross CO_2 emissions by 39% in 2018 (compared to 2004).

Inert anode technology development was also completed.

Total capacity and utilisation rate

1,019 ktpa, 100%

Production level, 2018

1,015 kt

Metals Segment

Bratsk Aluminium Smelter (BrAZ)

Bratsk, Irkutsk Region, Russian Federation

The smelter's first production facilities were commissioned in 1966. In 2008, BrAZ became the world's first aluminium smelter to exceed the 1 mtpa output threshold, and has produced a total of over 40 mt of aluminium during its service.

Bratsk HPP is the energy supplier for BrAZ.

BrAZ produces primary aluminium and alloys. The smelter continuously widens its range of alloys and manufactures consumer specific products.

The smelter is undergoing a large-scale environmental modernisation program, including converting to the Eco-Søderberg technology and implementing highly efficient gas treatment plants to reduce its environmental footprint.

At Bratsk Aluminium Smelter, reduction cells are being retrofitted in four potrooms (with 66 reduction cells retrofitted in 2018): over 10% of the smelter's reduction cells have been converted to use the new technology and modern gas scrubbers have been installed on three potlines.

The Bratsk branch began pouring preheated cast iron into cathode bottom blocks of all pots being rebuilt in order to reduce the voltage drop on the steel bar-bottom block contact connection by 35 mV and minimise power consumption by 117.3 kWh/t of aluminium.

Development plans

Further implementation of the environmental modernisation program: replacing the existing gas treatment plants with wet scrubbing technology; equipping the electrolysis cells with automated alumina point feeders; completing reconstruction of the mud storage; completing conversion to the Eco-Søderberg technology.

Total capacity and utilisation rate

1,009 ktpa, 100%

Production level, 2018

1,009 kt

Sayanogorsk Aluminium Smelter (SAZ)

Sayanogorsk, the Republic of Khakassia, Russian Federation

The smelter was built in 1985 nearby one of the world's largest hydro power plants, Sayano-Shushenskaya HPP.

Sayanogorsk Aluminium Smelter is where the Group's history began in 1997, when Oleg Deripaska, who was chief executive of SAZ at the time, initiated the first post-Soviet vertically integrated industrial company, Siberian Aluminium (renamed to Basic Element in 2001), which later united several of Russia's leading smelters.

SAZ comprises four potlines and one casthouse; it is an industrial scale facility that tests state-of-the-art RA-500 electrolysis cells (the Group's proprietary technology) and uses baked anode technology.

SAZ is Russia's largest aluminium alloy producer, producing a total 375 kt of alloys (70% of its total output).

The company has been successfully operating the super powerful RA-550 reduction cells that were initially commissioned at the experimental industrial shop of Sayanogorsk Aluminium Smelter. The new reduction cells have proved capable of delivering the highest level of energy efficiency and environmental performance in the world.

Development plans

In 2018, a project designed to increase power supply reliability titled, Dividing the Needs of Sayanogorsk Aluminium Smelter, was completed. A positive expert opinion was received and a tender procedure was commenced to purchase the required equipment. Equipment purchase, construction, and assembly works are planned for 2019.

Under the project in 2018, RUSAL Sayanogorsk opened pilot areas for upgrading the network infrastructure, developing a system for technical record-keeping and telemetry of power facilities, and implementing a modern MES-system replacing existing processes with automated working stations.

Total capacity and utilisation rate

542 ktpa, 99%

Production level, 2018

536 kt

Metals Segment

Khakass Aluminum Smelter (KhAZ)

Sayanogorsk, the Republic of Khakassia, Russian Federation

The first aluminium smelter launched in post-Soviet Russia in 2006. It reached its designed capacity in 2007.

One of the world's most technologically sophisticated smelters, KhAZ uses RA-300 electrolysis technology (patent rights held by the Group's Metals segment) based on baked anodes. The smelter has one potline and one casthouse.

In 2017, a new Properzi continuous horizontal casting system was launched to manufacture new alloy types, with a total design capacity of 120 ktpa. The products are being manufactured for the automotive industry, including car wheel production. The new facility will ultimately enable KhAZ to ramp up its alloys output from 82 ktpa to 202 ktpa.

In 2018, KhAZ produced 87.5 kt of alloys (30% of the smelter's total output).

Development plans

Implementation of a radically new smelter management approach, Total Quality Management, in order to fully meet customer needs.

Total capacity and utilisation rate

297 ktpa, 98%

Production level, 2018

291 kt

Irkutsk Aluminium Smelter (IrkAZ)

Shelekhov, Irkutsk Region, Russian Federation

The Irkutsk smelter produced its first primary aluminium in 1962. Electric power is provided to the smelter from Irkutsk HPP.

The smelter became a part of RUSAL in 2007 and has been majorly upgraded: the new fifth potline using baked anodes was launched and a new casthouse was commissioned. The smelter mastered the production of hi-tech wire rods and new generation alloys for the transportation and construction industries.

The Irkutsk smelter's product range includes more than 100 varieties of aluminium alloy and more than 30 types of wire rod. High value-added products account for 80% of the smelter's total output.

In 2015, the Irkutsk smelter commenced an Eco-Søderberg project in order to transition the plant's first, third, and fourth potlines to this technology, thereby reducing its pollutant emissions by 30%. The project is scheduled for completion by 2020.

Development plans

Further implementation of the Eco-Søderberg technology; modernisation of the gas treatment facilities; expanding the high value-added product share in the overall output.

Total capacity and utilisation rate

419 ktpa, 100%

Production level, 2018

419 kt

Boguchany Aluminium Smelter (BoAZ)[1]

Taezhny, Krasnoyarsk Territory, Russian Federation

Boguchany Aluminium Smelter is one of Russia's largest and most technologically advanced metallurgical companies. Phase 1 production facilities of the Boguchany smelter were launched in 2016.

The smelter forms part of the Boguchany Energy and Metals Complex (BEMO), a 50:50 joint venture of RUSAL and RusHydro.

Aside from Boguchany Amulinium Smelter, BEMO also includes Boguchany HPP. The two plants form the largest production complex conducting energy-intensive aluminium production with its own hydro power generation.

Once completed, the smelter will boast 672 RA-300B electrolysis cells, each with a daily capacity of 2.4 tonnes of aluminium.

Development plans

The second half of Phase 1 production was launched in Q1 2019 (149 ktpa of primary aluminium; 168 electrolysis cells).

Total rated capacity

600 ktpa

Capacity of the first half of Phase 1 production facilities

149 ktpa

Capacity utilisation rate

100% of Phase 1 production capacity

Production level, 2018

147 kt

Novokuznetsk Aluminium Smelter (NkAZ)

Novokuznetsk, Kemerovo Region, Russian Federation

Novokuznetsk Aluminium Smelter produced its first liquid metal in 1943, becoming the very first smelter in Siberia.

NkAZ includes six electrolysis shops and one casthouse.

An overhaul was carried out on the smelter's foundry facilities, enabling manufacture of the high-quality products in demand both in the domestic and foreign markets. In 2017, NkAZ produced 150 kt of alloys (70% of its overall output), and is capable of producing more than 300 types of metal products.

As part of modernisation plan in 2017, two RA-167 pots were installed in a trial area at the Novokuznetsk smelter.

Development plans

Transition to pre-baked anodes technology at four electrolysis shops, and to the Eco-Søderberg technology at the remaining two shops; dry gas treatment to be applied at all electrolysis cells.

Total capacity and utilisation rate

215 ktpa, 100%

Production level, 2018

215 kt

1. A 50:50 joint venture of RUSAL and RusHydro. Capacity and production volumes of the BEMO project are not included to the Company's consolidated operating data.

Metals Segment

KUBIKENBORG ALUMINIUM AB (KUBAL)

Sundsvall, Sweden

KUBAL is the sole producer of primary aluminium and the largest industrial facility in Sweden. The smelter's capacity has grown more than 10 times since its launch in 1942. KUBAL's extensive modernisation, carried out by the Group, has enabled the smelter to boost production efficiency and reduce its impact on the environment.

Half of KUBAL's products are shipped to Swedish customers, while the other half is supplied to clients elsewhere in Europe.

Total capacity and utilisation rate

128 ktpa, 98%

Production level, 2018

125 kt

Other aluminium smelting assets[1]:

- Installed capacity: 168 ktpa
- Aluminium production in 2018: 142 kt

DOWNSTREAM

Casting and mechanical plant "SKAD" (SKAD)

Divnogorsk, Krasnoyarsk Territory, Russian Federation

SKAD Casting and Mechanical Plant is a manufacturer of light-alloy wheels for passenger cars. It casted its first wheels at the beginning of 2004. The SKAD plant operates a full production cycle from preparing aluminium alloy to painting, packaging, and shipping off the finished products.

Throughout its history, SKAD has received ISO 9001:2000 certification, was acknowledged as a preferred quality supplier of Ford Motor Company, and nominated as a wheel supplier to PCMA Rus and Toyota Motor Company.

In 2013, the plant completed a modernisation program and installed cutting-edge Eisenmann equipment.

SKAD was acquired by the Group in 2017.

Development plans

A production capacity expansion program is continuing throughout 2019 with the aim to increase the plant's output.

Total capacity and utilisation rate

1 m wheels per year, 97%

Production level, 2018

970 thousand wheels

1. Volgograd Aluminium Smelter, Nadvoitsy Aluminium Smelter, Kandalaksha Aluminium Smelter.

SAYANAL

Sayanogorsk, the Republic of Khakassia, Russian Federation

Created in 1993 under an agreement between the Sayanogorsk smelter, Italian engineering company FATA, and the US-based Reynolds Metals Company (one of the world's largest producers of aluminium-based packaging materials). SAYANAL is Russia's largest producer of foil and packaging.

Aluminium for SAYANAL's production needs is supplied by Sayanogorsk Aluminium Smelter, located in the vicinity.

In 2017, the rolling-mill shop was modernised. As a result, ten additional annealing furnaces were installed and the rolling mill was upgraded, leading to a 10% production capacity increase to 44 ktpa as of 2018.

Development plans

Finalisation of the design review for constructing the second foil rolling mill under the program aimed at increasing the facility's capacity to 100 ktpa.

Total capacity and utilisation rate

41 ktpa foil and packaging, 85%

Production level, 2018

34,8 ktpa

Krasnoyarsk Metallurgical Plant (KraMZ)[2]

Krasnoyarsk, Krasnoyarsk Territory, Russian Federation

Krasnoyarsk Metallurgical Plant is the newest and third-largest downstream company in Russia. Its activities are focused on processing aluminium and aluminium alloys.

KraMZ manufactures flat slabs and cylindrical billets, extruded profiles, and forgings and stampings of a wide range of alloys compliant with Russian and foreign chemical composition standards.

Total capacity and utilisation rate

112.6 ktpa, 76%

Production level, 2018

63 kt

2. Accounted as a part of the Group's Energy segment in operating and financial results.

Energy segment

Market overview

Overview of the Russian power sector

The Russian Federation's power sector is among the largest in the world, with an installed electricity capacity of 243.2 GW and an electricity output of 1,070.9 TWh as at 2018. The majority of Russia's electricity demand is met by thermal power plants using natural gas and thermal coal as a primary fuel. In Siberia, 51.1% of the installed capacity is thermal power plants, while 48.8% is hydroelectric generation.

Russia has one of the few fully liberalised and privatised power sectors in the world. Over the past two decades, Russia's power sector has undergone major restructuring, from centralised planning to a market-based system. The market currently consists of companies engaged in generation, transmission, distribution, retail sales, repairs, and other servicing operations.

In addition to structural changes, Russia's power market underwent a transition from electricity tariff regulation to market-based price formation. The power market's two-tier structure (wholesale and retail) and product trading (electric power and capacity) form the foundation of the new power market.

The Unified Energy System (UES) of Russia covers most of the country's territory, although grid interconnections between different power systems are limited, splitting the Russian wholesale power and capacity market into two pricing zones. The first pricing zone covers the territory of the European part of Russia (including the Urals), while the second pricing zone overlays Siberia. Differences in the capacity structure and fuel mix define the electricity price drivers in each Russian price zone.

The Siberian Integrated Energy System (IES) has an operational area of 4,944,300 square km with a population of approximately 20 million people. It comprises 103 power plants with a combined installed capacity of 51.86 GW, including 25.3 GW of hydro power plants (48.8%), 26.5 GW of thermal power plants (51.1%), and 55 MW of solar power plants (0.1%). The Siberian IPS grid consists of 110, 220, 500, and 1,150 kV lines, making up a total 101,288 km length in power lines.

A unique feature of the Siberian IPS is the significant role of HPPs in both the installed electricity capacity's structure and the electricity output. Thermal power in the Siberian IES is primarily generated by coal-fired power plants, most of which are located in close proximity to regions where the coal is mined.

Electricity demand

The Russian UES electricity consumption increased by 1.5% to 1,055.6 TWh, mainly due to lower seasonal temperatures. Electricity consumption in the European–Ural price zone[1] also grew by 1.3% to 811.1 TWh.

Electricity consumption in the Siberian IES increased by 2.1% in 2018 to 210.1 TWh, primarily driven by lower seasonal temperatures in the first half of the year compared to the same period in 2017, particularly in May (a 3.1 °C lower average air temperature; consumption increased by 4.8% year-on-year), March (a 3.3 °C lower average air temperature; consumption increased by 3.7% year-on-year), and December (a 7.3 °C lower average air temperature; consumption increased by 3.3% year-on-year).

Electricity supply

In 2018, electricity output within the Russian UES increased by 1.6% year-on-year to 1,070.9 TWh (1,053.9 TWh in 2017), while electricity output in the European–Ural price zone grew by 1.7% in 2018 to 827.9 TWh.

Electricity output within the Siberian IES in 2018 was 205.3 TWh, up 1.3% year-on-year, and output from HPPs in Siberia increased by 8.4% year-on-year to 101.9 TWh. The Group's Siberian IES HPPs accounted for 57% of all power generated within the Siberian IES in 2018. At the same time, thermal power plants and captive power plants decreased their electricity production by 4.9% year-on-year to 103.4 TWh.

CHPs accounted for 50.3% of the total electricity output in 2018 within the Siberian IES, while HPPs accounted for 49.7%, up 3.3% year-on-year.

The total installed electricity capacity of the Russian UES as at 31 December 2018 amounted 243.2 GW, increasing from 1 January 2018 by 3.4 GW due to 4.8 GW of new facilities being commissioned, 2.0 GW of old facilities being decommissioned, and an 0.6 GW increase resulting from other factors (remarking, corrections, etc.). In the second price zone, no new facilities were commissioned and 54 MW of CHPs were decommissioned.

1. Comprises the Central, Central Volga, Urals, North-West and South energy systems.

Electricity and capacity prices

In the Siberian IES zone, electricity spot prices are effectively determined by the production costs of the least efficient coal-fired generation plants (mostly CHPs and condensing power plants), with HPPs (and some CHPs operating in must-run mode) acting as price takers. Over the long term, electricity prices tend to move alongside thermal coal prices. A significant proportion of the power generated by Siberian CHPs is produced using locally-sourced brown coal, the prices for which are primarily driven by inflation.

Due to seasonal demand and the variable availability of hydro power, the electricity prices can exhibit significant fluctuations throughout the year.

A major factor with significant influence in the medium term is the water inflow to Siberian HPPs, which determines the availability of low-cost hydro power in the wholesale market. The last few years saw a low water environment, which consequently reduced the availability of hydro power. However, an improvement in hydrology was observed in the second half of 2018.

Spot prices for the European–Ural price zone (first price zone) grew by 3.6% year-on-year in 2018 and averaged 1,247 RUB/MWh, while spot prices for the Siberian price zone (second price zone) in 2018 were 2.7% higher year-on-year and averaged 888 RUB/MWh.

While electricity prices generally reflect short-term variations in the supply-demand balance and cover the variable costs of power generators, capacity prices cover fixed costs and sustain capex requirements.

Reflecting the long-term nature of these decisions, the capacity market functions rather differently from the electricity market, with annual auctions carried out to determine the price and availability of capacity four years ahead. Currently, capacity prices are determined through to 2021, and as of 2018, are annually indexed at the previous year's Consumer Price Index (CPI) minus 0.1% (previously at CPI minus 1%).

In 2019, the Ministry of Energy defined new rules for indexation of price parameters at a Competitive Capacity Outtake (CCO), which provide 20% growth in price parameters until 2024 and corresponding to inflation afterwards. The off-take period was increased to six years, starting from 2019. A CCO will be conducted for 2022–2024, along with further CCOs every year with a delivery period of six years.

Capacity and electricity prices dynamics

		2018	2017	change, %
Capacity prices				
First price zone	ths. RUB/MW/month	119.7	118.2	1.3%
Second price zone	ths. RUB/MW/month	200.3	189.8	5.6%
Electricity spot prices[3]				
First price zone	RUB/MWh	1,247	1,204	3.6%
Second price zone	RUB/MWh	888	865	2.7%
Nizhny Novgorod region	RUB/MWh	1,308	1,253	4.4%
Irkutsk region	RUB/MWh	842	833	1.1%
Krasnoyarsk Territory	RUB/MWh	824	804	2.5%

Capacity price for the first price zone grew by 1.3% year-on-year in 2018, while capacity price for the second price zone grew by 5.6% year-on-year in 2018.

CCO Capacity prices[2]

ths. RUB/MW/month	2016	2017	2018	2019	2020	2021
Second price zone	189	182	186	190	191	225

2. Capacity prices are defined by supply-demand balances and are set out in real terms, which were linked to CPI – 1% until the end of 2017 and have since been linked to CPI – 0.1% as of the beginning of 2018.
3. Day ahead market prices, data from ATS and Association NP Market Council.

Energy segment

Business overview

The Group's power generation assets are located in the east Siberian and Volga regions, and the Company is engaged in all major areas of the Russian power industry: electricity and heat generation; electricity, capacity, and heat sales; heat distribution; retail energy trading and supply; engineering services; and electricity distribution and transmission.

As at 31 December 2018, the total installed electricity capacity of the Group's power assets totalled 19.6 GW,[1] while its total installed heat capacity amounted to 15.5 Gcal/h. As at 31 December 2018, 77% of the Group's installed electricity capacity was represented by HPPs, with the remaining 22.9% was accounted for by CHPs (predominantly coal-fired) and one solar plant.

The Company produced 73.2 TWh[2] of electricity in 2018, representing 6.8% of Russia's total electricity generation and 34.7% of the total electricity generation within the Siberian IES for the period.

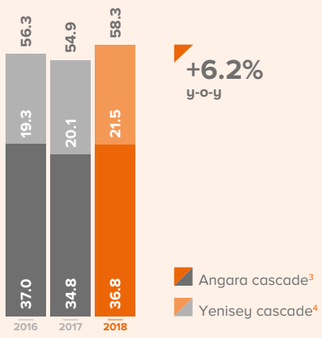
Hydro power generation

Hydro power generation is a key area of the Group's Energy segment. The Group operates five HPPs,[1] including three of the five largest in Russia or twenty largest globally in terms of installed electricity capacity. In 2018, the Energy segment's HPPs produced a combined 58.3 TWh of electricity, accounting for 79.6% of the total electricity generated by the Group.

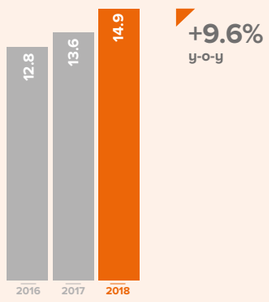
The total electricity output by the Angara cascade HPPs (Irkutsk, Bratsk, and Ust-Ilimsk) increased by 5.7% year-on-year to 36.8 TWh in 2018.

In 2018, Krasnoyarsk HPP's total power generation grew by 7.0% to 21.5 TWh from 20.1 TWh in 2017, mainly due to improved hydrology. At the beginning of Q4 2018, water levels at the headrace of the dam were 1.26 metres higher than they were at the start of 4Q 2017. Water inflows to Lake Baikal have recovered in 2018, moving closer to normal levels (101.3% of normal levels in 2018, compared to 59.6% in 2017).

Hydro power generation
(TWh)



CHP electricity generation
(TWh)



Combined heat and power plants

The Group's electricity output from CHPs in 2018 increased by 9.6% year-on-year to 14.9 TWh, primarily as a result of lower average temperatures and lower production at the Angara cascade HPPs during the first half of the year compared to the same period in 2017. Heat generation amounted to 27.9 million Gcal (up 4.5% year-on-year).

Abakan Solar Power Plant (SPP) generated 6.0 GWh in 2018 (flat year-on-year).

Retail

Through its Irkutskenergosbyt, Volgaenergosbyt, and MAREM+ subsidiaries, the Company purchases electricity on the wholesale market (from both the Group's generating facilities and third parties) and resells it on the retail market to both industrial consumers lacking access to the wholesale market and residential consumers. The Group also makes heat and electricity sales directly to end-users.

In 2007, the Group's subsidiaries in the Irkutsk and Nizhny Novgorod regions were granted the status of guaranteeing suppliers within these regions. In accordance with this status, the Group is obligated to form an electricity supply contract with any consumer located within these operational areas applying for such a contract.

Electricity transmission and distribution

As at 31 December 2018, the Group operated a transmission and distribution system totalling approximately 41 thousand km of high- and low-voltage lines with an annual output of approximately 47 TWh. Through this system, the Group transmits the electricity generated at the Angara cascade HPPs to wholesale and retail consumers, including RUSAL's aluminium smelters. Other generation facilities of the Group, such as Krasnoyarsk HPP and Avtozavodskaya CHP, do not use this transmission network, as they are not located within proximity.

Coal production

The Group's Coal segment provides its CHPs with a self-sufficient coal resource base and covers En+ Group's internal coal demand. A portion of the coal produced is sold to third parties both in Russia and abroad.

Coal prices in the domestic market are determined based on both the level of competition and demand from various categories of consumers in the region (energy, utilities, other industrial enterprises, population). Prices are annually indexed to the rate of inflation of the previous year.

Export prices are based on world indices, rising in 2018, and a peak was reached by the end of the year.

The Group's total brown and fossil thermal coals mining for 2018 totalled 16.2 million tonnes, a 12.2% increase year-on-year.

1. Including Onda HPP, with an installed power capacity of 0.08 GW and a production level of 0.4 TWh in 2018 (located in the European part of Russia, leased to RUSAL); excluding Boguchany HPP (a 50:50 joint venture of RUSAL and RusHydro).
2. Excluding Onda HPP.
3. Includes Irkutsk, Bratsk, and Ust-Ilimsk HPPs.
4. Krasnoyarsk HPP.

The New Energy modernisation program

New Energy is a program modernising the power plants of the Angara and Yenisei HPP cascade to ramp up the energy output using the same water volume passing through the hydro power turbines.

Another of its objectives is to reduce environmental impact by curbing the greenhouse gas emissions of the Company's coal-fired power plants. In 2018, the program enabled En+ Group to ramp up its power output by 1.6 TWh.

The program was first launched in 2007 for the large-scale overhaul and replacement of the core equipment of the Company's largest HPPs located in Siberia – Krasnoyarsk, Bratsk, Irkutsk, and Ust-Ilimsk HPPs. The program entails modernisation of hydroelectric generation units and replacement of runners, transformers, and open-type switchgear. Higher efficiency (max + 8%) will be provided by the new runners' improved blades and utilising new materials. A higher level of safety and reliability of the HPPs is another priority of the modernisation, which will mitigate risks associated with cavitation and prevent the HPP generators from wearing out.

So far, 12 runners have been replaced at Bratsk HPP, 4 runners at Ust-Ilimsk HPP, 2 runners at Krasnoyarsk HPP, and a project to replace 3 generation units at Irkutsk HPP is underway.

Following completion of the New Energy program, the Group's HPP efficiency will match that of the world's best, providing better reliability and quality of the power supplied to Siberian consumers. In addition to projected cost savings, the New Energy program will positively impact the natural environment of Siberia; the hydroelectric energy will be used to partially replace the energy generated by coal-fired power plants, subsequently curbing GHG emissions by 1.8 million tonnes CO_2 in 2018, and the modernised turbines incorporate an up-to-date runner design that prevents turbine oil leakage into water.

Bratsk HPP	Ust-Ilimsk HPP	Krasnoyarsk HPP	Irkutsk HPP
18 generation units	16 generation units	12 generation units	8 generation units
Projects completed and under way			
12 of 18 runners replaced (2007–2017)	4 of 16 runners replaced (2014–2018)	2 of 12 runners replaced (2016–2019)	3 of 8 generation units to be replaced (2018–2022)

Energy segment

Assets overview

Hydro power plants

Irkutsk HPP

Irkutsk, Irkutsk Region, Russian Federation

Irkutsk HPP was the first dam on the Angara cascade and the first large hydroelectric power plant constructed in eastern Siberia. The power plant is contained in a 240-metre-long and 77-metre-high reinforced concrete building. Its turbine hall houses eight generators, each rated at 82.8 MW.

Since its commissioning, the plant has produced 234 bn kWh of electricity and an average of 3.8 TWh per year.

Plans for further development

In 2019–2022 under the New Energy modernisation program, the Group will replace three turbines and three generators at Irkutsk HPP to increase the installed capacity by 68.7 MW.

Installed power capacity
662.4 MW

Power generation in 2018
3.1 TWh

Bratsk HPP

Bratsk, Irkutsk Region, Russian Federation

Bratsk is the second dam of the Angara cascade system. The plant was the world's single biggest power producer since its commissioning in 1966 until Krasnoyarsk HPP reached 5,000 MW (with 10 turbines) in 1971.

The power plant is contained in a 924-metre-long and 124.5-metre-high reinforced concrete building. Its turbine hall contains 18 hydro turbine units, each generating 250 MW.

Installed power capacity
4,500 MW

Power generation in 2018
17.3 TWh

Ust-Ilimsk HPP

Ust-Ilimsk, Irkutsk Region, Russian Federation

Ust-Ilmisk is the third dam on the Angara River hydroelectric plant cascade. Construction of the dam began in 1963, its reservoir commenced filling in 1974, and its power plant was commissioned in 1980.

The main dam is 1,475 m long and 105 m high. The power plant houses 16 turbines, each generating 240 MW.

Installed power capacity
3,840 MW

Power generation in 2018
16.3 TWh

Krasnoyarsk HPP

Divnogorsk, Krasnoyarsk Territory, Russian Federation

The second-largest HPP in Russia and one of the ten largest globally. Construction began in 1956 and the power plant was commissioned in 1972. From the commissioning of its 10th turbine in April 1971, the plant was the world's biggest power producer until Grand Coulee Dam reached 6,181 MW in 1983. Considered a landmark symbol of Krasnoyarsk, it is depicted on the 10-rouble note.

The power plant is contained in a 1,072-metre-long and 124-metre-high dam, housing 12 power generators of 500 MW each.

Plans for further development

In 2019, within a modernisation program, the Group will replace the HPP's runners.

Installed power capacity
6,000 MW

Power generation in 2018
21.5 TWh

Combined heat and power plants

CHP-10

Angarsk, Irkutsk Region, Russian Federation

The construction of the largest CHP in the Irkutsk Region began in 1954, and its first power generating unit was commissioned in just five years.

Key generating assets include:

- 8 turbo generators
- 16 power-plant boilers

Installed power capacity
1,110 MW

Installed heat capacity
563 Gcal/h

Power generation in 2018
4.1 TWh

Heat generation in 2018
0.5 mn/Gcal

CHP-9

Angarsk, Irkutsk Region, Russian Federation

Construction of the plant began in 1958 as part of the Angarsk petrochemical complex. The first boiler and turbine were commissioned in 1963.

Key generating assets include:

- 11 turbo generators
- 18 power-plant boilers

Installed power capacity
619 MW

Installed heat capacity
3,232.4 Gcal/h

Power generation in 2018
2.2 TWh

Heat generation in 2018
5.9 mn/Gcal

Energy segment

Novo-Irkutsk CHP

Irkutsk, Irkutsk Region, Russian Federation

Construction of the power plant began in 1969, and the first boiler and turbine were commissioned in 1975.

Key generating assets include:

- 9 turbo generators
- 15 power-plant boilers

Installed power capacity: **726 MW**

Power generation in 2018: **2.9 TWh**

Installed heat capacity: **2,075.8 Gcal/h**

Heat generation in 2018: **5.7 mn Gcal**

Ust-Ilimsk CHP

Ust-Ilimsk, Irkutsk Region, Russian Federation

Construction of the plant began in 1974 and it was commissioned in 1978.

Key generating assets include:

- 5 turbo generators
- 7 power-plant boilers

Installed power capacity: **515 MW**

Power generation in 2018: **1.0 TWh**

Installed heat capacity: **1,015.0 Gcal/h**

Heat generation in 2018: **1.6 mn Gcal**

CHP-11

Usolye-Sibirskoye, Irkutsk Region, Russian Federation

The construction of the power plant began in 1954, and the first boiler and turbine were commissioned in 1959.

Key generating assets include:

- 7 turbo generators
- 9 power-plant boilers

Installed power capacity: **320.3 MW**

Power generation in 2018: **0.9 TWh**

Installed heat capacity: **1,056.9 Gcal/h**

Heat generation in 2018: **1.0 mn Gcal**

CHP-6

Bratsk, Irkutsk Region, Russian Federation

The first boiler and power generator were commissioned in 1965. CHP-6 is one of the most compact coal plants in Russia – located on just 14 hectares.

Key generating assets include:

- 7 turbo generators
- 19 power-plant boilers

Installed power capacity: **282 MW**

Power generation in 2018: **0.7 TWh**

Installed heat capacity: **1,743.4 Gcal/h**

Heat generation in 2018: **3.9 mn Gcal**

Novo-Ziminskaya CHP

Sayansk, Irkutsk Region, Russian Federation

Construction of the plant began in 1972, and the first power plant boiler was commissioned in 1980.

Key generating assets include:

- 3 turbo generators
- 4 power-plant boilers

Installed power capacity: **260 MW**

Power generation in 2018: **0.9 TWh**

Installed heat capacity: **818.7 Gcal/h**

Heat generation in 2018: **1.5 mn Gcal**

Avtozavodskaya CHP

Nizhny Novgorod, Nizhny Novgorod Region, Russian Federation

The largest power and heat generating plant in the Nizhny Novgorod Region, was commissioned in 1931. The plant was one of the biggest in Russia at the time, supplying electricity to the Gorky Automobile Plant.

Key generating assets include:

- 8 turbo generators
- 10 power-plant boilers

Installed power capacity: **580 MW**

Power generation in 2018: **1.9 TWh**

Installed heat capacity: **2,280 Gcal/h**

Heat generation in 2018: **3.6 mn Gcal**

Solar power plant

Abakan solar power plant

Abakan, the Republic of Khakassia, Russian Federation

Abakan SPP was launched on 21 December 2015. Abakan was thoughtfully chosen for this solar power plant's location, as it is one of the sunniest cities in Russia, with an average of 310 sunny days per year. The plant comprises 20 thousand solar modules and is situated on 18 hectares of land. The Group is considering the potential expansion of the power plant.

Installed power capacity: **5,2 MW**

Power generation in 2018: **6 mn kWh**

Other assets[1]:

- Installed power generation capacity: 142.4 MW
- Power generation in 2018: 0.7 TWh
- Installed heat capacity: 2,701.7 Gcal/h
- Heat generation in 2018: 4.2 mn Gcal

1. Onda HPP, CHP-12, CHP-16, EnSer CHP, Baikalenergo (heat generation only), Armroscogenerazia, Ust-Labinsk CHP, Khakass utility services (heat generation only), and Generazia tepla LLC (heat generation only).

Management Discussion and Analysis

Key Highlights

The following table sets forth selected data from the Group's key financial information:

	Year ended 31 December	
	2018	2017
		(USD mn)
Revenues	**12,378**	**12,094**
Gross profit	**4,169**	**4,124**
Gross profit margin	33.7%	34.1%
Results from operating activities (EBIT)	**2,280**	**2,370**
Operating profit margin	18.4%	19.6%
Pre-tax profit	**2,268**	**1,618**
Profit for the year	**1,862**	**1,403**
Net profit margin[1]	15.0%	11.6%
Adjusted EBITDA[2]	**3,287**	**3,223**
Adjusted EBITDA margin[3]	26.6%	26.6%
Net debt[4]	11,094	12,164
Net working capital[5]	2,811	1,767
Free cash flow[6]	877	1,258
Basic earnings per share[7]	1.692	1.425
Equity attributable to shareholders of the Company	2,655	1,991

Financial Overview

The Group's operating results are divided into the Energy and Metals segments. The Energy segment involves the power industry, including electric power generation, power trading, and supply. It also includes supporting operations and coal resources to the Group. The Metals segment consists of RUSAL, including RUSAL's equity investment in Norilsk Nickel.

RUSAL is the second-largest aluminium producer globally, with a high degree of vertical integration and operations throughout all major stages of aluminium production, from the mining of raw materials to the sale of value added products to end-users. With its competitive mining and refinery operations covering the major material consumption needs of RUSAL's production facilities as well as the historically low-energy and low-cost smelting operations located in Siberia, RUSAL has one of the lowest production costs in the global metals industry, according to CRU.

The Company's management believes that the division of the Group's operating results into the Energy segment and Metals segment enables investors and analysts to assess parts of the Group's business which is under the Company's direct day-to-day operational management.

In its comparison of period-to-period results, the Group presents its results of operations on a consolidated basis after intersegmental eliminations in order to analyse changes, developments, and trends by reference to the individual segment's operating results (Energy segment and Metals segment). Amounts attributable to the Energy segment and Metals segment are presented prior to intersegmental eliminations between the two segments.

1. Net profit margin for any period represents net profit or loss for the relevant period divided by total revenues for the relevant period and expressed as a percentage, in each case attributable to the Group, the Energy segment, or RUSAL, as the case may be.
2. Adjusted EBITDA for any period represents the results from operating activities adjusted for amortisation and depreciation, impairment of non-current assets, and gain/loss on disposal of property, plant, and equipment for the relevant period, in each case attributable to the Group, the Energy segment, or RUSAL, as the case may be.
3. Adjusted EBITDA margin for any period represents adjusted EBITDA for the relevant period divided by total revenues for the relevant period and expressed as a percentage, in each case attributable to the Group, the Energy segment, or RUSAL, as the case may be.
4. Net debt represents the sum of loans and borrowings and bonds outstanding and deferred liability for acquisition of JSC Irkutskenergo (the Group's subsidiary) shares less total cash and cash equivalents as at the end of the relevant period, in each case attributable to the Group, the Energy segment, or RUSAL, as the case may be.
5. Net working capital represents inventories plus short-term trade and other receivables (excluding dividend receivables) less trade and other payables (excluding the short-term part of deferred liability for the acquisition of shares in Irkutskenergo) as at the end of the relevant period, in each case attributable to the Group, the Energy segment, or RUSAL, as the case may be.
6. Free cash flow refers to the cash flows generated for any period from operating activities less net interest paid, capital expenditures, and restructuring fees, adjusted for payments from settlement of derivative instruments plus dividends from associates and joint ventures.
7. The earnings per share calculation is based on a 571 million and 500 million weighted average number of shares in 2018 and 2017, respectively.

Revenues

The following table sets forth the Group's revenues from sales, broken down by each product sold by the Group, for the year indicated:

	Year ended 31 December	
	2018	2017
		(USD mn)
Sales of primary aluminium and alloys	8,165	8,169
Sales of electricity	1,329	1,319
Sales of alumina and bauxite	984	778
Sales of semi-finished products and foil	527	536
Sales of heat	461	462
Other revenues	912	830
Total revenues	**12,378**	**12,094**

The following table sets forth the Group's revenue by business segments for the years indicated:

	Year ended 31 December	
	2018	2017
		(USD mn)
Metals segment (RUSAL)	10,280	9,969
Energy segment	3,147	3,235
Business segment revenues	**13,427**	**13,204**
Elimination of intersegmental revenues	(1,049)	(1,110)
Total revenues	**12,378**	**12,094**

The Group's revenue is mainly attributable to RUSAL's operations. In 2018 and 2017, RUSAL's revenues (before intersegmental elimination) accounted for 76.6% and 75.5% of the Group's revenues, respectively. In 2018 and 2017, the Energy segment's revenue (before intersegmental elimination) accounted for 23.4% and 24.5% of the Group's revenue, respectively.

The Group's revenue increased by USD 284 million, or 2.3%, from USD 12,094 million for 2017 to USD 12,378 million for 2018. The growth was primarily due to the increase in RUSAL's revenue following a 32.5% increase in the average alumina prices, which was partially offset by a decrease in the sales volumes by 4.4%. Revenue from sales of primary aluminium and alloys was almost flat due to a 7.2% increase in the average LME aluminium price, from USD 1,968 per tonne in 2017 to USD 2,110 per tonne in 2018, offset by a 7.2% decrease in primary aluminium and alloys sales volumes. The Group's revenue was also affected by a decrease in the Energy segment's revenue following the rouble depreciation.

Cost of sales

The following table sets forth the Group's cost of sales by business segment, for the year indicated:

	Year ended 31 December	
	2018	2017
		(USD mn)
Metals segment (RUSAL)	7,446	7,183
Energy segment	1,751	1,827
Business segment cost of sales	**9,197**	**9,010**
Elimination of intersegmental cost of sales	(988)	(1,040)
Total cost of sales	**8,209**	**7,970**

Cost of sales of the Energy segment and RUSAL are the costs incurred directly by the sale and production of the principal products and services of both groups of companies. For the Energy segment, cost of sales primarily includes costs for electricity and capacity purchased for resale, the cost of raw materials, fuel, personnel expenses, and depreciation and amortisation. For RUSAL, the cost of sales mainly consists of the cost of energy, alumina, bauxite, other raw materials, personnel expenses, and depreciation and amortisation.

The Group's cost of sales increased by USD 239 million, or 3.0%, from USD 7,970 million in 2017 to USD 8,209 million in 2018. The growth was primarily attributable to an increase in RUSAL's sales costs, mainly driven by an increase in the cost of alumina and transportation tariffs as well as other raw material costs in 2018 that were partially offset by the lower volumes of primary aluminium and alloys sold and the depreciation of the Russian rouble against the US dollar between the comparable periods.

Gross profit

The Group's gross profit increased by USD 45 million, or 1.1%, to USD 4,169 million in 2018, from USD 4,124 million in 2017. The Group's gross profit margin decreased from 34.1% in 2017 to 33.7% in 2018.

Distribution, general and administrative expenses

The Group's distribution, general, and administrative expenses were almost flat year-on-year with a 1.3% decrease, from USD 1,529 million in 2017 to USD 1,509 million in 2018.

Adjusted EBITDA, adjusted EBITDA margin, and results from operating activities

The following table sets forth a reconciliation of the Group's adjusted EBITDA to the Group's results from operating activities, for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Reconciliation of Adjusted EBITDA		
Results from operating activities	2,280	2,370
Add:		
Amortisation and depreciation	752	736
Loss on disposal of property, plant and equipment	11	28
Impairment of non-current assets	244	89
Adjusted EBITDA	**3,287**	**3,223**

The Group's results from operating activities decreased by USD 90 million, or 3.8%, to USD 2,280 million in 2018 from USD 2,370 million to 2017.

Results from operating activities attributable to the Energy segment decreased by USD 42 million, or 4.7%, from USD 891 million for 2017 to USD 849 million for 2018; results from operating activities attributable to RUSAL decreased by USD 42 million, or 2.8%, from USD 1,523 million for 2017 to USD 1,481 million for 2018.

The Group's operating profit margin decreased from 19.6% in 2017 to 18.4% in 2018.

The following table sets forth the Group's adjusted EBITDA and adjusted EBITDA margin by segment (before intersegmental elimination), for the year indicated:

	Year ended 31 December	
	2018	**2017**
	(USD mn, except %)	
Adjusted EBITDA RUSAL	2,163	2,120
Adjusted EBITDA Energy segment	1,174	1,147
Consolidation adjustment	(50)	(44)
Adjusted EBITDA	**3,287**	**3,223**
Adjusted EBITDA margin, RUSAL	21.0%	21.3%
Adjusted EBITDA margin, Energy segment	37.3%	35.5%
Adjusted EBITDA margin, Group	**26.6%**	**26.6%**

In 2018, the Group's adjusted EBITDA increased by USD 64 million or 2.0%, to USD 3,287 million in 2018 from USD 3,223 million in 2017. The year-on-year increase in 2018 was primarily due to the factors which influenced the operating results of the Group.

Share of profits of associates and joint ventures

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Share of profit in Norilsk Nickel, with	885	528
Effective shareholding of	13.39%	13.39%
Share of profit in BEMO project, with	41	58
Effective shareholding of	24.07%	24.07%
Share of profit/(loss) in other associates/joint ventures	22	35
Share of profits of associates and joint ventures	**948**	**621**

The Group has a number of associates and joint ventures which are accounted for in the Financial Statements under the equity method (see Note 13 to the Annual Financial Statements). The principal associates and joint ventures include Norilsk Nickel, the BEMO project and Queensland Alumina Limited.

The Group's share of the profits of the associates and joint ventures increased by USD 327 million, or 52.7%, to USD 948 million in 2018 from USD 621 million in 2017.

The deviation in the share of profits of associates and joint ventures in 2018 year-on-year can primarily be attributed to the increase of profit from the Group's investment in Norilsk Nickel.

The market value of the Group's investment in Norilsk Nickel amounted USD 8,286 million as at 31 December 2018 and USD 8,294 million as at 31 December 2017, and is determined by multiplying the quoted bid price per share on the Moscow Exchange on the year-end date by the number of shares held by the Group.

Finance income and costs

The Group's finance income primarily consists of change in fair value of derivative financial instruments and interest income. The Group's finance costs primarily consist of interest expenses on interest-bearing liabilities and net foreign exchange loss.

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Finance income		
Change in fair value of derivative financial instruments	171	–
Net foreign exchange gain	–	29
Interest income	42	21
Other finance income	3	9
Total Finance income	**216**	**59**
Interest expense – third parties	(915)	(1,115)
Interest expenses on company loans from related parties – companies capable of exerting significant influence	(2)	(2)
Change in fair value of derivative financial instruments	–	(287)
Net foreign exchange loss	(253)	–
Other finance costs	(6)	(28)
Total Finance costs	**(1,176)**	**(1,432)**

The Group's finance income increased by USD 157 million to USD 216 million in 2018, from USD 59 million in 2017, primarily as a result of the change in fair value of derivative financial instruments (USD 287 million loss in 2017 as compared to the USD 171 million gain in 2018).

The Group's finance costs decreased by USD 256 million, or 17.9%, from USD 1,432 million in 2017 to USD 1,176 million in 2018 as a result of deviation in fair value of derivative financial instruments (gain in 2018, loss in 2017) and interest expense (USD 915 million in 2018 from USD 1,115 million in 2017), partially offset by a deviation in the net foreign exchange loss (USD 253 million in 2018 compared to the USD 29 million gain in 2017).

Profit before taxation

For the reasons described above, the Group had a profit before taxation of USD 2,268 million in 2018 as compared with USD 1,618 million in 2017. For 2018, the Energy segment generated a profit before taxation of USD 365 million compared with USD 374 million in 2017 (excluding dividend income from RUSAL). For 2018, RUSAL generated a profit before taxation of USD 1,953 million, up from USD 1,288 million in 2017.

Income tax expense

The Group's income tax expense increased by USD 191 million, or 88.8%, to USD 406 million in 2018 from USD 215 million in 2017 as a result of the higher profit before taxation in 2018 as compared with 2017. The current tax expense increased by USD 143 million during this period or 44.8%, primarily due to an increase in taxable profit. Deferred tax decreased by USD 48 million from USD 104 million in 2017 to a USD 56 million tax benefit in 2018, primarily due to the reversal of certain temporary differences and change in the fair value of derivative financial instruments.

Profit for the year

For the reasons described above, the Group's profit for 2018 was USD 1,862 million up from USD 1,403 million for 2017.

Metals segment

In 2018 and 2017, RUSAL accounted for 76.6% and 75.5% of the Group's business segments' revenues (before adjustments), respectively. As at 31 December 2018 and 31 December 2017, the assets of RUSAL accounted for 60.6% and 59.5% of the Group's total assets (before adjustments), respectively.

Selected financial data

The following table sets forth selected data of RUSAL (before intersegmental elimination), for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Revenues	**10,280**	**9,969**
Gross profit	**2,834**	**2,786**
Gross profit margin	27.6%	27.9%
Results from operating activities (EBIT)	**1,481**	**1,523**
Operating profit margin	14.4%	15.3%
Pre-tax profit	**1,953**	**1,288**
Profit for the period	**1,698**	**1,222**
Net profit margin	16.5%	12.3%
Adjusted EBITDA	**2,163**	**2,120**
Adjusted EBITDA margin	21.0%	21.3%
Adjusted net profit[1]	856	1,077
Recurring net profit[2]	1,695	1,573
Recurring net profit margin[3]	16.5%	15.8%

1. Adjusted Net Profit for any period represents net profit for the relevant period adjusted for the net effect from the share in the results of Norilsk Nickel, the net effect of embedded derivative financial instruments and the net effect of non-current assets impairment.
2. Recurring Net Profit represents Adjusted Net Profit for the relevant period plus RUSAL's effective share of Norilsk Nickel's profits, net of tax.
3. Recurring Net Profit Margin represents Recurring Net Profit for the relevant period divided by total revenues and expressed as a percentage for the relevant period attributable to RUSAL.

Revenues

The following table sets forth components of RUSAL's sales data (before intersegmental elimination), for the year indicated:

	Year ended 31 December	
	2018	**2017**
Sales of primary aluminium and alloys		
Revenue, USD mn	8,293	8,324
Sales volumes, kt	3,671	3,955
Average sales price (USD/t)	2,259	2,105
Sales of primary alumina		
Revenue, USD mn	975	769
Sales volumes, kt	1,930	2,018
Average sales price (USD/t)	505	381
Sales of foil and other aluminium products, USD mn	**346**	**323**
Other revenue, USD mn	**666**	**553**
Total revenues	**10,280**	**9,969**

RUSAL's revenue increased in 2018 by USD 311 million or by 3.1% to USD 10,280 million, from USD 9,969 million in 2017. The increased total revenue was primarily due to the growth of sales of primary alumina due to an increase in the average sales price and increase in sales of other materials.

Revenue from sales of primary aluminium and alloys was almost flat in 2018 year-on-year, primarily due to a 7.3% increase in the weighted-average realised aluminium price per tonne driven by an increase in the LME aluminium price (to an average of USD 2,110 per tonne in 2018 from USD 1,968 per tonne in 2017), which was offset by a 7.2% decrease in primary aluminium and alloys sales volume.

Revenue from sales of alumina increased by 26.8% to USD 975 million for the year ended 31 December 2018 as compared with USD 769 million for the previous year, primarily due to an increase in the average sales price by 32.5%, which was partially offset by a decrease in sales volumes by 4.4%.

Revenue from sales of foil and other aluminium products increased by USD 23 million or by 7.1%, to USD 346 million in 2018, up from USD 323 million in 2017, primarily due to the growth in sales of other aluminium products (aluminium wheels).

Revenue from other sales, including sales of other products, bauxite, and energy services increased by 20.4% to USD 666 million for the year ended 31 December 2018, up from USD 553 million for the previous year due to a 14.1% increase in sales of other materials (such as anode blocks by 18.4%, aluminium powder by 23.7%, and silicon by 23.8%).

Cost of sales

The following table sets forth the components of RUSAL's cost of sales (before intersegmental elimination), for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Cost of alumina	877	728
Cost of bauxite	495	462
Cost of other raw materials	2,833	2,621
Purchases of primary aluminium from joint ventures	307	279
Energy costs	2,147	2,149
Depreciation and amortisation	498	472
Personnel expenses	582	582
Repair and maintenance	74	72
Net change in provisions for inventories	(20)	2
Change in finished goods	(347)	(184)
Total cost of sales	**7,446**	**7,183**

RUSAL's cost of sales increased by USD 263 million or 3.7%, to USD 7,446 million in 2018, up from USD 7,183 million in 2017. The increase was primarily driven by an increase in the cost of alumina, transportation tariffs, and other raw material costs in 2018 and was partially offset by the lower volumes of primary aluminium and alloys sold as well as the depreciation of the Russian rouble against the US dollar between the comparable periods.

The cost of alumina increased by 20.5% in 2018 compared to the previous year, primarily resulting from the increase in alumina purchase prices between the comparable periods.

The cost of bauxite increased by 7.1% to USD 495 million in 2018 as compared with USD 462 million in 2017, primarily due to the increase in bauxite purchase prices between the periods.

The cost of raw materials (other than alumina and bauxite) and other costs increased by 8.1% in 2018 compared to the previous year, due to a rising raw materials purchase price (prices for raw petroleum coke increased by 35.6%, pitch by 17.6%, anode blocks by 16.7%, and caustic soda by 11.1%).

Energy costs were almost flat between the comparable periods.

The finished goods mainly consist of primary aluminium and alloys (approximately 95%). The dynamic of change between the reporting period was driven by fluctuations in the physical inventories of primary aluminium and alloys between the reporting dates, with a 40.7% increase in 2018 as compared with 26.6% increase in 2017.

Adjusted EBITDA, adjusted EBITDA margin, and results from operating activities

RUSAL's adjusted EBITDA in 2018 (before intersegmental elimination) increased by USD 43 million, or 2.0%, to USD 2,163 million from USD 2,120 million for 2017. The factors that contributed to the increase in adjusted EBITDA margin were the same that influenced the operating results.

Results from operating activities decreased by 2.8% to USD 1,481 million for the year ended 31 December 2018, as compared with USD 1,523 million for the previous year, representing operating margins of 14.4% and 15.3%, respectively.

The following table sets forth a reconciliation of RUSAL's adjusted EBITDA to RUSAL's results from operating activities, for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Reconciliation of adjusted EBITDA		
Results from operating activities	1,481	1,523
Add:		
Amortisation and depreciation	513	488
Loss on disposal of property, plant, and equipment	12	25
Impairment/(reversal) of non-current assets	157	84
Adjusted EBITDA	**2,163**	**2,120**

The following table sets forth a reconciliation of RUSAL's adjusted net profit and RUSAL's recurring net profit to RUSAL's net profit, for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Reconciliation of Adjusted Net Profit		
Net profit for the period	1,698	1,222
Adjusted for:		
Share of profits and other gains and losses attributable to Norilsk Nickel, net of tax effect	(839)	(496)
Change in derivative financial instruments, net of tax (20.0%)	(160)	267
Impairment/(reversal) of non-current assets, net of tax	157	84
Adjusted net profit	**856**	**1,077**
Add back:		
Share of profits of Norilsk Nickel, net of tax	839	496
Recurring Net Profit	**1,695**	**1,573**

Adjusted net profit for any period is defined as the net profit adjusted for the net effect of the Company's investment in Norilsk Nickel, the net effect of derivative financial instruments and the net effect of non-current assets impairment. Recurring net profit for any period is defined as adjusted net profit plus the Company's net effective share in Norilsk Nickel results.

Energy segment

The Energy segment engages in all aspects of the power industry, including electric power generation, power trading, and supply. It also includes supporting operations engaged in the supply of logistics services and coal resources to the Group.

In 2018 and 2017, the Energy segment accounted for 23.4% and 24.5% of the Group's business segments' revenue (before adjustments), respectively. As at 31 December 2018 and 31 December 2017, the Energy segment's assets accounted for 39.4% and 40.5%, of the Group's total assets (before adjustments), respectively.

Selected financial data

The following table sets forth selected data of the Energy segment (before intersegmental elimination), for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Revenues	**3,147**	**3,235**
Gross profit	**1,396**	**1,408**
Gross profit margin	44.4%	43.5%
Results from operating activities (EBIT)	**849**	**891**
Operating profit margin	27.0%	27.5%
Pre-tax profit	**365**	**518**
Profit for the period	**211**	**367**
Net profit margin	6.7%	11.3%
Adjusted EBITDA	**1,174**	**1,147**
Adjusted EBITDA margin	37.3%	35.5%

Revenues

The following table sets forth components of the Energy segment's sales data (before intersegmental elimination), for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Average rate RUB/USD	**62.71**	**58.35**
Sales of electricity		
Revenue, USD mn	1,472	1,431
Sales volumes, TWh	91.4	84.9
Average sales price (RUB/MWh)	1,010	983
Sales of capacity		
Revenue, USD mn	462	498
Sales volumes, GW/year	163.5	169.7
Average sales price (ths RUB/MW)	177	171
Sales of heat		
Revenue, USD mn	424	422
Sales volumes, mn Gcal	23.9	23.6
Average sales price (RUB/Gcal)	1,114	1,045
Sales of semi-finished products, USD mn	**195**	**226**
Sales of ferromolybdenum, USD mn	**53**	**66**
Other revenues, USD mn	**541**	**592**
Total, USD mn	**3,147**	**3,235**

The Energy segment's revenue decreased in 2018 by USD 88 million or 2.7%, to USD 3,147 million from USD 3,235 million in 2017. The segment's revenues in rouble terms increased by 4.5% year-on-year in 2018, primarily as a result of increases in volumes of electricity sold at unregulated prices, the weighted average prices for electricity and capacity, and heat tariffs.

The Energy segment's electricity generation increased from 68.4 TWh in 2017 to 73.2 TWh in 2018. The HPPs generated 54.9 TWh of electricity or 80.3% of the total electricity generated by the Energy segment in 2017, at 58.3 TWh of electricity or 79.6% of the total electricity generated by the Energy segment in 2018. The increased share of CHPs in the Group's generation is primarily due to lower water inflows in 1Q 2018 at the reservoirs of the HPPs on the Angara cascade[1].

Cost of sales

The following table sets forth components of the Energy segment's cost of sales (before intersegmental elimination), for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Electricity and capacity purchased for resale	433	429
Personnel expenses	326	349
Depreciation, depletion and amortisation	226	239
Cost of raw materials and fuel	247	252
Aluminium	118	150
Electricity transportation costs	171	173
Other	230	235
Total cost of sales	**1,751**	**1,827**

For 2018, the Energy segment's cost of sales was USD 1,751 million, a decrease of USD 76 million or 4.2%, as compared with USD 1,827 million for 2017. In rouble terms, the Energy segment's cost of sales increased by 3.0% year-on-year, due to the growth in main components such as higher volumes of electricity purchased for resale and an increase in electricity transportation volumes.

Adjusted EBITDA and adjusted EBITDA margin

The following table sets forth the Energy segment' s adjusted EBITDA and adjusted EBITDA margin, for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Adjusted EBITDA (HPP's)	981	953
Adjusted EBITDA (CHP's)	57	55
Adjusted EBITDA (Coal)	59	37
Adjusted EBITDA (Other and unallocated)	77	102
Adjusted EBITDA (Energy segment)	**1,174**	**1,147**
Adjusted EBITDA margin (Energy segment)	37.3%	35.5%
Adjusted EBITDA margin (HPP's)	85.1%	83.0%
Adjusted EBITDA margin (CHP's)	6.8%	6.7%
Adjusted EBITDA margin (Coal)	16.6%	10.8%

In 2018, the Energy segment's adjusted EBITDA (before intersegmental elimination) increased by USD 27 million or 2.4%, to USD 1,174 million in 2018 from USD 1,147 million in 2017. The segment's year-on-year increase in adjusted EBITDA in 2018 was mainly attributable to the increase in operational results, which were due to increased revenue in rouble terms caused by larger volumes of electricity being sold at unregulated prices, the higher average weighted prices for electricity and capacity, and higher heat tariffs. The increase was partially offset by the increase in operating costs denominated in roubles. During 2018 and 2017, the share of the Energy segment's adjusted EBITDA remained at the same level as the Group's 36% of adjusted EBITDA.

1. Irkutsk, Bratsk, and Ust-Ilimsk HPPs.

As power operations account for a substantial part of the Energy segment's revenue, assets, and liabilities and are, therefore, a predominant contributor to the segment's adjusted EBITDA, the low-cost operations of HPPs positively affect the overall adjusted EBITDA of the segment. In particular, the proportion of HPPs' contribution to the adjusted EBITDA of the Energy segment was 83.6% in 2018 and 83.1% in 2017.

The following table sets forth a reconciliation of the Energy segment's adjusted EBITDA to the Energy segment's results from operating activities, for the period indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Reconciliation of Adjusted EBITDA		
Results from operating activities	849	891
Add:		
Amortisation and depreciation	239	248
(Gain)/loss on disposal of property, plant and equipment	(1)	3
Impairment of non-current assets	87	5
Adjusted EBITDA	**1,174**	**1,147**

Net assets

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Group		
Non-current assets	15,453	16,987
Current assets	5,829	4,833
Non-current liabilities	11,917	13,133
Current liabilities	3,963	4,302
Net assets	**5,402**	**4,385**
RUSAL		
Non-current assets	10,711	11,492
Current assets	5,066	4,282
Non-current liabilities	8,314	8,858
Current liabilities	2,254	2,472
Net assets	**5,209**	**4,444**
Energy segment		
Non-current assets	9,320	10,061
Current assets	917	663
Non-current liabilities	3,672	4,277
Current liabilities	1,764	1,943
Net assets	**4,801**	**4,504**

In 2018, the Group's net assets increased by USD 1,017 million to USD 5,402 million as at 31 December 2018 from USD 4,385 million as at 31 December 2017.

In 2018, RUSAL's net assets increased by USD 765 million or 17%, to USD 5,209 million as at 31 December 2018 from USD 4,444 million as at 31 December 2017 due to a decrease in RUSAL's outstanding financial debt subsequently causing a decrease in total liabilities; and the Company's total assets were almost flat, with a slight increase of USD 3 million, primarily due to a current assets increase mostly driven by the increase in both inventories and trade accounts receivable, which was almost completely offset by a decrease in investments in associates.

In 2018, the Energy segment's net assets increased by USD 297 million or by 6.6%, to USD 4,801 million as at 31 December 2018 from USD 4,504 million as at 31 December 2017, caused mainly by hydro assets revaluation as at 31 December 2018..

Net working capital

Net working capital is defined as inventories plus short-term trade and other receivables (excluding dividend receivables) less trade and other payables (excluding the short-term part of the deferred liability for the acquisition of shares in Irkutskenergo).

The following table sets forth the calculation of the net working capital of the Group, the Energy segment, and RUSAL, as at the date indicated:

	As at 31 December	
	2018	**2017**
		(USD mn)
Group		
Inventories	3,037	2,495
Short-term trade and other receivables	1,389	1,309
Dividends receivable	–	(3)
Trade and other payables	(1,615)	(2,143)
Short-term part of the deferred liability for the acquisition of shares in Irkutskenergo	–	109
Net working capital	**2,811**	**1,767**
RUSAL		
Inventories	3,006	2,414
Short-term trade and other receivables	1,102	987
Dividends receivable	–	(3)
Trade and other payables	(1,274)	(1,658)
Net working capital	**2,834**	**1,740**
Energy segment		
Inventories	121	125
Short-term trade and other receivables	349	390
Trade and other payables	(395)	(598)
Short-term part of the deferred liability for the acquisition of shares in Irkutskenergo	–	109
Net working capital	**75**	**26**

As at 31 December 2018, the Group's net working capital amounted to USD 2,811 million, up from USD 1,767 million as at 31 December 2017. The increase in inventories (by USD 542 million from USD 2,495 million as at 31 December 2017, to USD 3,037 million as at 31 December 2018) and trade and other receivables, net of dividends receivable (by USD 83 million from USD 1,306 million as at 31 December 2017 to USD 1,389 million as at 31 December 2018) was accompanied by a decrease in trade and other payables as well as net of the short-term part of the deferred liability for the acquisition of shares in Irkutskenergo (by USD 419 million from USD 2,034 million as at 31 December 2017, to USD 1,615 million as at 31 December 2018).

Liquidity and Capital Resources

General

In 2018, the Group's liquidity requirements were primarily related to funding working capital, capital expenditures, and debt service. The Group used a variety of internal and external sources to finance operations. During the periods under review, short-term and long-term funding sources primarily included the rouble-denominated and foreign-currency-denominated secured and unsecured loans from Russian and international banks, as well as debt instruments issued in both the Russian and international capital markets.

The liquidity was managed separately in both the Energy segment and RUSAL. There were no cross-segment obligations other than those in the ordinary course of business.

Dividends

In March 2018 the En+ Group declared and paid interim dividends for 2017 in the amount of USD 68 million (USD 0.119 per share).

Cash flows

The following table sets forth the Group's selected cash flow data for the periods indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Cash flows from operating activities	1,708	2,654
Cash flows used in investing activities	(452)	(124)
Cash flows used in financing activities	(960)	(2,232)
Net change in cash and cash equivalents	**296**	**298**
Cash and cash equivalents at the beginning of the period, excluding restricted cash	957	656
Effect of exchange rate changes on cash and cash equivalents	(113)	3
Cash and cash equivalents at the end of the period, excluding restricted cash[1]	**1 140**	**957**
Free cash flow	877	1,258

Cash flows from operating activities

The Group's cash flows from operating activities for 2018 were USD 1,708 million, a decrease of USD 946 million or 35.6%, compared with USD 2,654 million for 2017. The decrease was primarily due to a change in net working capital of USD (1,372) million in 2018 compared with USD (300) million for 2017.

Cash flows generated from/ (used in) investing activities

The Group's cash flows used in investing activities for 2018 were USD 452 million and primarily attributable to capital expenditures on the acquisition of property, plant, and equipment as well as intangible assets, other investments, and acquisition of subsidiaries, partially offset by dividends received from associates and joint ventures (mainly Norilsk Nickel).

The Group's cash flows used in investing activities for 2017 were USD 124 million and primarily attributable to capital expenditures on the acquisition of property, plant, and equipment, partially offset by dividends received from associates and joint ventures (mainly Norilsk Nickel).

Cash flows used in financing activities

The Group's cash flows used in financing activities for 2018 were USD 960 million, representing a decrease of USD 1,272 million, compared with USD 2,232 million for 2017. This change was primarily due to a net cash outflow of USD 14 million from the repayment of borrowings in 2018 compared with USD 1,222 in 2017.

1. Restricted cash pledged under a Swiss Law Pledged Agreement with BNP Paribas (Suisse) SA and Allied Irish Bank amounted to USD 43 million as at 31 December 2018, USD 17 million as at 31 December 2017.

Free cash flow

The following table sets forth a reconciliation of the free cash flow to the cash flows from operations, for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
Reconciliation of free cash flow		
GROUP		
Cash flows generated from operating activities	1,708	2,654
Adjusted for:		
Capital expenditures (acquisition of property, plant, and equipment and acquisition of intangible assets)	(1,004)	(990)
Dividends from associates and joint ventures	909	806
Interest received	39	14
Interest paid	(881)	(980)
Restructuring fees and expenses related to offering	(19)	(64)
Settlement of derivative financial instruments	125	(182)
Free cash flow	**877**	**1,258**
Reconciliation of free cash flow in the Metals segment (RUSAL)		
Cash flows generated from operating activities	680	1,702
Adjusted for:		
Capital expenditures (acquisition of property, plant, and equipment and acquisition of intangible assets)	(834)	(842)
Dividends from associates and joint ventures	909	806
Interest received	29	8
Interest paid	(490)	(493)
Restructuring fees	(6)	(36)
Settlement of derivative financial instruments	125	(182)
Free cash flow	**413**	**963**
Reconciliation of free cash flow in the Energy segment		
Cash flows generated from operating activities	1,039	952
Adjusted for:		
Capital expenditures (acquisition of property, plant, and equipment and acquisition of intangible assets)	(181)	(148)
Interest received	10	6
Interest paid	(391)	(487)
Restructuring fees and expenses related to offering	(13)	(28)
Free cash flow	**464**	**295**

Capital expenditures

In 2018 and 2017, the Group's capital expenditures (comprising the acquisition of property, plant, and equipment, as well as the acquisition of intangible assets) were USD 1,004 million and USD 990 million, respectively. The Group's subsidiaries financed their cash requirements through a combination of operating cash flows and borrowings. The table below sets forth the capital expenditures of RUSAL and the Energy segment, for the year indicated:

	Year ended 31 December	
	2018	**2017**
		(USD mn)
RUSAL	834	842
Energy segment	181	148

RUSAL recorded a total capital expenditure of USD 834 million for the year ended 31 December 2018. RUSAL's capital expenditure in 2017 focused on maintaining existing production facilities: re-equipment in the amount of USD 280 million, pot rebuild costs at USD 101 million, and a development capex of USD 453 million.

In 2018, capital expenditure by the Energy segment amounted to USD 181 million, or RUB 11 billion, which is in line with its long-term historical average of RUB 10 billion to RUB 11 billion. Maintenance capex remained stable year-on-year, with investments made into projects for technical connections to power supply infrastructure and on projects to improve CHP efficiency.

Cash

As at 31 December 2018 and 31 December 2017, the Group's cash and cash equivalents (excluding restricted cash) were USD 1,140 million and USD 957 million, respectively. As at 31 December 2018 and 31 December 2017, the Energy segment's cash and cash equivalents were USD 339 million and USD 143 million, respectively.

Loans and borrowings

The nominal value of the Group's loans and borrowings was USD 10,264 million as at 31 December 2018, not including bonds, which amounted to an additional USD 1,957 million.

Set out below is an overview of certain key terms of selected facilities in the Group's loan portfolio as at 31 December 2018:

Facility /Lender	Principal amount outstanding as at 31 December 2018	Tenor/repayment schedule	Pricing
RUSAL			
Syndicated Facilities			
PXF Facility	USD 1.7 bn	up to USD 1.7 bn syndicated aluminium pre-export finance term facility – until 31 May 2022 equal quarterly repayments starting from July 2019	3-month LIBOR plus 2.5% p.a.
Bilateral loans			
Nordea Bank AB (PUBL)	USD 200 mn	January 2021, bullet repayment at final maturity date	1 month LIBOR plus 2.4% p.a.
	USD 3.4 bn	December 2024, quarterly	3 month LIBOR plus 3.75% p.a.
Sberbank loan	RUB 57.8 bn	quarterly repayments starting from March 2021	9.15%
Bonds			
Eurobond	USD 600 mn	February 2022, repayment at final redemption date	5.125% p.a.
Eurobond	USD 500 mn	May 2023, repayment at final redemption date	5.3% p.a.
Eurobond	USD 500 mn	February 2023, repayment at final redemption date	4.85% p.a.
Panda bond	CNY 1.0 bn	March 2020, repayment at final redemption date, subject to a bondholders' put option exercisable in March 2019[1]	5.5% p.a.
Panda bond	CNY 500 mn	September 2020, repayment at final redemption date, subject to a bondholders' put option exercisable in September 2019	5.5% p.a.
Energy segment			
Sberbank and VTB	RUB 93.3 bn	June 2023, quarterly repayments starting from September, 2019	Key rate of the Bank of Russia plus 2% p.a. (excluding a RUB 4.6 bn tranche bearing 10.5% p.a.)
Sberbank	RUB 65.7 bn	June 2024, quarterly repayments starting from March, 2020	8.8% p.a.
Sberbank	RUB 32.8 bn	June 2020, quarterly repayments starting from June, 2019	9.0% p.a.

1. In March 2019, the Group executed the put option under panda bonds issuance (the first tranche) and redeemed bonds with a notional value of CNY 680 million.

Security

As of 31 December 2018, RUSAL's debt (excluding a number of unsecured loans and bonds) is secured, among others, by receivables assigned under specified contracts, pledges of shares in certain non-operating companies, designated accounts, and shares in Norilsk Nickel (representing a 25% plus 1 share of Norilsk Nickel's total nominal issued share capital).

As of 31 December 2018, the Energy segment's debt (excluding unsecured working capital loans of certain operating companies from Gazprombank, VTB, Sberbank, and other banks) is secured, among others, by pledges of shares and interests in certain operating and non-operating companies, properties, plant, and equipment and designated accounts.

Key events

- In January 2018, RUSAL entered into a bilateral facility agreement with Nordea Bank AB (publ): USD 200 million, three years, unsecured, with an interest rate of 1-month LIBOR plus 2.4% p.a., bullet repayment. The proceeds were applied for the partial prepayment of existing debt.
- On 13 December 2018, RUSAL amended the existing credit facility with Sberbank for the conversion of ½ of the principal outstanding amount of the loan into roubles with an interest rate of 9.15%. As at the date of this financial statement, the amount of USD 2,107 million was converted into roubles.
- In June 2018, JSC EuroSibEnergo amended its existing RUB 65.7 billion loan – the maturity date was extended to June 2024, the first principal repayment was scheduled for March 2020, and the nominal interest rate was fixed at 8.8%.
- In November 2018, JSC EuroSibEnergo converted its USD 494 million loan (via a series of transactions) to RUB 32,845 million at the average exchange rate of 66.45 RUB to USD and with an interest rate of 9.0% p.a., while tenor and security remain unchanged.

Debt capital markets

- At the end of January to the beginning of February 2018, the Company successfully executed a placement of the third tranche of its Eurobond: USD 500 million, five years, unsecured with a coupon rate of 4.85% p.a. The proceeds were used for partial refinancing of existing debt.

Financial Ratios

Gearing

The Group's gearing ratio, which is the ratio of total debts (including both long-term and short-term borrowings and bonds outstanding) to total assets, as at 31 December 2018 and 31 December 2017, was 57.7% and 59.7%, respectively.

Return on equity

The Group's return on equity, which is the amount of net profit as a percentage of total equity, was 34.5% and 32.0% as at 31 December 2018 and 31 December 2017, respectively.

Interest coverage ratio

The Group's interest coverage ratio, which is the ratio of earnings before interest and taxes to net interest, for the years ended 31 December 2018 and 31 December 2017, was 2.6x and 2.5x, respectively.

In accordance with provision 30 of the Code, the directors have assessed the Group's ability to continue as a going concern and consider it appropriate to adopt the going concern basis of accounting in preparing financial statements.

Report on payments to governments

The table below shows the amounts paid by the Group's entities to public authorities (primarily in the form of miscellaneous taxes and levies) in connection with their extraction activities:

	Type of payment 2018 (USD, ths)							
	Production fees	Taxes or levies on corporate sales, production, or profits	Royalties	Dividends	Signing-on, discovery, and production bonuses	Licence fees, rental charges, entry fees, and other consideration for licences and/or concessions	Infrastructure improvement payments	TOTAL
Russia	–	57,262	–	–	–	3,522	452	61,236
Kazakhstan	–	32,098	–	–	–	1,360	272	33,730
Ukraine	–	310	–	–	–	24	–	334
Guinea	–	4,873	–	–	–	–	–	4,873
Guyana	–	237	701	–	–	143	–	1,081
Jamaica	–	110	730	–	–	60	–	900
Total	–	94,890	1,431	–	–	5,109	724	102,154

Contents

Sustainable Development

Strength in evolution

En+ Group aims to be a sustainable and responsible partner across all of its activities

Sustainable Development

Sustainable development is a key priority for En+ Group and one of the most vital components of its everyday activities.

En+ Group is aware of the high degree of its responsibility to society and future generations, making a maximum effort to reduce its potential negative impact on the environment and promote social development in the regions where the Company operates

Our sustainable development priorities are based on the following key principles consistent with the Group's activities in this regard

Environmental protection

- Projects aimed at environmental enhancement near the Company's production facilities
- Conserving biological diversity in regions of the Company's operations and participating in programs for the protection of rare plant and animal species
- Adopting unique programs protecting the cultural and natural heritage of Lake Baikal

Corporate responsibility with a focus on health and safety

- Industrial safety assurance: occupational health and safety has always been a top priority for the Company. This is supported by our performance indicators, which exceed the average market performance in this sector

Social responsibility

- Enhancing the prestige of engineering specialties among Russian school students, their parents, and society as a whole
- Promoting environmental volunteering through corporate and ecological marathons and initiatives aimed at cleaning the shores of Lake Baikal
- Encouraging a careful attitude to the preservation of natural resources among local populations

Sustainable economic development

- Introducing environmentally friendly technology into production processes to save resources and reduce costs
- Developing small and medium-sized enterprises in the regions where the Company operates

During the reporting period, En+ Group focused on furthering responsible production and sustainable operations while engaging both society and its clients in this process to foster a cooperative attitude towards promoting sustainable development on a global scale.

In 2019, the Board of Directors established a new HSE Committee to address the issues and challenges faced by the Group, with the goal of reinforcing world-class practices and delivering improvement.

Environmental protection

En+ Group considers environmental protection and global climate change issues as sustainable development priorities.

The operations of the Group's companies inevitably impact the environment and climate. Compliance with the international and Russian legislation for environmental protection is our top priority. Every year, the Company invests in technological development, equipment modernisation, enhanced production efficiency, and environmental protection activities.

En+ Group's environmental programs aim to reduce adverse effects from operations on the climate and environment through increasing generated waste processing and recycling while complying with all applicable regulatory and legal environmental protection requirements, subject to technological capabilities and market needs.

The most important component of the Group's environmental activities is providing reliable access to renewable power sources, thereby enabling producers to reduce their carbon footprint. Using this opportunity, RUSAL signed long-term electricity supply contracts with Siberian hydro power plants to produce more than 90% of its aluminium using carbon-free and renewable hydro power and subsequently reducing the carbon footprint of its products.

Environmental management and environmental management system

The Group is constantly developing and optimising its environmental management system, applying the core values of its environmental policy at all production facilities:

- Respect for the human right to a healthy environment
- Protection, reproduction, and reasonable use of natural resources as prerequisites of ensuring a healthy environment and environmental safety
- The reduction of any adverse environmental effects of operations and other activities in accordance with environmental regulations, achieved through applying the best available technology, subject to economic and social factors
- Biodiversity preservation
- Respect for all people's accessibility to true and factual information about the environmental condition and their involvement in making decisions that relate to their right to a healthy environment in accordance with the law
- Responsibility and accountability for violating environmental protection legislation
- Organising and developing the environmental training system, establishing and fostering the environmental culture
- Solving environmental issues in cooperation with people, public associations, and non-profit organisations

The decision-making system of the Group is based on the following principles:

- Identifying and assessing risks of environmental and climate effects generated by the Company's facilities
- Complying with environmental legislation in the countries where the Company operates
- Preventing and mitigating environmental and climatic impacts
- Communicating with stakeholders and respecting their opinions

Planning, managing, and reporting environmental protection activities are carried out across all En+ Group entities and include addressing the environmental issues resulting from operations through approving objectives and budgets, financing initiatives, controlling permit receipts, conducting environmental risk assessments, and other activities.

Operating activities in the field of environmental protection at the level of production facilities are carried out by our dedicated environmental protection departments or environmental protection specialists.

The Company is constantly improving upon its environmental management system. The production facilities owned by En+ Group entities, or those where En+ Group is a major shareholder, successfully apply this system, which is based on international standard ISO 14001:2015, aimed at the reasonable use of natural resources and mitigation of adverse environmental impacts. The key production facilities of the Group are ISO 14001:2015 certified, including all generating facilities of JSC Irkutskenergo as well as 16 facilities of the RUSAL, including the aluminium smelters, are certified.

En+ Group carries out its environmental management and protection activities in accordance with the laws of the countries in which it operates and corporate regulations and procedures while undertaking voluntary obligations.

Environmental risks are managed in accordance with prescribed procedures. Any inconsistencies identified through governmental supervision and voluntary audits are recorded, and corrective measures are developed and implemented.

No significant violation of environmental law that could cause risks for the Group's activities was recorded in 2018.

Climate change

The Company regularly monitors the volume of its greenhouse gas (GHG) emissions and acts on their reduction accordingly.

The Group's approach to controlling its greenhouse gas emissions was adapted to meet both national and international standards. The Russian law controlling carbon emissions is constantly changing; the main legislative act has already been developed by the Ministry of Economic Development and is being negotiated. In preparation for this, the Group has taken measures to ensure its compliance with all new legal requirements following their formal approval.

In 2018, En+ prevented 2,129 thousand tonnes of CO_2 emissions by taking measures in the following key areas:

- Raising the efficiency of HPP turbines –1,845 thousand tonnes of CO_2
- Substituting environmentally-damaging condensation mode generation at CHPs with HPP output – 197 thousand tonnes of CO_2
- Reducing heat losses in the Group's thermal power networks
- Efficient fuel use and energy saving initiatives – 69 thousand tonnes of CO_2

Further efforts are being made at four of En+ Group's HPPs (Bratsk, Irkutsk, Krasnoyarsk, and Ust-Ilimsk) to raise turbine efficiency, enabling more electricity to be generated using the same water flows. Modernisation and replacement of the primary equipment at our HPPs already enabled them to generate additional 1.6 TWh of renewable electricity per year using the same water volume, to reduce the adverse environmental effect of the coal power plants, which will have a positive impact on the environmental situation in Siberian regions.

The Company plans to continue modernising these HPPs, replacing runners and generation units until 2025.

RUSAL's climate change agenda

RUSAL was the first company of the Group to take active steps in mitigating climatic impacts. In 2007, the Company launched the Safe Future Strategy initiative, aimed at minimising adverse impacts on air quality and the climate

In 2008, RUSAL joined the United Nations Global Compact Caring for Climate: The Business Leadership Platform initiative. Given its GHG emission reduction achieved in 2014, RUSAL, on the eve of the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in Paris, declared five climate change objectives aimed at reducing its carbon footprint by minimising fossil fuel power purchases, raising energy efficiency, reducing GHG emissions, using clean technology, complying with new environmental standards, and a series of other measures. At the beginning of 2017, the environmental objectives were updated and received two additions.

Seven strategic objectives of RUSAL for greenhouse gases until 2025

1. To ensure that our aluminium smelters purchase at least 95% of electricity from hydroelectric power plants and other forms of carbon-free power generation.
2. To reduce direct specific greenhouse gas emissions by 15% from 2014 levels through reduction processes at existing aluminium smelters.
3. To reduce direct specific greenhouse gas emissions by 10% from 2014 levels at existing alumina refineries.
4. To reduce the power consumption at certain aluminium smelters by 7% from 2011 levels.
5. To achieve an average level of specific direct and indirect energy-related greenhouse gas emissions of no more than 2.7 tCO_2e/tAl through reduction initiatives at aluminium smelters.
6. To use an internal carbon price as of 2017 when making strategic and investment decisions.
7. To support Russian and international initiatives and associations advocating an active stance in preventing climate change and support carbon prices as long as they are aligned with the strategic goals of the company.

On the eve of the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change in Paris in 2015, RUSAL and several other Russian companies established an initiative combining the efforts of the Russian business community in reducing environmental impact and preventing climate change by supporting the Climate Partnership program of Russia.

Russian companies also proposed that all participants of the international negotiation process enter into a legally binding agreement enabling countries to take joint responsibility for climate change.

Such an agreement implies universal commitments for all countries and that these commitments are being adhered to under unified assurance and monitoring processes. The participants of the initiative advocate equal conditions of international competition for all participants and suggest market-based mechanisms to encourage businesses to implement new production technologies into their operations.

The companies that signed the statement committed themselves to manufacturing products compliant with low-carbon, green economy principles.

En+ Group and RUSAL are participants of the World Bank's Carbon Pricing Leadership Coalition (CPLC).

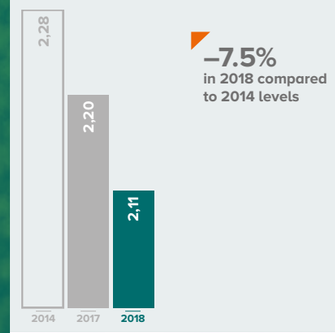
Since 2015, RUSAL has participated in the global initiative, Carbon Disclosure Project, and has committed itself to fully disclosing its greenhouse gas emissions together with other leading international companies. Information about greenhouse gas emissions from the Group's aluminium, alumina, and silicon facilities was published as part of the annual CDP report's preparation.

RUSAL is a member of the Aluminium Stewardship Initiative (ASI), where it interacts with other global participants of aluminium manufacturing and supply chain. RUSAL took part in the development and implementation of the ASI Performance Standard, which is now applied to the aluminium manufacturing and supply chain all over the world. The Company aims at its operations being certified in accordance with the standard.

Reducing the carbon footprint of our products

RUSAL is focused on increasing the share of low-carbon footprint aluminium in its total output. Producing one tonne of the Group's ALLOW low-carbon aluminium brand at smelters emits no more than 4 tonnes[1] of direct and indirect energy-related greenhouse gas emissions in CO_2 equivalent, which is among the best levels in the world's aluminium industry. The carbon-free production strategy developed at RUSAL is based on a maximum reduction of direct and indirect energy-related emissions of greenhouse gases while balancing its undiminished emissions with partnership projects aimed at reducing, absorbing, or capturing greenhouse gas emissions. Another area of significance is the development of inert, carbon-free anode.

Direct GHG emissions of electrolysis operations
(tCO_2e/tAl)



If successful, direct greenhouse gas emissions from aluminium production at smelters will be at zero, and the emissions of other pollutants into the air will also be minimised. RUSAL has progressed in implementing this technology and is testing it on real cells at its industrial site.

More than 90% of RUSAL's aluminium output uses clean, renewable hydro power. Bratsk, Irkutsk, Ust-Ilimsk, Krasnoyarsk, Sayano-Shushenskaya, and Boguchany HPPs in Siberia ensure the operation of RUSAL's key production facilities.

Our emission reduction programs developed in the reporting period indicate that GHG emissions per tonne decreased in electrolysis operations by 4% compared to 2017.

Project risk assessment

Since 2017, RUSAL has had an internal pricing mechanism in its decision-making process for any investment projects. To assess the risks associated with changes in carbon emissions from operations or projects, the Company's financial model uses an internal price of USD 20 per tonne of CO_2 equivalent. The internal price of carbon is also used in the Company's general financial model to assess the risks associated with making strategic decisions for the Company's expansion, new construction, and acquisition, or the closure, decommissioning, and/or sale of its production facilities. In the event that the carbon price leads to a loss of the financial model's profitability, the Company will either find a more acceptable option to reduce carbon emissions or decide to abandon the project.

1. Smelters' only direct emissions (Scope 1) and indirect energy emissions (Scope 2).

Air emissions

En+ Group consistently follows its policy reducing negative impacts on the earth's atmosphere and is committed to the emission standards established by the law of the countries in which its production facilities are located.

Main initiatives within the Metals segment to reduce the negative impact on the atmosphere:

- Implementing the Eco-Søderberg technology (at KrAZ, BrAZ, IrkAZ, and NkAZ)
- Constructing and modernising gas treatment plants (at BrAZ, IrkAZ, NkAZ, KUBAL, UAZ, Silicon, RUSAL Silicon Urals, and Achinsk Alumina Refinery)

The energy-saving and efficiency-raising initiatives run under the operational development program of JSC Irkutskenergo have enabled the Company to reduce its pollutant emissions by 0.9 thousand tonnes. JSC Irkutskenergo modernised the electrostatic precipitators at Novo-Irkutsk CHP to reduce the plant's pollutant emissions by 140 tonnes per year.

One of the Group's main projects aimed at reducing the adverse impact of its metallurgical facilities on the environment involves introducing advanced, highly efficient dry gas treatment. These gas treatment facilities capture up to 99.8% of both the hydrogen fluoride and solid fluorides present in exhaust gases in a smelter's reduction area. Their use reduces the gross emissions from the production facility, but also the amount of waste from the gas treatment disposed at specialised landfills.

Since 2018, the Company has been participating in implementing the Comprehensive Plan as part of the national project, Ecology, and the federal Clean Air project, to reduce its pollutant emissions in the following cities where the Company's production facilities operate: Krasnoyarsk, Bratsk, and Novokuznetsk. The purpose of the project is to reduce the adverse environmental effect from pollutant emissions into the ambient air by at least 20% by 2024 from 2017 levels.

Water resources

En+ is in no shortage of water sources for its production needs. Water is taken both from surface water bodies and underground sources. The key consumers of water resources across the Group are alumina refineries in the Metals Segment and power facilities in the Energy Segment, which is connected with technological specifics of the production.

The most important areas of En+ Group's efforts in minimising its impact on water resources:

- Reducing fresh water consumption
- Reducing wastewater discharge and concentration of pollutants in wastewater
- Increasing recycled water volumes

There are no significant risks relating to water management (water consumption and water disposal).

Waste

En+ Group is committed to increasing waste processing, treatment, and recycling as well as safe waste storage and disposal, and takes an active role in ensuring the safe disposal of waste by actively constructing new waste disposal facilities while reconstructing and retrofitting existing ones.

The dynamics of processing waste directly depends on the volume of bauxite and nepheline residue processed, which are waste products of alumina production in the Metals segment, while ash and slag waste are resultant of the Energy segment's operations.

Alumina and Aluminium production waste

The most significant types of waste in terms of volume are bauxite and nepheline residue, which are considered to be non-toxic waste. They amount to 86.6% of the total waste generated by RUSAL.

In cooperation with R&D centres and institutions, RUSAL develops and applies new methods of specific waste reduction in its aluminium smelting and alumina refining. The Company's smelters and refineries are pursuing efforts to reduce the load on its solid waste and residue storage facilities.

Residue volumes are directly related to the dynamics of production and other factors, such as the depth of ore beds and the alumina content present in processed ore and bauxites.

Aluminium production wastes

The Company takes the following measures to increase the share of waste being processed:

- Recycling spent refractory pots
- Removing sulphates from gas treatment solutions – pilot plants are at Krasnoyarsk Aluminium Smelter and Novokuznetsk Aluminium Smelter
- Extracting scandium oxide from bauxite residue – a pilot site for obtaining scandium oxide has been established

Like all the world's leading aluminium companies, RUSAL continues to seek out cost-efficient technology for the use of bauxite residue.

Ural Aluminium Plant launched industrial production of scandium concentrate from bauxite residue using a proprietary method.

Ash and slag waste

The volumes of generated ash and slag waste directly depend on the volumes of thermal and electric power generated at CHPs as well as coal combustion parameters.

Bauxite and nepheline residue storage areas, ash and slag waste storage areas are the subject of comprehensive control to prevent any accidents and significant influence on the environment.

- There are daily and periodic inspections as well as instrumentation monitoring of the state of the hydraulic structures.
- Company carries out certification of personnel operating the hydraulic structures and provide professional development for technicians who perform technical supervision of safety at hydraulic structures.
- Company studying and justifying the use of the dry bauxite and nepheline residue stacking process, which uses press filters and eliminates the impact of the liquid phase on the safety of mud disposal areas.

Mine wastes

The stripped overburden is mainly placed in the mined-out space of mine openings (internal dumping) for further land rehabilitation.

JSC Irkutskenergo seeks out, develops, and applies new methods of ash waste disposal in cooperation with leading R&D institutions and production companies. The Company persistently strives to find new methods of ash waste utilisation and treatment.

The following measures are underway to raise the Company's waste treatment:

- Raising the volume of fly ash disposal – dry ash discharge plant modernisation at Novo-Irkutsk CHP
- Extracting iron bearing concentrate – pilot plant at CHP9
- Sales of ash waste to manufacturers of construction materials

Persistent organic pollutants

Within the plan of the Russian Federation to comply with the commitments stipulated by the Stockholm Convention on Persistent Organic Pollutants (POPs), En+ developed a long-term program for polychlorinated biphenyl-containing waste disposal that will meet the requirements for this commitment by 2022.

Land resources

Restoring disturbed land is one of the main focuses of En+ Group.

According to En+ Group's accounting policy, the expected costs of decommissioning facilities and restoring the environment are reflected in the Group's international financial statements as reserves.

Restoration of disturbed land is carried out in the following areas:

- Restoring disturbed terrain and soil fertility following mining activity (open-pit mining) is finished
- Rehabilitating production and consumption waste disposal facilities (ash dumps, landfills, etc.)
- Rehabilitating disturbed and contaminated land

Lake Baikal

PRESERVING THE UNIQUE ECOSYSTEM

En+ Group takes environmental protection extremely seriously and is committed to ensuring its operations have the minimal impact on the lake and its habitats. This includes helping to preserve the natural water levels of Lake Baikal throughout the year.

Lake Baikal has an annual inflow of 70 cubic kilometres, or 0.003% of its water volume, which is equal to its average annual outflow. Although the lake is fed by more than 300 rivers, only the Angara River flows out of it. This is what gives the Angara River its unique water power potential, and stable annual flow.

Protecting the environment is at the very heart of En+ Group's green business model, and conserving water resources is one of our fundamental priorities.

Hydropower plants (HPPs)

En+ Group is committed to harnessing the natural power of the Angara River in a sustainable and responsible way.

Meticulous calculations of hydro power operations were conducted prior to creating the Angara hydro power cascade in order to supply cheap electric energy to the region with minimal impact on Lake Baikal's hydrological regime, to make river navigation possible, and ensure flood control (preventing periodic flooding, ensuring safety of the riverside cities). The Group's cascade of three HPPs (Irkutsk, Bratsk, and Ust-Ilimsk HPPs) on the Angara River began construction in 1958. Today, it has a combined capacity of 9 GW, and an annual electricity output of 36.8 TWh was recorded in 2018. The HPPs deliver this via the Angara River, utilising only 0.003% of the water in Lake Baikal – a volume which is constantly replenished by the inflows to the lake.

Baikal is not the only water source feeding the HPPs, as 30–50% of the water feeding the Bratsk and Ust-Ilimsk reservoirs comes from other rivers.

Today, the Group's operations on the Angara River have minimal impact on the natural water levels of Lake Baikal.

Water resource regulation at Baikal

As part of the Group's commitment to operating sustainably, En+ Group ensures that its operations either meet or exceed regulatory requirements set by the Russian government and local jurisdictions.

Evaluating and setting limits on the fluctuations of Lake Baikal's water level is a complex process, taken seriously by the Russian government.

At Baikal, target water flows set by The Federal Water Resources Agency (FWRA), part of the Russian Ministry of Natural Resources, take into consideration the interests of all water user groups and consider the following factors:

- flooding and flood defence;
- stable water intake to supply water to residential areas and industrial facilities;
- cargo transportation requirements;
- support for agriculture and soil amelioration;
- fish reproduction;
- conservation of natural ecosystems;
- HPP electricity generation.

Each FWRA territorial basin water management board establishes inter-agency working groups comprising representatives of key water user groups, including HPP operators. Based on the workgroup results, the FWRA approves the HPP operation regimes considering the interest of all water user groups. Depending on inflows to Lake Baikal, the FWRA regulates the water flow passing through Irkutsk HPP to prevent flooding along the Baikal shoreline and maintain the natural water levels in Lake Baikal. The maximum water flow is 4,000 cubic metres per second.

The minimum water flow is 1,250 cubic metres per second in winter and 1,300 cubic metres per second in summer. These volumes provide an annual output of 2.9 TWh at Irkutsk HPP.

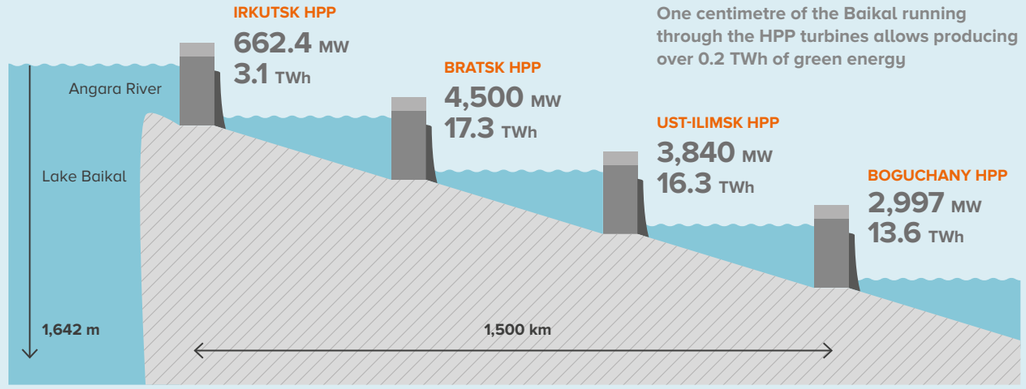
From 2015 to 2017, the Russian government undertook significant work to develop scientifically substantiated proposals for how to best regulate the water levels in Lake Baikal to achieve the best possible environmental and economic balance.

The Ministry of Natural Resources set up an expert working group including representatives of the Angara hydro power cascade, developing a specification that was then used by specialised research institutes of the Russian Academy of Sciences (the Water Problems Institute in conjunction with the Irkutsk Research Centre, the Buryat Institute of Natural Resources, and the Institute of Hydraulic Equipment and Irrigation) to develop scientifically substantiated proposals for regulating the water level in Lake Baikal during extreme high and extreme low water periods. The Ministry of Natural Resources of Russia drafted a decree of the Government of Russia based on the results, which was later passed on 27 December 2017.

The Russian Government Resolution set the following target ranges for water levels in Lake Baikal for 2018-2020:

- during medium water periods the maximum and minimal water levels in Lake Baikal must be 457 and 456 metres, respectively (hereinafter in Pacific elevation);
- the minimal level in Lake Baikal during low water periods must be 455.54 metres;
- the maximum water level in Lake Baikal during high water periods must be 457.85 metres.

HPPs ON THE ANGARA



One centimetre of the Baikal running through the HPP turbines allows producing over 0.2 TWh of green energy

The Company is in compliance with its regulations. In December 2018 the raise of water levels in the Baikal lake forced FWRA to increase the water flow through the Irkutsk HPP to 2-2,200 cubic metres per second. Afterwards, in January the water flow was reduced to 1,700 cubic metres per second as a result of the hydrological situation and ice conditions in order to prevent the flooding of the shoreline of Usolie-Sibirskoye. Nonetheless the Company expects that energy production of the Angara cascade in 1Q 2019 will significantly exceed that of 1Q 2018.

Group commitment to preserving the natural environment

While the operation of the Group's HPPs is regulated to ensure it has no impact on the water level of Lake Baikal, the Group actively works independently and with local organisations on initiatives as part of its broader focus on corporate social responsibility, including:

- scientific research and monitoring of the water level, wildlife and water condition;
- voluntary initiatives involving the local communities, including a major annual clean-up of the lake's shores;
- the development of eco-educational platforms to promote responsible behaviour and consideration for nature; and,
- cooperation with NGOs to proactively tackle the main issues affecting the lake.

Joint research with the Moscow State University on key issues of Lake Baikal's water

In 2016, En+ Group and the Moscow State University initiated a series of studies on the key issues of Baikal's ecosystem. One of the focus areas was researching the massive blooming of filamentous algae. While algae are not a problem, they are indicative of Baikal's ecosystem reacting to pollution (local eutrophication) – the spread of the algae is what initially caught the attention of researchers. Research found that the outbreaks of growth have manifested all over the lake. The next step of the research is to unveil the reason behind the algae activity.

Another focus area was the water's contamination with synthetic polymer. One of the goals of our research was to quantify the microplastics content in Lake Baikal's waters and study its effect on aquatic ecosystems. This is the first attempt to arrive at a quantitative estimate of the microplastics content in Lake Baikal. Sampling of the surface layer of water was carried out in 2017 using trawling along the western and eastern lake shores. Scientific analysis of the samples continues, as well as monitoring of the water body in order to identify the causes of pollution and develop negative impact reduction measures.

Since 2017, the Limnological Institute of the Siberian Branch of the Russian Academy of Sciences has conducted research to estimate GHG emissions and the absorbing capacity of the reservoirs of Irkutsk and Krasnoyarsk HPPs based on data received from desktop and field studies.

The Company's key HPPs are located on the Angara River, which is the only river flowing from Lake Baikal

Declared a UNESCO World Heritage Site in 1996, Baikal is the largest freshwater lake in the world

The world's deepest lake (with a maximum depth of 1,642 m and average depth of 744 m)

Baikal contains 20% of the world's fresh surface water (23,615 km3 of water, more than the five North American Great Lakes combined)

With a surface area of over 31,700 km, the lake is comparable in size to Belgium or the Netherlands

The lake and the area along its shores provide a unique habitat for a large number of plant and animal species, many of which are endemic to the region. This unique ecosystem is protected by the 1999 Federal Law On the Protection of Lake Baikal

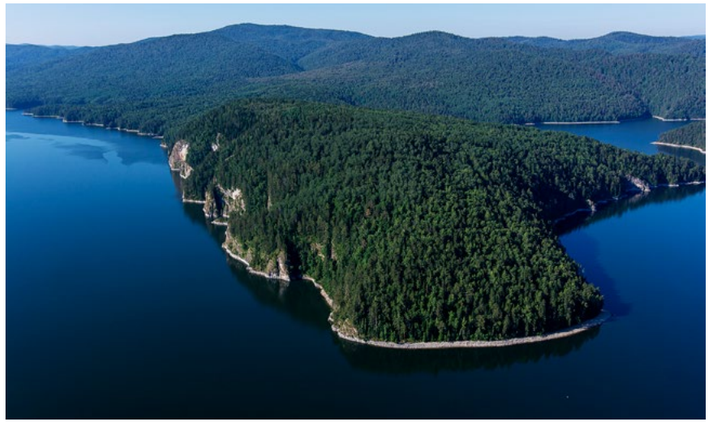
Biodiversity

The production facilities of the Group's Energy segment are located in various regions of the Russian Federation and its production facilities within the Metals segment are located in various regions of the world, while its core production facilities are located in Siberia, a unique ecoregion with a myriad of unique plant and animal species found nowhere else. En+ Group engages in the preservation of the biodiversity in accordance with its sustainable development principles.

Since 2014, environmental activities have been underway through the program, Monitoring of Anthropogenic (Industrial) Impact on the Ecosystems of the Stolby Sanctuary in Krasnoyarsk. The monitoring program covers various ecosystem components, such as soil, plants, water, bed sediments, and also the condition of snow cover. A comprehensive approach to analysing the chemical composition of various media helps identify the extrinsic pollutant chemicals entering the natural environment from the outside (air pollution from industries, transportation, hydrocarbon fuel energy) to distinguish them from intrinsic chemicals natural to the reserve.

For many years, the Company has participated in the Environmental Monitoring project, which monitors specially protected areas, located within proximity to the Group's industrial facilities. Monitoring is conducted jointly with the Strana Zapovednaya National Foundation, the Shushensky Bor National Park, and the Khakassky and Sayano-Shushensky natural reserves in several administrative districts (Shushensky, Yermakovsky, Kuraginsky, Karatuzsky, and Minusinsky) of the Krasnoyarsk Territory and southern regions of the Republic of Khakassia. Field studies were conducted in 18 pine forests located within the aluminium smelters' emission impact area and beyond. Research findings have shown that the fluorine concentrations in the vegetation cover and soil do not exceed permissible levels.

Scientists of the Biology Institute of the Komi Research Centre, Ural Branch of the Russian Academy of Sciences, monitor fish populations of the Vym River at the Timan Bauxite deposit development



area. The resultant data is indicative that the quality of water and the natural environment are not subject to any significant technogenic pollution. However, analyses of the findings have shown a persistent downward trend in the population of the main commercial fishery species, which is unrelated to the operations of the Group's mines. Monitoring provides data for assessing the current condition of the environment and making adjustments to environmental protection activities and design solutions in order to reduce the negative impact from industrially developing the region. Moreover, the research materials represent a unique and regularly-updated scientific database regarding natural areas of Russia's northern regions.

Conservation of aquatic biological resources

For five years, En+ has been successfully implementing a program for restoring of aquatic biological resources. Over the period, more than 1.2 million young peled (northern whitefish) have been released into the waters of the Angara Region (the species is a relative of cisco and omul, reaching an adult weight of 2 kg to 2.5 kg). The Company has been working on the artificial reproduction of aquatic biological resources since 2014. Young peled are released into the Belaya River, which empties into the Angara River and Bratsk Reservoir.

In 2018, peled were released at Belsky Fishery Plant as part of the Filling Reservoirs with Life event arranged by the Baikal Interregional Environmental Prosecutor's Office. The main purpose of this event was to raise awareness among people, organisations, and industrial facilities to the importance of conserving and replenishing fish populations in Lake Baikal and rivers of the Angara and Yenisei water basins. This year, a company specialising in reproducing valuable fish species has prepared an additional 289,758 juvenile fish for the Company.

Environmental payments

The Russian law stipulates that users of natural resources shall be charged for their negative impact on the environment, as follows:

- For emission of pollutants from stationary sources
- For discharge of effluents into natural waters
- For waste disposal

Amounts of payment depend on the scope of the environmental impact, which is primarily determined by the scale of manufacturing and/or mining operations and whether the company exceeds the permissible level of impact on the environment.

During the reporting period, no major incident related to spillage, air pollution, or water and soil pollution occurred, and no related claims were filed nor fines imposed.

Corporate responsibility

People

En+ Group is one of the largest employers in Russia, providing jobs to almost 100,000 people across all regions where the Company operates. The total average number of staff (full-time equivalent) employed by each segment of the Group is set out in the following graph.

The Company's key HR objectives are recruiting and retaining highly skilled personnel, increasing active involvement among employees, and creating employment conditions and a work environment which are conducive to their professional development and the well-being of their families.

The personnel structure of the Group did not change significantly in the reporting year, which is attributable to the industry being male-oriented.

Social security programs

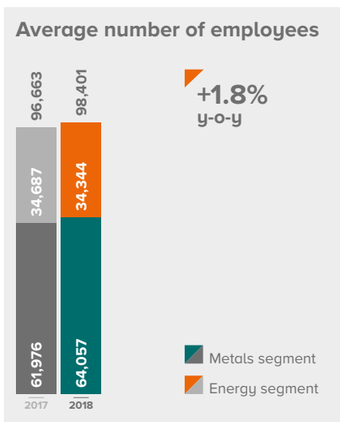
Production facilities of the Group have a developed social benefits system focused on creating and maintaining long-term employee motivation by providing targeted social benefits. Benefits are provided equally to all full-time and part-time employees of En+.

Our key social benefits provided to En+ employees are set out below and have remained unchanged for several years:

- Financial aid
- Recreation at health resorts
- A retirement plan
- Medical services (including voluntary medical insurance)
- Sports activities
- Meal provisions
- Compensated housing costs
- Social security services for employees' children
- Support for non-working pensioners
- Other social expenses (subsidised transport, additional paid social vacation under the collective bargaining agreement and local regulations, and compensation in case of work accidents)

As a part of financial aid, En+ provides the following compensation payments:

- For the birth of a child
- For low-income employees, once per calendar year
- Once per calendar year to large families with three or more children under 18 years of age or under 23 years of age and studying full-time at an educational institution
- On a monthly basis to employees on partially-paid maternity leave until the child is 1.5 years of age, and additional unpaid leave until the child is 3 years of age
- Certain categories of employees: with dependent, special needs children, single parents, widows and widowers with dependent children under 18 years of age or under 23 years of age and studying full-time at an educational institution
- A lump-sum for the funeral costs of an immediate family members (spouse, parents, children)
- After a long illness lasting more than two months
- For combating the effects of natural disasters (fire, flood, etc.)



Personnel training and development

The key objective of En+ in personnel training is to develop a set of professional skills meeting the requisite quality and efficiency of its production program while ensuring safety and fostering long-term technological development within the industry.

The existing mandatory personnel training system in the power industry regulates the training and procedures required for appointment to any position in the industry. En+ Group's corporate training system supplements and completes the mandatory system by comprehensively taking requirements of the external environment into account. Our training and development programs cover education levels from that of a school pupil to a technical manager.

Classroom programs include:

- professional training and skills development; additional professional education
- simulator training and psychophysiological support for operational personnel
- corporate competitions in professional skills
- modular programs for internal talent pool preparation and training
- career guidance and additional targeted training, with potential further employment for students of specialised universities in Siberia. An innovative projects contest, Laboratory of the Power Industry, was held in 2018, and the winner received practical training at En+ Group's production facilities.

To develop innovative thinking skills and solutions for production challenges, training programs are implemented and TIPS (the theory of inventive problem solving) approaches are actively introduced.

The Metals segment continuously develops its personnel training systems through systematising and developing professional trainings, increasing the relevancy of our functional academies, and creating target modular programs to meet business objectives. In 2018, our approach to developing trainings for functional academies was revised, experts were selected, and training topics were formulated.

During the year, training programs were developed across several areas, including:

- Technology
- Quality management
- Laboratory and metrology
- Energy and repair
- Health, safety, and environment
- Information technology
- The theory of inventive problem solving

Our new approach to developing topics for functional academies empowers employees to enhance their skills in accordance with the Company's targets and strategy.

Occupational health and safety

En+ Group is committed to ensuring the health and safety of its employees and contractors at all stages of operations. The Group believes that the life of each human being is of the utmost importance, and therefore strives to prevent fatal occupational accidents.

An HSE Policy and an HSE management system have been developed and adopted at the Group's production facilities. In 2018, the Metals segment initiated preparations for updating its OHS management system to align with the requirements of the new international standard ISO 45001:2018. The Group committed to further improving its health and safety system and securing employee safety.

The Company fully complies with legal health and safety requirements in addition to its own, some of which are more stringent than the regulations prescribed by law. The Company conducts all health and safety trainings and briefings and carries out special assessments of the conditions at its workplaces. The Company records and investigates all accidents of any severity, including minor injuries and deteriorations in employee health.

Health and safety performance

The number of wrok-related employee fatalities significantly dropped in 2018.

Lost Time Injury Frequency Rate[1] slightly increased, but remains one of the lowest in the aluminium industry.

The Group pays ceaseless attention to the analysis, assessment, and measures of professional risk management while developing action plans to mitigate and prevent risks at the workplace. All accidents that occurred in 2017 and 2018 have been investigated and corresponding, responsive measures are being developed and implemented.

During 2018, the Metals segment launched a new project, Safe Potrooms, to improve the safety conditions in potrooms and further reduce the risk of injury at smelters, as well as a pilot project, Automated Information System of Production Safety, with the aim of creating an integrated information system between all departments to handle issues related to OHS measures.

The project developing a robust safety culture initiated by the Company's management continues with by-level training programs provided to employees: Efficient Health and Safety Management (based on the NEBOSH methodology, the British Qualification Committee on Health and Safety) and Leadership in Safety – for technical managers, Conscious Safety – for workers. 4,758 employees were trained in 2018, and at least 6 thousand employees are planned to be trained in 2019.

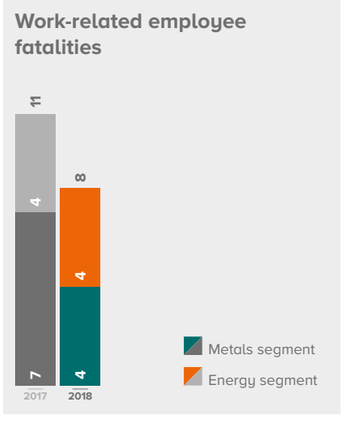
In 2018, the Group paid close attention to developing the safety culture among its employees. To raise safety awareness among employees, a number of standards and procedures were developed and implemented while training for personnel and top management was organised on a large scale under the Conscious Safety development program through the Group's Corporate University with a consulting company.

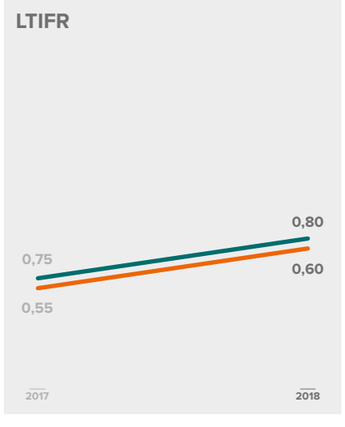
Special educational programs conducted in 2018 include
Efficient OHS Management, Leadership in Safety, and Safety Consciousness.

To involve employees in safety culture in a less formal manner, an Oscars for Health and Safety was held, participated by all employees across the Group's subsidiaries. In 2019, a photographic poster design contest will be held to exhibit basic safety rules and values at production facilities.

Targets for 2019 are:

- Achieve zero fatalities
- Reduce LTIFR[2]
- Build an efficient management system based on best international practices





1. Per million hours worked.
2. LTIFR – Lost Time injury Frequency rate.

Social responsibility

En+ Group is committed to developing and strengthening its partnerships with regional authorities, non-profit organisations, and community groups to promote social cohesion, improve living and working conditions, and support healthy and active lifestyles among its employees and local residents

Key social investment areas

The Company has developed a Social Investment Regulation, which is focused on strengthening social partnerships in the regions where the Company's key production facilities operate. Key priorities:

- Infrastructure and social development in the regions in which the Company operates
- Volunteering
- Sports and healthy living
- Culture and arts
- Education
- Social entrepreneurship

Within these areas, the Group has implemented a wide range of social programs.

Infrastructure projects

RUSAL Territory is a program for the social and economic development of the regions in which RUSAL operates, providing support for the construction and renovation of communal facilities, the urban environment, and socially significant community spaces. It also hosts cultural and educational events for the local community. As part of the program, an urban planning strategy for Achinsk has been developed. The Company has factored in development strategies for a number of regions when making its social investments.

Since its launch in 2011, the program's achievements include 636 social and infrastructural projects supported in 22 cities and townships and 230 social facilities constructed and renovated, providing a higher quality social infrastructure for more than half a million local community members. The Company collaborated on the projects with local partners, investing a total of RUB 748 million. From 2017 to 2018, the Company developed social investing policies for eight major communities.

Another of the Company's projects involves rejuvenating public spaces in the historical centre of Krasnoyarsk, creating a modern, comfortable, and safe space for the city's residents and visitors. An initiative planned for 2018 to 2019 will support the development of an area with modern architecture and a new playground. The initiative involves installing new lighting and providing parking spaces and landscaping for the entire area.

Combating highly infectious diseases

The Company's strong focus on the social and economic development of the regions in which it operates spans Russia and beyond. Since 2014, RUSAL has been actively engaged in the process of fighting the spread of the Ebola virus in the Republic of Guinea through constructing medical infrastructure and helping to develop the GamEvac-Combi vaccine. During the testing program conducted at the Scientific Diagnostic Centre for Epidemiology and Microbiology in 2018, RUSAL provided the Ebola vaccination to 2 thousand people in the Republic of Guinea. The vaccine is currently in the final round of testing.

Volunteering

Corporate volunteering is an important tool ensuring the Company remains engaged with locals and establishing sustainable relations with both communities and the government.

2018 was the Year of Volunteering in Russia, and En+ Group was actively involved in establishing an Irkutsk branch of the National Council for Corporate Volunteering (NCCV), bringing together over 30 major Russian companies. The Council comprises regional groups in 12 regions of Russia for the betterment of each community.

Volunteering programs across the regions in which the Company operates have been growing in quantity and popularity for more than ten years. The Company's volunteering initiative brings together a wide variety of people, including schoolchildren, students, production facility employees, and representatives of social and educational institutions. Volunteers help to organise and host hundreds of community events every year, such as Good Deeds Workshops, sports competitions at sponsored facilities, charity fairs and performances, environmental initiatives, and several other activities. To create the greatest impact, the Company has been developing programs and technologies allowing residents to more easily engage in volunteering activities.

Programs that are making a difference today include the online social event subscription service, 'Helping is Easy', an annual charity New Year's marathon called 'Believe in Miracles, Create Miracles!', and a charity festival, 'Energy of Our Hearts'.

Supporting sports and a healthy lifestyle

En+ Group consistently supports sporting events in the communities local to its production facilities.

One of the Company's largest projects supporting sports and healthy lifestyles is 'Mounting the Skies Everyone!'. Jointly run by En+ Group, RUSAL, and the Russian Ski Racing Federation, the main goal of the project is promoting participation in skiing and nurturing talent in youth and junior ski teams. Under the project, the Company formed partnerships with regional sports administrations, provided 940 units of skiing equipment to junior ski teams, and supported the preparation and launch of educational courses completed by 402 skiing coaches working with junior teams and young children. In the past three years, about 50 thousand winter sports fans in 15 Russian cities have got involved in the initiative.

In 2018, En+ Group upgraded tracks at the Angarsky skiing and biathlon centre as part of the 'Mounting the Skies Everyone!' project. As a result, the centre now has the only floodlit skiing and roller ski track in the region and can host summer biathlon competitions. In 2018, the Group developed and launched an online distance learning platform to spread the project's educational course, as well as supported the development and pilot launch in Russia of snow-sealing machines for preparing rolling tracks for cross-country skiing. En+ Group intends to continue projects developing winter sports infrastructure in the regions in which it operates.

En+ Group is also the general sponsor of the Baikal-Energy hockey club and its youth development program.

Educational projects

En+ Group dedicates significant effort to the development of educational programs, particularly those aimed at training future engineers and technicians. The Company supports the Professionals of the Future project, one of the most ambitious programs supporting the career development of children and young people in various regions of Russia. As part of the project, En+ Group holds Robosib, the largest technology festival in Siberia, featuring contests in robotics and other high-tech disciplines. In 2018, about 800 children from 20 Russian cities attended the festival.

The Company also cooperates closely with specialist universities. It supported the creation of the Corporate Scientific and Research Centre (CSRC) at the Irkutsk National Research Technical University (IrNITU), which has thus far trained over 300 specialists who are now employed at power facilities across Siberia.

In 2018, En+ and IrNITU held Laboratory of Power, a contest for young scientists from Irkutsk universities. The event's main goal was to attract talented young people to solve pressing scientific and technical problems and seek out exciting new ideas for both the Company and the energy industry as a whole. Nine digital technology projects for the energy industry were presented in the contest final.

RUSAL Laboratory has opened student initiative centres at a number of universities – Irkutsk National Research Technical University, Siberian State Industrial University, and Siberian Federal University. These centres are innovative platforms facilitating interactions between talented university students and En+ specialists. The main goal is to find the most promising students and involve them in the Company's projects, providing a route to future employment with the business.

The 'School of Urban Changes' educational program is aimed at identifying, training, and supporting local community leaders who, whether independently or in partnership with RUSAL, can improve the quality of life in their communities through regional development projects. The program involves online or intramural educational courses, modules, and workshops intended to equip participants with the key skills needed to effectively implement social initiatives.

Environmental projects

Environmental projects and programs form a crucial component of the Company's sustainability activities.

Project 360 is En+ Group's comprehensive program protecting the ecosystem around Lake Baikal. It is one of the most popular environmental volunteering projects in Russia. As part of the environmental cleanup in 2018, more than 16.5 thousand volunteers from different regions of Russia came to the banks of Lake Baikal. Around 144 thousand people have given their time to volunteering for Project 360 since its launch.

Project 360 brings together En+ Group's other environmental initiatives that are in cooperation with NGOs. Cooperation with the local organisation, Protect Baikal Together, enables the Company to educate children about the Irkutsk Region and its unique ecosystems. Children are taught to observe nature, understand environmental processes, and assess the impact of humans on the world around us.

Through the Company's partnership with 'Great Baikal Trail', an organisation focused on environmental education and sustainable development, En+ Group supports responsible eco-tourism around Lake Baikal, creating safe tourist trails and reducing the impact of human activity on the fragile Baikal ecosystem.

The Environmental Entrepreneurship School Project (EESP) is a partnership between En+ Group and the Revival of the Siberian Land Youth Charitable Foundation, and is the first and only educational Russian project developing environmental entrepreneurship. Its main goal is to identify new ideas and support small businesses in Irkutsk and the Irkutsk Region which enhance resource saving and pursue a responsible approach to the environment. Over the course of the partnership, more than 650 young entrepreneurs have participated in the project and pitched over 250 new business ideas. The Republic of Buryatia joined the project in 2018.

The Yenisei Day environmental marathon has been held in Siberia for seven years. RUSAL metallurgists, together with volunteers from other companies in Krasnoyarsk and Sayanogorsk, pick up rubbish along the banks of the Yenisei River and organise contests and environmentally-focused activities. Over the seven years of the initiative, more than 300 environmental events have been held with the participation of 75 thousand volunteers.

RUSAL also holds the Green Wave grant contest, where active city dwellers, volunteers, as well as representatives of non-profit organisations and municipal institutions can get involved in the landscaping and general improvement of local urban spaces, including parks, public gardens, alleys, boulevards, streets, courtyards, and open areas.

Sustainable economic development

In 2018, En+ Group showed stable financial and operational results for both the Energy and Metals segments despite being under the pressure of sanctions. Key aspects affecting our sector and which we consider prospective are presented below.

Research and development

The Company performs vast research and development activities to introduce environmentally friendly technology into its production cycles to save resources and reduce costs.

Metals Segment

Eco-Søderberg

The majority of aluminium produced in Russia uses the Søderberg technology, which was invented in 1920. The development of the aluminium industry, a greater focus on environmental issues, and the surge in demand for aluminium has resulted in new discoveries of technological enhancements to reduce the negative impact on the environment and boost production efficiency.

In 2009, RUSAL's Engineering and Technology Centre designed a new generation of Søderberg cells, reinvigorating the traditional production technology. The new technology was named Eco-Søderberg and significantly cut emissions while increasing production efficiency.

The new technology's major improvement over its predecessor is the use of colloidal anode instead of traditional anode paste. Colloidal anode contains a much lower content of pitch, which is the main source of tar substance emissions. A further advantage is the enhanced cell structure that also helps reduce emissions.

In early 2018, RUSAL commenced its transition to the Eco-Søderberg technology, developed by RUSAL's Engineering and Technology Centre in Krasnoyarsk, and for which a total investment of USD 250 million is expected between 2018 and 2022. The transition involves a number of engineering activities, including the construction of dry and wet two-stage gas-cleaning plants, the implementation of an automated system supplying raw materials to reduction cells, automation systems, systems for gas removal from reduction cells, and the mechanisation of labour-intensive processes. The newly developed gas removal systems from reduction cells increase removal of the combustible components to 97.5% while reducing emissions by 3.5 times, thus bringing the environmental efficiency of the Eco-Søderberg technology to baked anode technologies.

The Eco-Søderberg process is included in the list of the best available technology in Russia and is being successfully developed and improved upon in all key areas.

Inert anode technology

The use of inert anodes in the aluminium smelting process is a technology capable of revolutionising the global industry. Once introduced, it will enable RUSAL to eliminate most of its hazardous emissions.

The classical Søderberg reduction process requires half a tonne of coal anodes per tonne of aluminium. The coal anodes are responsible for releasing carbon dioxide along with tar and polyaromatic emissions into the atmosphere, and they burn down and require replacement every three weeks, which is expensive and time-consuming.

The inert anode paste contains no carbon, and the only by-product of the inert anode smelting pot is pure oxygen – a single reduction cell generates the same amount of oxygen as 70 hectares of forest. Additionally, the inert anode does not burn down and therefore does not need to be replaced, significantly cutting operational costs.

En+ Group is making a marked effort to minimise its carbon footprint. To that end, mathematical and physics models have been used to determine the optimal design of an industrial inert anode and have confirmed the feasibility of inert anodes under industrial conditions in reduction cells at KrAZ. Additional equipment was installed in the casthouses and an inert anode plant was commissioned – it has enough capacity to supply inert anodes not only for the experimental production area but on an industrial scale.

New reduction cells

The Company has been successfully operating RA-550 reduction cells that were initially commissioned in the experimental industrial shop of Sayanogorsk Aluminium Smelter.

The design and technological solutions of RA-550 have rendered it lighter, more compact, and more environmentally efficient. The new reduction cells have proved capable of delivering energy efficiency and environmental performance, with efficiency currently at 96%, power consumption below 12,800 kWh, and fluoride emissions under 0.15 kg per tonne. The stable operation of RA550 reduction has been the catalyst for a number of innovative technical solutions to the high-amperage processes that shape new standards in the industry: a fundamentally new configuration of the busbar with a two-line current supply, providing a symmetrical magnetic field and high stability without a compensating loop, and modular design of the busbar eliminating design constraints for reduction cells operating at amperages in excess of 750 kA.

Scandium oxide from red mud

RUSAL is introducing unique technology to produce scandium oxide from red mud (bauxite tailings). The red mud recycling process used by alumina refineries to extract scandium oxide as a by-product has been refined and improved upon: the yield has been increased while the consumption of key reagents has been reduced. As a result, the production cost was reduced to USD 480 per kg of Sc2O3 as confirmed on an experimental industrial unit at RUSAL Kamensk-Uralsky. The quality of scandium oxide was improved to 99.9% and a 2% Al-Sc foundry alloy fully compliant with GOST R 53777-2010 was produced.

The process continues to be optimised – additional improvements made in the laboratory can potentially reduce production costs further to USD 350 per kg. The results will be verified in the main production area in early 2019.

Energy Segment

In 2018, the Company continued its innovative development programs and successfully completed the following projects:

- 110 kV high-voltage line wire temperature control. As part of the project, the temperature operation mode of the high-voltage line wire was monitored in real time to ensure higher reliability of electricity supply and extend the service life of primary equipment in the electric grids
- Development of technology creating replaceable battery modules based on hybrid perovskites for distributed solar energy (as part of the Federal Target Program of the Ministry of Education and Science of Russia Applied Scientific Researches and Developments Intended to Create Products and Technologies). The project provides research and development (R&D) to improve the composition and properties of components in new types of photovoltaic modules. A unique method was developed to produce a perovskite layer of a potentially unlimited area, and a prototype has been created. Pilot samples of laboratory elements demonstrated a high efficiency factor. In 2018, three Russian patent applications and three international PCT patent applications were filed under the project
- Technologies for the comprehensive extraction of marketable commercial products from ash and slag waste at the production facilities in Irkutsk and Angarsk. In particular, the economic efficiency of using the technology to extract iron-containing concentrate from ash and slag waste has been confirmed at the industrial site of the coal-based CHP-9

The planned indicators were achieved through research, development, and pilot testing for the new projects launched in 2018:

- Development of a methodology monitoring electric grid facilities using gliders: a pilot project was implemented to monitor power transmission lines at two high-voltage lines with a total length of 44 km in the Irkutsk Region. Building a 3D-model of the buffer zone enabled calculating the total volume of trees and bushes to be cut
- Efficiency improvement of measures influencing defaulting power resource users based on Big Data tools and methods and machine learning. Pre-designing was completed, machine learning model architecture was defined, a request for proposal was developed, and a contractor to perform the work was selected
- User profiling through an electricity consumption scenario based on Big Data tools and methods and machine learning. Three user clustering algorithms were tested and four regression algorithms were tried. The prospects of the models selected were confirmed, a request for proposal was developed, and a contractor to perform the work was selected.

Responsible supply chains

En+ Group conducted a review of its procurement activities and took certain measures to improve them.

During the reporting period, En+ Group developed and implemented a unified procurement policy for all companies within the Group. The key principles of the Group's procurement activity were to create transparent and equal competitive opportunities for all potential suppliers including the unified requirements for goods and services to be purchased and the objective assessment of incoming commercial proposals. In 2018, an En+ Group Tender Committee was created, consisting of top management for making decisions on the most important purchases of materials, services, and construction works.

Quality management system

The companies of En+ Group have quality management systems certified for ensuring compliance with international standards and integrated into existing management systems. Several group companies comply with the latest ISO standards: RUSAL and Krasnoyarsk Metallurgical Plant both employ ISO 9001:2015.

Contents

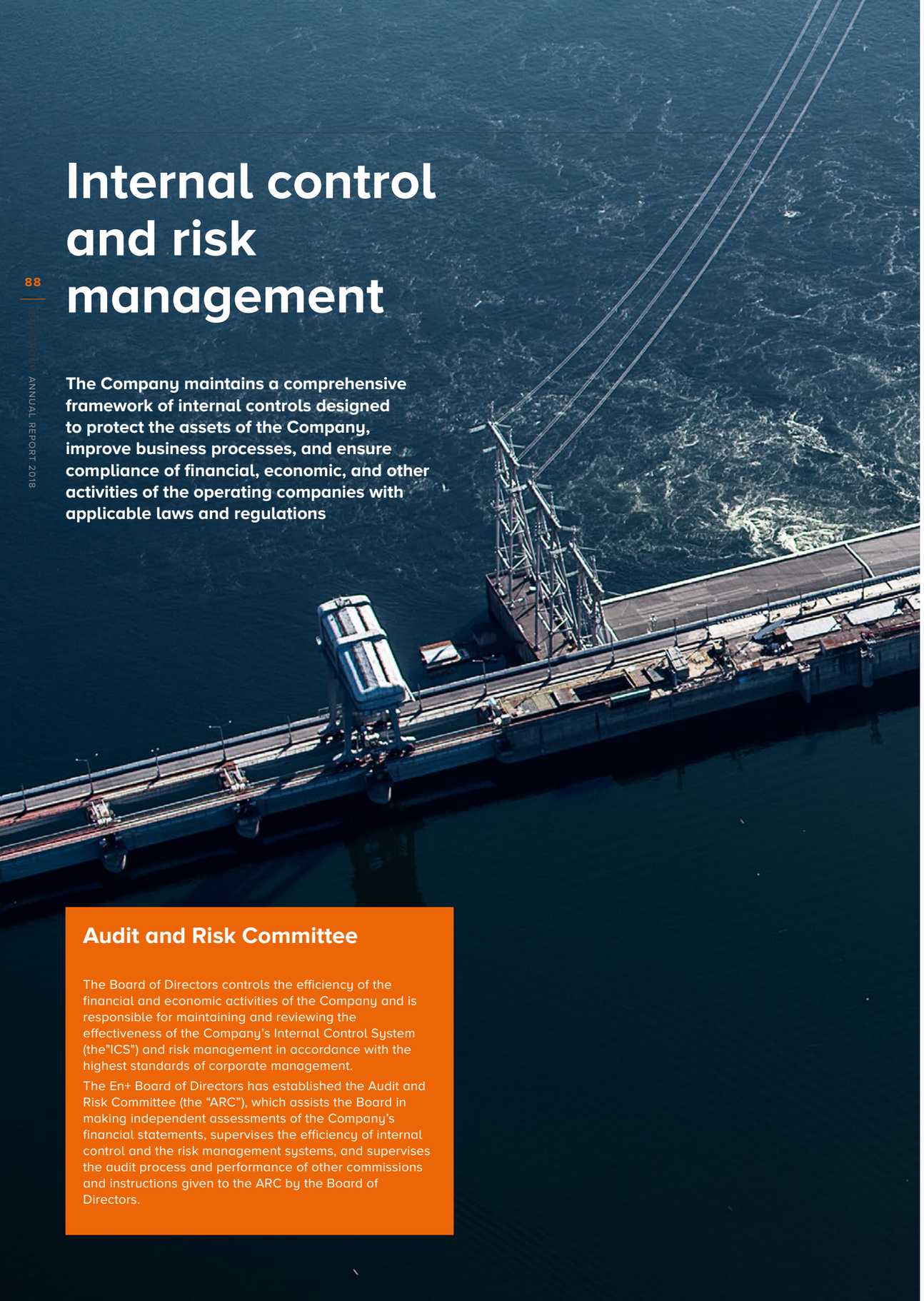
Internal Control and Risk Management

Strength in evolution

En+ Group implement a detailed corporate risk management model, which is an integral part of our business operations

Internal control and risk management

The Company maintains a comprehensive framework of internal controls designed to protect the assets of the Company, improve business processes, and ensure compliance of financial, economic, and other activities of the operating companies with applicable laws and regulations



Audit and Risk Committee

The Board of Directors controls the efficiency of the financial and economic activities of the Company and is responsible for maintaining and reviewing the effectiveness of the Company's Internal Control System (the"ICS") and risk management in accordance with the highest standards of corporate management.

The En+ Board of Directors has established the Audit and Risk Committee (the "ARC"), which assists the Board in making independent assessments of the Company's financial statements, supervises the efficiency of internal control and the risk management systems, and supervises the audit process and performance of other commissions and instructions given to the ARC by the Board of Directors.

Internal Control System

The Company structure includes the Directorate for Control and Internal Audit (the "Directorate for Control"), independent from the management, which assists the Board in overseeing financial and economic activities and implementing the Company's internal control and risk management measures.

The Directorate for Control reports directly to the ARC, informing the Committee on a regular basis on the results of both scheduled and unscheduled audits, identified deficiencies in the Internal Control System, issued recommendations and corrective measures undertaken by the management, as well as identified risks, their financial estimates, and mitigation measures. The Directorate for Control provides assurance to management and the Company's shareholders that the Company's assets are safeguarded and profits are maximised while maintaining proper accounting records and ensuring compliance with the requirements of external regulators, laws, and regulations.

The Directorate for Control develops and maintains an efficient system for the Company's internal control through the following:

1. Operational and financial control

Conducting efficiency audits of business processes and separate operating companies to identify and minimise risks associated with inefficient management and control the efficiency of operational and technological processes, commercial activities, personnel management, investment projects, financing, etc.

Conducting control and revision inspections to prevent and identify inefficient and fraudulent activities by management and third-party contractors that form violation and control risks (such as fraud, misappropriation, misuse of the Group's assets, and non-optimal use of materials and time), and mitigate the effects thereof

Exercising control over commercial activities, developing efficient means for selecting suppliers of raw materials, other materials, and services, including construction and/or installation works, in order to maximise cost savings for the Company (including by participating in the Tender Committee and supervising the work of the Tender Committees of the businesses)

2. Compliance control

Exercising control over compliance with the requirements set by creditor banks, the listing rules, and other financial regulators, and restrictions imposed by sanctions, etc.

Exercising control over compliance with the Group's internal regulations and policies aimed at compliance with the requirements set by supervisory authorities, financial institutions, and other counterparties

Development, implementation, adoption, and improvement of policies and procedures aimed at complying with applicable requirements and preventing breaches thereof

Providing training and advice on compliance with the set requirements, including training on the Company's policy for countering corruption and fraud

Promotion and development of compliance culture in the Company to ensure ethical behaviour of employees and their commitment to full compliance with all applicable requirements

3. Business process regulation

Development of a concept and regulations for a system controlling and mitigating risks of common process violations and/or losses in separate areas of the Company's activities (authority delegation, conflict of interest, related-party transactions, compliance procedures, business travel, etc.)

Development of regulations stipulating uniform standards for commercial activities (a Generalised Regulation on purchases in accordance with the law for the Group companies and a Regulation on sales of illiquid assets of the Company)

4. Development and implementation of projects improving the ICS

Seeking reserves and saving opportunities in commercial activities (sales of illiquid assets, scrap, a production system project for tube products, a production system project substituting copper cable with aluminium cable)

Providing recommendations and development of terms of reference for automating separate modules of the e-document flow, and general accounting and management accounting systems

En+ Group's operational and financial control objectives are achieved by comprehensive audits and revision inspections conducted by the Directorate for Control in accordance with the annual audit plan (approved by the ARC) and a risk-oriented approach. Moreover, the Directorate for Control conducts unscheduled audits requested by management and provides an independent opinion in fields and areas requiring immediate decision-making by management. The Directorate for Control uses audit findings to develop corrective actions aimed at minimising or eliminating any breaches identified by audits and preventing such breaches in the future. The Directorate for Control informs management and the ARC on a regular basis about audit and revision findings, as well as the status of implemented recommendations given by the Directorate for Control.

Risk management

The Company has established a risk management system, an integral part of the Company's Internal Control System and corporate governance framework, to reduce any potential threats to the Company's compliance with its corporate governance standards while ensuring consistent and sustainable business development.

The Company's risk management system provides for the identification and financial and probabilistic estimation and control over any change in risks from both the internal and external environment with regards to the financial and/or economic activities of the operating companies and businesses of the Company.

The vertical principal is used to manage the risks of the Company, based on the identification of any risks to the business processes of standalone operating companies with subsequent consolidation at the business level and the Company level, in accordance with its documents regulating the procedure and responsibilities of all participants of the risk management process.

Risk maps are used to illustrate potential risks to the Company's operating companies and businesses. Risk maps detail each risk event scenario, estimates on the possible impact of risks, and measures aimed at mitigating possible negative impacts on the activities of operating companies, businesses and the Company. The Group's risk map includes a list of all possible risks that may threaten the objectives of the Company during the next calendar year.

Risk status monitoring is done on a quarterly basis to analyse all changes, update the estimates for existing risks, and implement measures of controlling the identified risks, as well as to search for, identify, and estimate the impact of new risks that arise during the quarter or year.

The risk monitoring results are submitted to management, the Chief Executive Officer, and the Board of Directors of the Company. The responsibility for adequate risk management rests with the Chief Executive Officer of the Company.

Key risk management developments in 2018:

- Developed and adopted the Risk Management Policy
- Updated the Risk Management Regulation
- A risk management workshop held for the Company's operating companies

En+ Group's key risks

1. **Sanctions. On 6 April 2018, the Office of Foreign Assets Control (OFAC)** of the US Treasury designated certain legal and natural persons to its Specially Designated Nationals List.

   On 27 January 2019, after negotiations with OFAC and as a result of a plan proposed by Lord Barker, the OFAC restrictions on business transactions and dealings in the Company's securities were lifted. The restrictions on the majority shareholder are maintained and separately regulated by OFAC.

   There is a risk that the Company and its subsidiaries may be put on the OFAC sanctions list again, or that other sanctions may be imposed with potential damage of similar substantiality.
2. **Interdependence of the Energy segment and Metals segment.** RUSAL is among the Group's Energy segment's largest customers, with the Energy segment supplying electricity to RUSAL's aluminium smelters. There is, therefore, a high level of interdependence between these two segments.
3. **Leverage.** The Group has high leverage and a substantial amount of its borrowings are secured and subject to covenants. The Group must continue to generate sufficient cash and maintain its operating performance at an adequate level in order to avoid breaching these covenants.

   The terms of the credit facility agreements impose certain limits on the Group's capital expenditure and payment of dividends. Failure by the Group to comply with the terms and conditions of these agreements may materially adversely affect the Group and its shareholders.
4. **Group dividend structure.** The Company's ability to meet its obligations largely depends on receiving sufficient funds from its subsidiaries, and the Company is reliant on the ability of the Group's subsidiaries to distribute dividends to the Company.
5. **Foreign currency.** The Group reports its financial results in US dollars, while certain subsidiaries denominate their revenues and/or costs in roubles, euros and/or hryvnias. As such, the Group is exposed to exchange rate fluctuations, which may affect its financial results.
6. **Interest rates.** A significant amount of the Group's total borrowings have variable interest rates, potentially leading to a large increase in interest cost.
7. **Key senior management personnel.** The Group relies on the services of its key senior management personnel in making strategic and operational decisions. The risks that top management of the Group may adopt incorrect and inefficient managerial decisions are largely mitigated by the corporate procedures exercised by the Board of Directors and relevant committees to control decision making that is crucial for the Group's activities, and also by the high level of qualification and professional experience held by the senior management personnel of the Group.
8. **Operational hazards.** The Group's power generation, aluminium, and other operations are subject to hazards and risks that could lead to property damage or injury or death to persons.
9. **Operational assets.** The Group's assets (many of which were commissioned during the Soviet era) require regular maintenance and modernisation in order to extend their operating lives. Any failures could lead to accidents, cause disruptions to the Group's business, and/or lead to significant unplanned repair costs. Equipment failures or other difficulties may result in production curtailments or shutdowns.
10. **Environmental and health and safety regulations.** Ensuring compliance by the Group's subsidiaries with environmental and health and safety laws and regulations requires the commitment of financial resources. Environmental aspects of the Group's operations are priority issues, with all operating companies of the Group adhering to programs ensuring compliance with the standards outlined by international and Russian environmental legislation. In addition, new environmental laws or regulations could lead to further operational restrictions or obligations on the Group.
11. **Reliance on licences and permits.** The operational licences and permits that the Group's subsidiaries require from various government entities and agencies may be invalidated, suspended, or may not be issued or renewed, or may contain onerous terms and conditions that restrict the Group's ability to conduct operations or lead to substantial compliance costs or administrative penalties.
12. **Labour disruptions, skilled labour shortages, and labour cost inflation.** The Group relies on skilled labour for the operation of its assets and is, therefore, exposed to any changes in the cost and availability of such skilled labour. Further, a significant amount of the Group's employees in Russia are members of labour unions, and the Group is exposed to disruption such as workplace slowdown, stoppages, or strikes.
13. **Competition.** The Group may become subject to increased competition in each of the industries in which it operates, notably in the power industry (due to the ongoing liberalisation of power markets) and the aluminium industry, which in turn could result in loss of market share in any Group industry and cause downward pressure on prices for its products.

    In addition, the aluminium industry itself competes with other industries for certain other materials, in particular: (i) steel (used in transport, construction, packaging, and engineering); (ii) plastics (used in packaging and construction); and (iii) copper (used in electrical applications and heat exchangers).
14. **Adverse media.** Adverse media speculation, claims, and other public statements could adversely affect the Company's reputation and the value of its GDRs.

15. **Countries of operation.** The Group is exposed to risks relating to the multi-jurisdictional regulatory, social, legal, tax, and political environment in all countries in which it operates.
16. **Regulatory reform of the power market.** The Russian electricity and capacity markets have undergone significant regulatory change in recent years. The authorities continue to reform rules related to, in particular: (i) capacity modernisation and decommissioning; (ii) transmission and distribution tariffs; and (iii) capacity prices for certain types of power generators, and may, in the future, impose unforeseen, additional new rules and regulations in any area.
17. **Natural monopolies.** A number of the Group's companies have natural monopoly status under the Russian law. Regulations imposed on such companies include: (i) tariffs for the part(s) of services considered to be monopolistic; (ii) requirements for the non-discriminatory provision of services to all market participants; and (iii) control by the Russian tariff supervision authorities over certain material transactions or investments carried out.
18. **Tariff regulation and price fluctuations.** The Group's power subsidiaries are currently required to sell certain amounts of their planned electricity output (primarily to households) under regulated contracts at tariffs set by the relevant regulator. Heat generation and distribution tariffs and electricity transmission and distribution tariffs are also subject to regulation in Russia.

    In addition, unregulated prices for electricity and capacity may fluctuate or be subject to limitations.
19. **Relations with third parties.** The Group's power operations are dependent on third parties that provide services in the wholesale electricity market, such as the System Operator. The Group relies on third-party suppliers of certain goods and materials, including equipment.
20. **Power output.** The Group's hydro power generation facilities are subject to fluctuations in water flows, which could result in decreased power generation and subsequent lower revenues than planned from electricity and capacity sales.
21. **Fluctuations in demand for electricity and heat.** The demand for electricity and heat varies seasonally and from year to year, due to weather conditions and other factors, and the Group's operational results rely on its ability to accurately address or forecast seasonal and yearly fluctuations in demand.
22. **Fuel supply.** A portion of the Group's power operations require gas and fuel oil in their operations, and the Group is therefore exposed to disruptions in supply or increases in prices.
23. **Technological advances.** The energy market is subject to far-reaching, technological change, both on the supply side and on the demand side, which could in turn lead to structural changes in the market. The Group risks being unable to address such changes and/or match the technological advances of its competitors. The Company pays significant attention to new power technologies and their possible use in industrial power supply.
24. **Customer default.** If a customer is unable to pay for the power supplied to them, the Group may not be able to terminate the contract or suspend the supply unilaterally under applicable regulations. In particular, the regulations governing the retail heat and electricity market are particularly stringent and the Group must follow a number of steps before any reduction or cut-off in supply to non-paying retail customers can be made, and in certain circumstances, is not permitted. Certain En+ subsidiaries are guaranteeing suppliers to the electricity market in the Irkutsk and Nizhny Novgorod regions and are obliged to form an electricity supply contract with any customer applying for such contract for supply within the operational area of the company, regardless of the credit standing of the customer.
25. **Risks of Metals segment.** The Group owns certain metallurgical assets that represent its Metals segment, in which the world's largest aluminium producer, RUSAL, is the largest asset. The Metals segment operates in a cyclical industry that has recently experienced price and demand volatility, which has had, and may continue to have, a material adverse effect on the Group's performance and financial results. RUSAL depends on uninterrupted transportation services and access to infrastructure for the transportation of its materials and end products across significant distances. These factors are out of the Company's control and the prices for such services (particularly rail tariffs) could increase.
26. **Anti-monopoly laws.** The Group is subject to certain requirements under Russian anti-monopoly laws.
27. **Ore Reserves and Mineral Resources.** Ore Reserves and Mineral Resources data are estimates only and are inherently uncertain. Additionally, Ore Reserves and Mineral Resources may be depleted more rapidly than anticipated.

Code of Corporate Ethics

In 2013, the Board approved the Code of Corporate Ethics and the Code of Ethical Standards in Russian and English. Similar documents were approved on a group-wide level. The following documents and regulations were developed, approved, and implemented:

- Methodical recommendations on the organisation of the corporate ethics system
- A policy regarding conflicts of interests
- A policy regarding the identification of conflicts of interests
- Methodical recommendations on the identification and investigation of fraud

The Code of Corporate Ethics strives to ensure that business is conducted in compliance with the highest legislative and ethical standards. The Code covers every aspect of the Group's activities, including expectations from all employees and individuals related to En+ Group's activities.

Key ethical values to which all employees of the En+ Group's companies are committed:

- Respect for the personal rights and interests of all employees
- Responsibility
- Trust in employees
- Honesty and transparency
- Efficiency to achieve maximum results in all that we do
- Fairness and impartiality
- Care
- Commitment to ongoing development

Contents

Corporate Governance

Strength in evolution

En+ Group strives to achieve the highest standards of corporate governance, following ethical business across all of its operations

Corporate governance

The Company is committed to the highest international standards of corporate governance. The Group plans to continue improving in this area and adhering to internationally-recognised standards of corporate governance, transparency, disclosure, and accountability applicable to listed companies

The Company has made substantial changes to its corporate governance practices throughout 2018 and 2019 to date (as further discussed below) as a result of the OFAC sanctions imposed on 6 April 2018 and their subsequent removal on 27 January 2019. Following such changes, the Company is capable of committing to, and maintaining the highest international standards of, corporate governance.

Adhering to the highest standards of corporate governance is a crucial element in attracting fresh investment, strengthening the Group's competitive position, and enhancing shareholder value. Good governance is based on clarity of roles and responsibilities, and we aim to ensure that our governance procedures are applied to all areas of decision-making across the Group, including the Board, the management teams, and the other individuals who contribute to our daily activities.

While the law Jersey imposes certain general duties on company directors (including the duty to act in the best interests of the company), there is no specific corporate governance code or corporate governance regime in the jurisdiction. As a company incorporated in Jersey with GDRs admitted to listing on the Official List of the UK Financial Conduct Authority and trading on the Main Market of the London Stock Exchange, the Company is not required to comply with the provisions of the UK Corporate Governance Code (the "Code"). However, the Company has chosen to comply with the Code insofar as is appropriate and practicable in the Group's context.

The Board has therefore developed and approved a set of corporate governance principles to act as guidelines for maintaining the highest standards of corporate governance. These principles cover the Board's relationship with shareholders and the management team as well as the roles and responsibilities of the various Board committees.

The Board is responsible to all En+ Group's stakeholders for its conduct and for the performance of the En+ Group. The day-to-day running of the Company is delegated by the Board to the management team. However, the Board retains responsibility for the approval of certain matters, which affect the shape and risk profile of the Company (see details below).

The Company's corporate governance principles outline the relationship between the Board and the Company's shareholders and management team, as well as the remit and duties of the Board committees.

We consider the following corporate governance principles to be fundamental to our operations:

- Transparency
- Open and clear decision-making
- Legal compliance, including clear and robust compliance with US economic sanctions and the requirements for the Company to be, and remain clear from, the OFAC Sanctions
- Protection of the environment and the health and safety of the Group's employees
- The ongoing growth of the Company's value for the benefit of all stakeholders

Lord Barker of Battle,
Executive Chairman

"The new Board have the vision, skills and understanding to help lead the world's largest, fully integrated producer of low-carbon aluminium to the forefront of the global low-carbon economy."

Timeline of corporate governance changes

8 February 2019

Two new Board committees were established:

- Health, Safety, and Environment Committee
- Regulation and Compliance Committee

Lord Barker was appointed as Executive Chairman of the Board. Mr Christopher Burnham has been appointed as Senior Independent Director.

27 January 2019

New independent directors are appointed following the lifting of the OFAC Sanctions from the Company and its subsidiaries, RUSAL and JSC EuroSibEnergo

19 December 2018

The Terms of Removal were executed by En+, RUSAL, JSC EuroSibEnergo, and OFAC, resulting in, inter alia, new requirements for the Board.

15 November 2018

- Conflict of Interest policy was approved
- Risk management policy was approved

26 July 2018

The Board approved division of authorities between the CEO and Chairman of the Board.

20 June 2018

The terms of reference of the Board committees were amended:

- The references to representatives of Basic Element Limited were removed
- New requirements on the composition of the Board committees were introduced to secure committees' independence

18 May 2018

The Board considered the Chairman's plan (also known as the Barker Plan) on removal of the OFAC Sanctions from the Company for the first time.

14 March 2018

The Board approved the Board Reserved Matters on division of authorities between directors, CEO, and President.

Board of Directors

As of 31 December 2018, there were nine directors on the Board. There are currently twelve directors on the Board, including eight independent non-executive directors, three non-executive directors, and one director – the Executive Chairman of the Board.

The Rt Hon Lord Barker of Battle ("Lord Barker") was the Independent Chairman of the Board of Directors for the financial year of 2018. At the end of 2018, Philippe Mailfait was an independent non-executive director and Yuri Dvoryansky, Denis Kholodilov, Aleksandr Shistko, Alexander Krovushkin, Mikhail Likhotnikov, Konstantin Molodkin, and Timur Valiev were executive directors.

In accordance with the Barker Plan (as defined above) and as a condition to the Company's removal from OFAC's SDN List, the Company announced on 28 January 2019 the immediate appointment of seven new independent directors:

- Hon Christopher Bancroft Burnham
- Carl Hughes
- Joan MacNaughton Hon FEI
- Nicholas Jordan
- Igor Lojevsky
- Alexander Chmel
- Andrey Sharonov

On 8 February 2019, Lord Barker was appointed as Executive Chairman of the Board.

Lord Barker's appointment comes with additional powers and responsibilities, designed to enhance the control of the Board over the corporate governance systems and procedures of the Company. The appointment is aimed at further increasing cooperation between the Board and the Company's management, with the ultimate objective of promoting the successful performance of the Company.

Mr Christopher Bancroft Burnham was appointed as Senior Independent Director.

The following individuals were appointed as non-executive directors of the Board:

- Vadim Geraskin
- Ekaterina Tomilina
- Elena Nesvetaeva

Each of the above directors are currently serving on the Board. The quality and breadth of experience of the directors and the balance of the Board's composition are intended to protect and promote the Board's effectiveness.

Throughout 2018, a number of meaningful changes were made to the Board's composition as detailed in the table below.

Board composition and attendance

Board attendance and number of meetings in 2018

	Appointed on	Resigned on	Attendance[1]
Executive directors			
Oleg Deripaska	23.12.2010	18.05.2018	1/2
Maxim Sokov	05.07.2013	01.06.2018	3/3
Vladislav Solovyev	01.01.2018	30.04.2018	2/2
Yuri Dvoryanskiy	27.06.2018	27.01.2019	5/6
Denis Kholodilov	27.06.2018	27.01.2019	6/6
Alexander Krovushkin	27.06.2018	27.01.2019	6/6
Mikhail Likhotnikov	27.06.2018	27.01.2019	6/6
Konstantin Molodkin	27.06.2018	27.01.2019	6/6
Alexander Shistko	27.06.2018	27.01.2019	3/6
Timur Valiev	27.06.2018	27.01.2019	6/6
Non-executive directors			
Oleg Deripaska (effective from 15 March 2018 as NED)	23.12.2010	18.05.2018	1/1
Igor Makarov	27.03.2015	27.06.2018	3/4
Anton Vishnevskiy	31.12.2011	27.06.2018	4/4
Gulzhan Moldazhanova	15.06.2012	27.06.2018	4/4
Olga Mashkovskaya	05.10.2012	27.06.2018	4/4
Riccardo Orcel	19.09.2011	11.04.2018	1/2
Guangming Zhao	01.12.2017	09.04.2018	1/2
Independent non-executive directors			
Lord Barker of Battle[2]	17.10.2017	–	10/10
Philippe Mailfait	30.09.2009	25.04.2019	10/10
Dominque Fraisse	01.01.2018	06.04.2018	2/2
Total number of meetings			**10**

Board attendance and number of meetings in 2019 as at 31 March 2019

	Appointed on	Resigned on	Attendance[1]
Non-executive directors			
Vadim Geraskin	08.02.2019	–	3/3
Ekaterina Tomilina	08.02.2019	–	3/3
Elena Nesvetaeva	08.02.2019	–	3/3
Independent non-executive directors			
Lord Barker of Battle[2]	17.10.2017	–	3/3
Philippe Mailfait	30.09.2009	25.04.2019	3/3
Christopher Bancroft Burnham	27.01.2019	–	3/3
Alexander Chmel	27.01.2019	–	3/3
Carl Hughes	27.01.2019	–	3/3
Nicholas Jordan	27.01.2019	–	3/3
Igor Lojevsky	27.01.2019	–	3/3
Joan MacNaughton	27.01.2019	–	3/3
Andrey Sharonov	27.01.2019	–	3/3
Total number of meetings as of 31 March 2019			**3**

1. The number of meetings attended to the maximum number of meetings available to the director.
2. Executive Chairman of the Board effective from 8 February 2019.

Indemnity provisions

In accordance with the Company's Articles of Association, each Director is granted an indemnity from the Company for the liabilities incurred as a result of their office, to the extent permitted by law. These indemnities were in force throughout 2018 and as at the date of this report. In respect of those liabilities for which Directors may not be indemnified, the Board approved the Company maintaining directors' and officers' liability insurance throughout 2018. A copy of the policy is available from the Company Secretary upon request.

Board responsibilities

The matters on which the Board should be engaged include, among other things, setting the Company's strategic aims, ensuring that the necessary financial and human resources are in place for the Company to meet its objectives, and reviewing management performance. The Board is responsible for providing leadership to the Group and its overall management. The Board also sets the Company's values and standards and ensures that its obligations to shareholders and other stakeholders are understood and met. The Board's Reserved Matters were approved on 14 March 2018. The matters specifically reserved for the Board included, inter alia, the following:

- Review of performance against the business plan, the overall governance framework, and the approval of bonuses
- Review and approval of internal policies of the Company and the Group, including (without limitation) the Disclosure and Control of Inside Information Policy, the Code for Dealing in Securities, and the Anti-Bribery and Corruption Policy
- Approval of the annual business plan for the Group
- Review of the financial position of the Company and approval of financing arrangements, including the consolidated annual budgets
- Approval of the interim dividend and providing any appropriate recommendations to the shareholders for declaration of the final dividend
- Approval of any alteration to the Company's share capital (including any changes to the Company's listing and status as a public company) and providing any appropriate recommendations to shareholders
- Appointment of directors and key executives of the Company (following recommendations from the Corporate Governance and Nominations Committee), approval of the division of responsibilities between the Chairman, the Chief Executive, and the responsibilities of the Senior Independent Director
- Approval of the terms of reference of Board committees and approval of any amendments thereto
- Approval of any material investments and capital expenditure projects exceeding USD 75 million and not included in the annual budget approved by the Board, or any new material borrowing facilities (excluding intra-group transactions) exceeding USD 75 million
- Approval of items that require Board approval under the Company's Memorandum and Articles of Association in accordance with applicable Jersey legislation, including the Companies (Jersey) Law 1991 (the "Law")

Under the Board Reserved Matters, the CEO and the President have authority to act on any matters outside the scope of the Board Reserved Matters (provided that they do not require shareholder approval). Currently, the President is not appointed at the Company.

During 2018, the Board held ten meetings and passed a number of written resolutions. The key issue for 2018 was the imposition of the OFAC Sanctions on the Company and its subsidiaries (such as RUSAL and JSC EuroSibEnergo).

Certain directors resigned from the Board following the imposition of the OFAC Sanctions, and the Board consequently approved certain appointments to the Board and Board committees due to such resignations.

The Board oversees the Company's dividend policy, declaration of interim, and recommendation of final dividends and approval of other distributions to shareholders.

During 2018, the Board approved the distribution of the additional interim dividend for 2017 in the total amount of USD 68 million, which was paid to the Company's shareholders in March 2018.

The Board has taken steps to ensure that the members of the Board (in particular, the non-executive directors) develop an understanding of major shareholders' views about the Company. The Directors, including the Chairman, have direct face-to-face contact with shareholders at regular investor meetings.

The Rt Hon Lord Barker of Battle PC

Independent Director,
Executive Chairman of the Board

APPOINTED 17 OCTOBER 2017

APPOINTED EXECUTIVE CHAIRMAN OF THE BOARD 8 FEBRUARY 2019

Lord Barker was appointed Independent Chairman of Board in October 2017, immediately prior to the Company's successful IPO on the London Stock Exchange and the Moscow Exchange.

In February 2019, he was appointed Executive Chairman of the Board.

Lord Barker was previously a member of the British House of Commons from 2001 to 2015. From 2010 to 2014, Lord Barker served as UK Minister of State for Energy and Climate Change under Prime Minister David Cameron, becoming the longest serving British energy minister in a generation.

In August 2015, he was made a life Peer, and has been a member of the UK House of Lords since October 2015.

Lord Barker has extensive business experience in the energy sector, mergers and acquisitions, corporate finance, investor relations, and private equity acquired prior to his successful career in politics.

Lord Barker received education at Lancing College, London University, and London Business School.

Carl D. Hughes

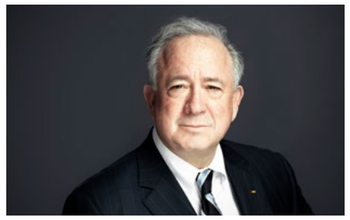
Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Mr Hughes joined Arthur Andersen in 1983, qualified as a Chartered Accountant and became a Partner in 1993. Throughout his professional career he specialised in the oil and gas, mining and utilities sectors, becoming the head of the UK energy and resources industry practice of Andersen in 1999 and subsequently of Deloitte in 2002. When Mr Hughes retired from the UK partnership of Deloitte in 2015 he was a vice-chairman, senior audit partner and leader of the firm's energy and resources business globally.

Mr Hughes is a Non-executive Director and Audit Committee Chairman of EnQuest PLC; a member of the board of the Audit Committee Chairs' Independent Forum in the UK; a member of the Finance and Audit Committee of the Energy Institute; a Director and Trustee of the Premier Christian Media Trust and the Lambeth Conference Company; a member of the Development Board of St Peter's College, Oxford; and a member of the General Synod of the Church of England and of the Finance and Investment Committees of The Archbishops' Council.

Mr Hughes holds an MA in Philosophy, Politics and Economics from the University of Oxford, is a Fellow of the Institute of Chartered Accountants in England and Wales, and is a Fellow of the Energy Institute.



Hon Christopher Bancroft Burnham

Independent Non-Executive Director,
Senior Independent Director

APPOINTED 27 JANUARY 2019
APPOINTED SENIOR INDEPENDENT DIRECTOR 8 FEBRUARY 2019

Mr Burnham is the Chairman and Chief Executive Officer of Cambridge Global Capital, LLC, headquartered in Washington, D.C. He co-founded Cambridge after a distinguished career in government, diplomacy, banking, and private equity. Mr Burnham is a globally recognized expert in the implementation of accountability and transparency, and the implementation of best practice in government, corporations, and inter-governmental organizations, having served as Under Secretary General for Management of the United Nations, Under Secretary of State for Management (acting), and Assistant Secretary of State for Resource Management and Chief Financial Officer of the U.S. Department of State.

At the U.S. Department of State, he built and led the implementation of performance measures down to the mission level while modernizing the global reporting system across 270 offices in 170 countries. As COO of the UN and a member of the cabinet of Kofi Annan, he instituted sweeping governance reforms including the establishment of the first UN Ethics Office, the first United Nations Independent Audit Advisory Committee, the adoption of new International Public Sector Accounting Standards, the first comprehensive consolidated annual report in the history of the United Nations, and a new whistleblower protection policy that received independent recognition as the “gold standard.” He also implemented best-in-class financial disclosure reporting by senior United Nations officials and staff based on the U.S. Government model, a first ever sexual harassment policy, and initiated a taskforce to investigate corruption within UN procurement that led to prosecutions and convictions by the U.S. District Attorney's office of the Southern District of New York.

Mr Burnham has been confirmed twice by the United States Senate.

In addition, Mr Burnham is the former Vice Chairman and Managing Director of Deutsche Asset Management where he co-founded and led Deutsche Bank's direct private equity group, RREEF Capital Partners, the bank's reentry into private equity after an eight-year absence. He also chaired Deutsche Bank's asset management governance committee in Germany.

A combat veteran of the United States Marine Corps (Reserve) who retired at the rank of Lieutenant Colonel, Mr Burnham volunteered for active duty in 1990 and served as an infantry platoon commander in the Gulf War. He and his men were part of the lead Allied forces to reach and liberate Kuwait City.

Since 2013, Mr Burnham has served as chairman and chief executive officer of Cambridge Global Capital, a venture capital investment firm focused on opportunities in life sciences, cyber and data security, and AI/data analytics.

Mr Burnham studied national security policy at Georgetown's National Security Studies Program, and is a graduate of Washington and Lee University, and Harvard University, where he earned an M.P.A. in 1990.

Joan MacNaughton CB Hon FEI

Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Ms MacNaughton is currently Chair of The Climate Group and the Advisory Board of the New Energy Coalition of Europe. She sits on the Strategic Advisory Board of Engie UK, is a non-executive director of the James Hutton Institute and the Energy Savings Trust, and sits on several other advisory boards.

From 2010 to 2016, Ms MacNaughton was Executive Chair of the annual assessment of countries' energy policies for the World Energy Council, the 'Trilemma', and is now Honorary Chair. In 2012, she was Vice Chair of the UN Committee on the Policy Dialogue of the CDM. From 2006 to 2012, she served on the Board of Governors, Argonne Laboratory at the University of Chicago, where she chaired the budget committee.

She was a board member of the International Emissions Trading Association, of which she is now an Honorary Fellow. She is also an Honorary Fellow and Past President of the Energy Institute, a Distinguished Fellow of both the Institute of Energy Economics of Japan and the Global Federation of Competitiveness Councils. From 2007 to 2013, she was Senior Research Fellow at the Oxford Institute for Energy Studies. For several years, she has moderated a roundtable of ministers and CEOs at the annual Clean Energy Ministerial Meetings.

From 2007 to 2011, Ms MacNaughton set up and led Alstom's department for clean power advocacy, and until December 2012, acted as Global Adviser on Sustainable Policies for the company. She was a member of the Executive Board responsible for the P&L of Alstom Power, and spent six years as a non-executive director of an FTSE 250 property development company.

Ms MacNaughton held a wide range of positions in the UK Government until 2007, including as Chief of Staff to the Deputy Prime Minister to Prime Minister Thatcher, and later to two Cabinet Ministers. From 2002, as Director General of Energy, Ms MacNaughton played a key role in shaping the UK energy policy. She led a major change program and made a significant contribution to international energy policy, including by overseeing the energy agenda during the UK Presidency of the EU and leading the work on the Clean Energy Action Plan agreed upon at the G8 Gleneagles Summit. From 2004 to 2006, she was Chair of the Governing Board of the International Energy Agency, leading a review of its strategy and emergency response to the disruption in supply caused by Hurricane Katrina.

Nicholas Jordan

Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Mr Jordan has more than 30 years of experience in senior positions at leading global financial institutions.

He was Executive Chairman of Big Un Limited from 28 May 2018 until October 2018 and served as its Non-Executive Chairman from 22 March 2018 until 28 May 2018. He then took the position of Executive Chairman to help restructure the business following a series of reporting and accounting issues which eventually led to the company being placed in administration. He served as Chairman of the Supervisory Board at 4finance Group S.A. (part of the Finstar Group), having earlier been the Chief Executive Officer at Finstar Financial Group (a subsidiary) from 2015 to 2017.

Earlier, he was the Co-Chief Executive Officer of Goldman Russia at Goldman Sachs until 2015. Prior to this, Mr Jordan had served as Chief Executive Officer of Russia and the Commonwealth of Independent States at UBS Group AG from June 2010.

Prior to this, he worked briefly for Lehman Brothers and Nomura, focused on Emerging Markets.

Mr Jordan worked for more than ten years with Deutsche Bank, eventually becoming Vice Chairman and Head of the Russian Office. During his time with the business, Mr Jordan was responsible for overseeing securities trading and asset managing departments. He served as Vice President of Global Department Banking Services – Eastern European Markets and Director of Investment Banking Department – Russia.

He joined Manufacturers Hanover in 1985 and developed an international career at the firm that was first acquired by Chemical Bank, who eventually moved him to London, where he became the Vice President of the London office and Head of the Emerging Markets business. The firm was later acquired by Chase, shortly after which Mr Jordan left to join Deutsche Bank.

He began his banking career as a Treasury Assistant at the Bank of New York.

Mr Jordan holds a BA in Political Science from Boston University.

Igor Lojevsky

Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Dr Lojevsky has extensive executive and non-executive experience in board-level governance at large, complex organisations with an international scope. His past experience includes Chairmanship and membership positions in strategic, audit, and remuneration and nomination committees of major companies involved in the banking, mining, transportation, and energy industries.

He excels in strategic guidance, support, and constructive challenge to controlling shareholders, as well as CEOs and management teams.

Dr Lojevsky served as Vice Chairman of Eastern Europe for Deutsche Bank's Asset and Wealth Management division and Corporate Banking and Securities division until his retirement in August 2014.

Originally, he joined Deutsche Bank in 2000 as a member of a London corporate finance team covering energy sector clients in post-Soviet countries. Dr Lojevsky joined Deutsche Bank from the World Bank in Washington DC, where he was Energy Policy Implementation Advisor for Europe and Central Asia.

Dr Lojevsky received a PhD in Finance from EDHEC – Business School / EDHEC – Risk Institute. He is a Research Associate and member of the International Advisory Board of EDHEC-Risk Institute (London and Nice) and Adjunct Professor of Higher School of Economics (Moscow).

Dr Lojevsky co-authored a monograph on management field, titled "Top Management – Theory and Practice".

Alexander Chmel

Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Mr Chmel holds the position of Senior Advisor to Board Practice of Spencer Stuart in Russia and CIS. He has an extensive experience of working as an Independent Director and a chairman or a member of audit committees of Russian public companies, including PJSC ENEL RUSSIA, PJSC ChelPipe, PJSC Vysochaishy (GV Gold).

During his career, Mr Chmel worked for 22 years in senior management roles in PwC on various projects in energy, utilities and mining practice in Russia and Central and Eastern Europe. After retiring from PwC, Mr Chmel worked in 2014-2016 as an Adjunct Professor and a Director of Corporate Programs at the Executive Education Department of the Moscow School of Management SKOLKOVO designing and delivering development programs for key management personnel of major Russian companies.

In 2016 Mr Chmel became one of the Top 50 Independent Directors in Russia - the all-Russia rating "Director of the Year". He holds a Diploma in Company Direction from the Institute of Directors (UK).

Andrey Sharonov

Independent Non-Executive Director

APPOINTED 27 JANUARY 2019

Andrei Sharonov joined SKOLKOVO Business School team in September 2013. Prior to this, he served as Deputy Mayor for Economic Policy in the Moscow Government. In 2013, he was appointed Dean of SKOLKOVO Business School, where he was later elected President in September 2016.

Mr Sharonov was born in Ufa in 1964. He graduated from Ufa State Aviation Technical University and the Russian Academy of Public Administration under the President of the Russian Federation, and holds a PhD in Sociological Science. From 1989 to 1991, Mr Sharonov was People's Deputy of the USSR, and was Chairman of the State Committee of the Russian Federation for Youth Affairs until 1996. Between 1996 and 2007, he served in the Ministry of Economic Development and Trade of the Russian Federation as department Head, Deputy Minister, and State Secretary. From 2007 through 2010, Mr Sharonov was Managing Director and Chairman of the Board of Directors of Troika Dialog Investment Company, leading its investment banking business. He is Chairman of the Board of LLC NefteTransService and a member of the Management Board of PJSC Sofkomflot, PJSC PhosAgro, and JSC Medicina.

By directive of the Moscow Mayor dated 22 December 2010, Mr Sharonov was appointed Deputy Mayor for Economic Policy in the Moscow Government and Chairman of the Regional Energy Commission. He led the Executive Committees of Moscow Urban Forum and Open Innovations Forum. Mr Sharonov won the Aristos prize in the Independent Director category in 2009, the national Director of the Year award in 2009 in the Independent Director category, and the international Person of the Year 2012 award for Business Reputation. He has also been recognised and awarded for his personal contribution to the development of corporate management in 2016 by the Independent Directors Association and the Russian Union of Industrialists and Entrepreneurs. Mr Sharonov was awarded the Order of Honour and is an Honoured Economist of the Russian Federation. He also received President's Letters of Gratitude in 2003, 2008, and 2018.

Ekaterina Tomilina

Non-Executive Director

APPOINTED 8 FEBRUARY 2019

Ms Tomilina joined the Board of En+ Group as a non-executive director in 2019.

She is currently the Director of Corporate Finance at Basic Element Company LLC.

She joined RUSAL in 2000 as the Head of its Structured Finance and Capital Markets Department. In 2012, Ms Tomilina was appointed Director of Corporate Finance at RM Rail, part of Russian Machines, an industrial and engineering company controlled by Basic Element.

She held various finance positions at investment company Alfa Group and Tyumen Oil Company from 1997 until 2000, where she oversaw finance, trade, and international matters.

Ms Tomilina is a graduate of Moscow State University of International Relations (MGIMO), with a degree in International Economics.

Elena Nesvetaeva

Non-Executive Director

APPOINTED 8 FEBRUARY 2019

Ms Nesvetaeva joined the Board of En+ Group as a non-executive director in 2019.

She has extensive experience in both investments and the banking sector, and currently leads the Investment Department at Basic Element Company LLC, where she has held several senior positions since joining the company in 2009. At Basic Element, Ms Nesvetaeva manages the company's investment projects and portfolio and is responsible for driving the group's investment strategy, asset valuation, as well as acquisition projects and M&A transactions.

She previously worked in the banking sector and at a large timber-processing holding.

Ms Nesvetaeva graduated with distinctions from the Faculty of Economics of Syktyvkar State University, the Russian Academy of National Economy under the Government of the Russian Federation, and the Institute of Business and Business Administration with a degree in Management.

Vadim Geraskin

Non-Executive Director

APPOINTED 8 FEBRUARY 2019

Vadim Geraskin joined the Board of En+ Group as a non-executive director in 2019.

He has significant experience in government relations at both regional and national levels.

Since September 2012, he has been Deputy CEO for Government Relations at Basic Element Company LLC, where he is responsible for company interaction with federal and regional government authorities, the Federal Assembly, and the Russian Government. Mr Geraskin is also heavily involved in driving the company's socioeconomic development programs in the regions where it operates.

Mr Geraskin led RUSAL's Natural Monopolies Administration for eight years before joining Basic Element, and previously led RUSAL's transport and logistics administration as well as the company's Transport Department. He served as CEO of oil and gas company Zarubezhcontract from 1997 to 2000, prior to which he worked for Aluminproduct Company between 1993 and 1997.

Mr Geraskin graduated from Lomonosov Moscow State University with a degree in Physics.

Biographies of directors that served on the Board through 2018 and are resigned as at the date of this Report

Oleg Deripaska

President, Executive Director, Non-Executive Director

APPOINTED AS DIRECTOR
23 DECEMBER 2010
RESIGNED AS PRESIDENT
15 MARCH 2018
RESIGNED AS DIRECTOR
18 MAY 2018

Oleg Deripaska served as a member of the Board of Directors from 2010 and as the Company's President from 2011. In March 2018, Mr Deripaska stepped down from his position of President of the Company. Following this, he was re-affirmed by the Board as a non-executive director of the Company.

Mr Deripaska was President of RUSAL from December 2014 until March 2018, and served as a member of RUSAL's Board of Directors from March 2007. From January 2009 to December 2014, Mr Deripaska served as Chief Executive Officer of RUSAL.

Since 2009, Mr Deripaska has been a Director of Basic Element Limited (Basic Element).

Igor Makarov

Non-Executive Director

APPOINTED 27 MARCH 2015
RESIGNED 27 JUNE 2018

Mr Makarov served as a member of the Board of Directors from March 2015. He has also been Deputy CEO for Legal Affairs at Basic Element since 2012. Prior to this, Mr Makarov acted as the Chief Legal Officer at RUSAL Global Management B.V.

Olga Mashkovskaya

Non-Executive Director

APPOINTED 5 OCTOBER 2012
RESIGNED 27 JUNE 2018

Ms Mashkovskaya served as a member of the Board of Directors from October 2012, and was the Deputy Chief Executive Officer for Finance at Basic Element from June 2012. Ms Mashkovskaya also served as a member of the RUSAL Board of Directors from September 2013.

Gulzhan Moldazhanova

Non-Executive Director

APPOINTED 15 JUNE 2012
RESIGNED 27 JUNE 2018

Ms Moldazhanova served as a member of the Board of Directors from June 2012 and was the Chief Executive Officer of Basic Element from July 2012. From June 2012, Ms Moldazhanova also served as a member of RUSAL's Board of Directors from June 2012.

Riccardo Orcel

Non-Executive Director

APPOINTED 19 SEPTEMBER 2011
RESIGNED 11 APRIL 2018

Mr Orcel served as a member of the Board of Directors from September 2011 to April 2018. He joined VTB Bank (PJSC) (VTB) in 2011 and currently acts as Head of Global Banking, International Organisation at VTB International.

Maxim Sokov

President, Executive Director

RESIGNED AS PRESIDENT AND EXECUTIVE DIRECTOR
1 JUNE 2018
APPOINTED 5 JULY 2013
RESIGNED AS CEO
15 MARCH 2018
APPOINTED AS PRESIDENT
15 MARCH 2018

Mr Sokov served as a member of the Board of Directors from 2013, first joining the Company as First Deputy Chief Executive Officer in 2013, and was the Chief Executive Officer from 28 April 2014 to 15 March 2018 when he was appointed the Company's President.

Mr Sokov also served as a member of RUSAL's Board of Directors from 2012.

Prior to joining the Group, Mr Sokov had worked at RUSAL from 2008 to 2013 and occupied various managerial positions including Director for Strategy and Corporate Development, Director for Strategic Investment Management, and Advisor for Strategic Investment Management. From 2002 to 2004, Mr Sokov worked as a lawyer for the Moscow Representative Office of Herbert Smith CIS Legal Services.

Mr Sokov graduated from the Russian State Tax Academy under the Russian Ministry of Taxes in 2000, majoring in Law. He also graduated from the New York University School of Law in 2002.

Anton Vishnevskiy

Non-Executive Director

APPOINTED 31 DECEMBER 2011
RESIGNED 27 JUNE 2018

Mr Vishnevskiy joined the Group in 1998 and served as a member of the Board of Directors from December 2011. From 1998 to 2005, he served as Deputy CFO of Basic Element. From 2006, Mr Vishnevskiy held various management positions in the Basic Element group of companies. Currently, he acts as a Director of B-Finance Ltd., the majority shareholder of En+.

Guangming Zhao

Non-Executive Director

APPOINTED 1 DECEMBER 2017
RESIGNED 9 APRIL 2018

Zhao Guangming served as a member of the Board of Directors between December 2017 and April 2018. Mr Zhao Guangming has been serving as Chief Executive Officer and Executive Director of AnAn Group (Singapore) Pte. Ltd. since 28 February 2017.

Biographies of directors that served on the Board through 2018 and are resigned as at the date of this Report continued

Timur Valiev
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Valiev was appointed by the directors by resolution of the Board with effect from 27 June 2018. He has served as General Counsel of En+ Group since July 2013, and has extensive professional experience in managing court activities, claims and contracting, legal support of M&A projects, and creation of joint ventures. Prior to joining the Group, Mr Valiev served as Director for International Projects and M&A at Basic Element Limited. Prior to joining Basic Element Limited, Mr Valiev worked at international law firm Dewey & LeBoeuf, the legal department of TNK-BP, and a number of Russian consulting firms.

Alexander Krovushkin
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Krovushkin was appointed by the directors by resolution of the Board with effect from 27 June 2018. He joined JSC Irkutskenergo in 1993 and held various technical and senior positions at Novo-Irkutsk CHP of JSC Irkutskenergo. Since August 2017, Mr Krovushkin has served as Branch Director of Novo-Irkutsk CHP of JSC Irkutskenergo. He has led several projects, such as a project aimed at optimising water supply and water sewage and implementing the Production Efficiency Improvement Program.

Mikhail Likhotnikov
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Likhotnikov was appointed by the directors by resolution of the Board with effect from 27 June 2018. He joined LLC Plant Networks (Nizhny Novgorod) in 2004 and has served as its General Director since January 2015.
Mr Likhotnikov runs a comprehensive services project for smaller enterprises, which brought a positive economic effect to the company.

Konstantin Molodkin
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Molodkin was appointed by the directors by resolution of the Board with effect from 27 June 2018. He joined Bratsk HPP in 2005 and held various technical and senior positions at Bratsk HPP and JSC Irkutskenergo. Since February 2018, Mr Molodkin has served as Branch Director of LLC EuroSibEnergo-Hydrogeneration for Bratsk HPP. He has managed and implemented a series of projects, such as optimisation of the inventory supply process and raising operational efficiency at hydro power plants.

Alexander Shistko
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Shistko was appointed by the directors by resolution of the Board with effect from 27 June 2018. He joined Krasnoyarsk HPP in 1992 and held several technical and senior positions. Since September 2017, Mr Shistko has served as Deputy Chief Production Officer (Operation and Reconstruction) of Krasnoyarsk HPP. Alexander Shistko managed and implemented a series of projects aimed at creating an automatic emergency response scheme and developing a decision-making system based on data obtained from data retrieval devices.

Yuri Dvoryanskiy
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Dvoryanskiy was appointed by the directors by resolution of the Board with effect from 27 June 2018 and has served as Chief Engineer at LLC EuroSibEnergo-Hydrogeneration since April 2018. Mr Dvoryanskiy joined JSC Irkutskenergo in 2006 and has held various positions at JSC Irkutskenergo, the Irkutsk-based branch of Vostokenergozashchita, as well as OJSC Firm Energozashchita. Since April 2018, he has served as Chief Engineer of LLC EuroSibEnergo-Hydrogeneration.
Mr Dvoryanskiy has implemented a series of projects aimed at avoidance of fines at the wholesale capacity market and reduction of in-house power consumption of HPP.

Denis Kholodilov
Executive Director

APPOINTED 27 JUNE 2018
RESIGNED 27 JANUARY 2019

Mr Kholodilov has expressed his willingness to continue as a Director of the Company. He was appointed by the directors by resolution of the Board with effect from 27 June 2018. Mr Kholodilov joined JSC Irkutskenergo in 1997 and held various technical and senior positions at Novo-Irkutsk CHP of JSC Irkutskenergo. Since May 2012, Mr Kholodilov has served as a Deputy Chief Technology Officer (Modernisation) and Head of Production and Technology Department of Novo-Irkutsk CHP of JSC Irkutskenergo. He was directly involved in a series of projects aimed at raising the efficiency and reliability of power plant equipment.

Philippe Mailfait
Independent Non-Executive Director

APPOINTED 30 SEPTEMBER 2009
RESIGNED 25 APRIL 2019

Philippe Mailfait served as an Independent Director of the Board of Directors. Mr Mailfait also holds the position of Independent Director at various other companies. Prior to joining the Group, he held different executive positions at Banque Worms and Banque de Gestion Privйe (Paris), Morgan Grenfell & Co. (London and Paris), Marceau Investissements and Trianon Finance (Paris).

Mr Mailfait holds a degree in Economics and Finance from Institut d'Etudes Politiques de Paris and an MBA from HEC Montreal, University of Montreal.

Committees

Overview

As at the date of this Report, the Board has established five committees to assist its activities:

- Audit and Risk Committee (previously the Audit Committee)
- Corporate Governance and Nominations Committee
- Remuneration Committee
- A newly-formed Health, Safety, and Environment Committee
- A newly-formed Regulation and Compliance Committee

All committees perform their duties on behalf of the Board, which is responsible for constituting, assigning, co-opting, and fixing the terms of service for committee members. This function may be delegated by the Board to the Corporate Governance and Nominations Committee.

The composition of the committees has been reorganised following the lifting of sanctions from the Company on 27 January 2019. The composition of the Company's existing Board committees was amended on 8 February 2019 and again on 14 February 2019. The details regarding each of the committees are set out below.

Committee attendance and number of meetings in 2018[1]

	ARC	RemCom	CGNC
Non-executive directors			
Igor Makarov	–	2/2	3/3
Anton Vishnevskiy	3/3	2/2	–
Olga Mashkovskaya	3/3	2/2	–
Riccardo Orcel	–	–	2/2
Guangming Zhao	–	–	–
Independent non-executive directors			
Lord Barker of Battle	–	2/2	4/4
Philippe Mailfait	3/3	2/2	4/4
Total number of meetings	**3**	**2**	**4**

Committee attendance and number of meetings in 2019 as at 31 March 2019[1]

	ARC	RemCom	CGNC	RCC
Independent non-executive directors				**–**
Lord Barker of Battle	–		1/1	2/2
Philippe Mailfait	1/1		1/1	–
Christopher Bancroft Burnham	1/1	2/2	–	2/2
Alexander Chmel	1/1	2/2	–	–
Carl Hughes	1/1	–	1/1	2/2
Nicholas Jordan	–	2/2	–	–
Igor Lojevsky	–	2/2	–	2/2
Joan MacNaughton	–	–	1/1	2/2
Andrey Sharonov	0/1	–	1/1	–
Total number of meetings as of 31 March 2019	**1**	**2**	**1**	**2**

1. The number of meetings attended to maximum number of meetings available to the director.

Audit and Risk Committee

The Audit and Risk Committee (the "ARC") comprises at least three members, all of whom are independent non-executive directors, and meets at least four times a year. Current composition of the ARC is as follows:

- Carl Hughes as Chairman
- Christopher Bancroft Burnham
- Alexander Chmel
- Philippe Mailfait
- Andrey Sharonov

The ARC is responsible for considering, inter alia: (i) the integrity of the Group's consolidated financial statements, including its annual and interim accounts, and the effectiveness of the Group's Internal Control and risk management systems (including the Company's procedures for detecting fraud and preventing bribery); and (ii) the terms of appointment and remuneration, and ongoing monitoring of the effectiveness and objectivity of the independent auditors. The ARC supervises, monitors, and advises the Board on the risk management and control systems, as well as on implementing codes of conduct. In addition, the ARC supervises the submission of the Group's financial information and a number of other audit-related issues.

The ARC is also responsible for reviewing the effectiveness of the external audit process. JSC KPMG ("KPMG") has been the Company's external auditor since 2009, and the team is led by Mr Yerkozha Akylbek. As part of the annual external audit review, the ARC considers the fee proposals and effectiveness for applicable professional and regulatory requirements as well as the external audit process in determining KPMG's reappointment.

The ARC also considers the effectiveness of any other external auditor in conjunction with other relevant Board committees, such as audits performed to meet the terms of removal from the OFAC SDN List.

In accordance with its Terms of Reference, the ARC shall meet as often as it deems necessary but, in any case, at least four times per year. The meetings are held to coincide with key dates in the financial reporting and audit cycle, at times and places determined by the Chairman of the ARC, with further meetings to occur or actions to be taken by unanimous written consent, when deemed necessary or desirable by the ARC or its Chairman. The ARC reviews its own performance on a minimum annual basis in a manner it deems appropriate, and submits the evaluation of such (including any recommendations for change) to the Corporate Governance and Nomination Committee and to the Board for review and approval.

In 2018, the ARC held three meetings and provided support to the Board in all matters associated with the Company's keys projects, including reviewing and improving the Company's consolidated and separate financial statements, developing the Group's Internal Audit function, and improving internal controls.

Corporate Governance and Nominations Committee

The Corporate Governance and Nominations Committee (the "CGNC") comprises at least three members, at least half of whom shall be independent non-executive directors, and meets at least three times a year. The CGNC is currently comprised as follows:

- Andrey Sharonov as Chairman
- Carl Hughes
- Nicholas Jordan
- Joan MacNaughton

The CGNC's primary role is to recommend and annually review the corporate governance guidelines for the Company and its consolidated subsidiaries and to oversee corporate governance matters.

The primary responsibilities of the CGNC include the following:

- Recommending and annually reviewing corporate governance guidelines for the Company and its consolidated subsidiaries (together, the Group) and overseeing corporate governance matters
- Identifying individuals qualified to become Board members and recommending such individuals to the Board for nomination for election to the Board. When considering Board appointments, the CGNC assesses nominees' experience, independence, compliance with the Terms of Removal from the OFAC SDN List, integrity, skills, gender, age, nationality, and educational background, among other considerations
- Making recommendations to the Board concerning committee appointments (other than the CGNC) and subsidiaries' board and CEO appointments
- Considering and recommending any proposed amendments to the Company's Memorandum and Articles of Association or to standing procedures of the Board and the Terms of Reference of the Company's Board committees, and reviewing and recommending any changes to other corporate governance documents of the Group
- Reviewing all legislative, regulatory and corporate governance developments that might affect the Company's operations, and making any related recommendations to the Board
- Coordinating an annual performance review of the Board and its committees
- Making recommendations to the Board concerning the terms of the Group's Code of Ethics
- Assessing and making recommendations to the Board concerning liability insurance of the Company's directors' and officers'

The CGNC held four meetings in 2018. The majority of CGNC meetings involved considering and nominating individuals for employment or selecting candidates as Board members of the Company or its subsidiaries. A key matter for the CGNC in 2018 was developing a new management structure. The CGNC reviews its own performance on a minimum annual basis in a manner it deems appropriate, and submits the evaluation of such (including any recommendations for change) to the Board for review and approval.

Remuneration Committee

The Remuneration Committee (the "RemCom") comprises at least three members, at least half of whom shall be independent non-executive directors, and meet at least three times a year. The current RemCom is comprised as follows:

- Nicholas Jordan as Chairman
- Christopher Bancroft Burnham
- Alexander Chmel
- Igor Lojevsky

The RemCom is responsible for determining and reviewing, among other matters and giving due consideration to applicable laws and regulations, the Company's remuneration policies, compensation and benefits plans, including incentive and executive compensation and any equity-based plans. Remuneration policies are determined based on an employee's qualifications and performance, as well as the complexity of their job. Wages for each employee are generally reviewed annually and revised in accordance with a performance assessment and local labour market conditions. The remuneration of independent directors is a matter for the Chairman of the Board and the executive directors. No director or manager may be involved in any decisions regarding their own remuneration.

The RemCom's responsibility is also to prepare selection criteria and appointment procedures for Board members and regularly review the structure, size, and composition of the Board of Directors. In undertaking this role, the RemCom refers to the skills, knowledge, and experience required of the Board of Directors given the Company's stage of development and makes recommendations to the Board of Directors as to any changes. The RemCom also considers future appointments relating to the Board composition, as well as making recommendations for ARC membership. The RemCom reviews its own performance on a minimum annual basis in a manner it deems appropriate, and submits the evaluation of such (including any recommendations for change) to the Board for review and approval.

In 2018, the RemCom held two meetings and approved remuneration levels for the Company's non-executive directors and senior management team members.

Health, Safety, and Environment Committee

The Health, Safety, and Environment Committee (the "HSE Committee") is a newly-formed committee post-sanctions. It comprises at least three members, meets at least three times a year, and is currently comprised as follows:

- Joan MacNaughton as Chairwoman
- Lord Barker
- Alexander Chmel
- Vadim Geraskin

The primary responsibilities of the HSE Committee include the following:

- Periodically reviewing the effectiveness of the Group's health, safety, and environmental strategies, systems, policies, and practices, as well as the results of any health, safety, and environmental audit
- Considering the areas of significant corporate and individual health, safety, and environmental risks and whether the appointed executive is managing such risks effectively
- Periodically reviewing the health, safety, and environmental governance and managerial structure within the Group
- Considering major findings of any internal and/or external investigations and the appointed executive's response(s) in relation to such
- Making decisions regarding any improvements or changes to be made to the Group's health, safety, and environmental strategies, systems, policies, and practices
- Making recommendations to the Board for the formulation and setting of objectives with regards to the Group's health, safety, and environmental management
- Making recommendations to the Board regarding the possible participation, co-operation and consultation on health, safety, and environmental issues with governments, non-governmental organisations, and other companies and/or employee organisations.

Regulation and Compliance Committee

The Regulation and Compliance Committee (the "RCC") is a newly-formed committee following the Company's removal from OFAC's SDN List. It comprises at least three members, will meet at least four times a year, and is now comprised as follows:

- Christopher Bancroft Burnham as Chairman
- Lord Barker
- Carl Hughes
- Igor Lojevsky
- Joan MacNaughton

Primary responsibilities of the RCC:

- Establish and maintain transparency, accountability, and good corporate governance
- Review and monitor the regulatory and compliance training as well as the continuous professional development of the Company's Directors and senior management
- Keep all legislative, regulatory, and Corporate Governance developments under review, including any specific compliance requirements issued to the Company by OFAC that may affect the Company's operations and make recommendations to the Board in relation to such
- Recommend compliance guidelines for the Company to the Board, assessing the guidelines on a minimum annual basis and overseeing compliance with such guidelines
- Develop and review Group policies in relation to regulatory compliance and make recommendations to the Board in relation to such
- Receive and consider reports on any views expressed by OFAC, shareholders, shareholder representative bodies, and other interested parties in relation to regulatory compliance

The RCC shall review its own performance and reassess the adequacy of procedures and guidelines relating to regulatory compliance.

Internal auditor

The Company's internal auditor is responsible for the recommendation of an auditing plan to the ARC. The internal auditor carries out auditing assignments in accordance with such plan and oversees and reports on the Company's compliance with the plan's recommendations. The internal auditor also files a half-year report with the ARC and the Board of Directors, and must be available for any Board or ARC meetings.

Share Dealing Code

Upon admission to the Main Market of the London Stock Exchange in November 2017, the Company adopted a code of securities dealing in relation to the GDRs, Ordinary Shares, and any other securities of the Company which is based on the requirements of the E.U. Market Abuse Regulation (EU) 596/2014. This code applies to the Directors and other relevant employees of the Group.

Company Secretary

The current Company Secretary in the territory of Jersey is Intertrust Corporate Services (Jersey) Limited, at 44 Esplanade, St Helier, Jersey, JE4 9WG. The Company Secretary was appointed on 10 April 2007.

In addition to the Jersey Company Secretary, the Company has appointed a co-secretary in the Republic of Cyprus – Inter Jura Cy (Services) Limited, at Lampousas 1, Nicosia 1095, Cyprus.

Shareholdings of directors and the management team

As of the date of this Report, none of the directors or managers directly hold any shares of the Company.

Remuneration

For the year ended 31 December 2018 remuneration of key management personnel was represented by short-term employees benefits and amounted to USD 16 million.

Responsibility statement

We, the members of the Board, confirm that, to the best of our knowledge:

The consolidated financial statements, prepared in accordance with International Financial Reporting Standards (the "IFRS") as issued by the International Accounting Standards Board and as adopted by the European Union, give a true and fair view of the assets, liabilities, financial position and profit and loss of the Company and its subsidiaries, taken as a whole.

This annual report includes a fair review of the development and performance of the business and the position of the Company and its subsidiaries, taken as a whole, together with a description of the principal risks and uncertainties that they face.

Management team

Throughout the course of 2018, the Company implemented a number of strategic changes to the management team of the Company.

With effect from 1 May 2018, Vladislav Soloviev, who served as Executive Director of the Company from 1 January 2018 and as CEO of the Company from 15 March 2018, resigned from such positions on 30 April 2018. Vyacheslav Solomin, previously COO of the Company, was appointed as CEO with effect from 1 May 2018.

Mikhail Khardikov was appointed as Chief Financial Officer following the resignation of Andrey Yashchenko, with effect from 1 May 2018. Mikhail Khardikov has spent the last eight years in various managerial positions at JSC EuroSibEnergo (a 100% subsidiary of En+ Group, managing its power assets), most notably being its CFO since July 2014.

Biographies of the current management team

Vladimir Kiriukhin
Chief Executive Officer

Vladimir Kiriukhin was appointed Chief Executive Officer of En+ Group in November 2018. He oversees the Company's long-term strategy, business development, and cooperation with key external stakeholders, including regulators.

A long-serving member of En+ Group, Mr Kiriukhin has served as Chief Executive Officer of En+ Development since 2009. From 2001 to 2008, he held several top positions, including First Deputy CEO and CEO, at EuroSibEnergo, En+ Group's 100% subsidiary, operating its energy assets. Before joining the Company, he held senior positions at Russian Aluminium and MAREM+ between 1999 and 2001.

Mr Kiriukhin is Chairman of the Board at JSC Irkutskenergo (majority-owned En+ Group energy subsidiary in the Irkutsk Region). He is a board member of JSC Krasnoyarsk Territory Development Corporation and has previously served on the supervisory boards of Russia's Financial Market Council, JSC Krasnoyarsk HPP, Moscow Energy Exchange, and Council of Energy Producers.

Vladimir Kiriukhin graduated from the All-Union Institute of Interindustrial Information with a PhD in Engineering, having previously obtained a major in Mathematics from the Higher Naval School of Radio Electronics.

Mikhail Khardikov
Chief Financial Officer

Mikhail Khardikov was appointed Chief Financial Officer of En+ Group in 2018. His role includes responsibility for finance, tax, treasury, and supervision of budget, reporting, and consolidation of subdivisions.

Mikhail Khardikov joined the Company's EuroSibEnergo subsidiary in November 2010 as Investor Relations Director and then served as Corporate Finance Director from December 2012 until June 2014. In July 2014, he was appointed Chief Financial Officer of EuroSibEnergo, and was appointed Chief Executive Officer of EuroSibEnergo in November 2018.

Prior to joining EuroSibEnergo, Mr Khardikov served in senior positions at JSC Bashkirenergo, JSC OGK-3, JSC HC Metalloinvest, and LLC COALCO.

Mr Khardikov, PhD, graduated in Management from the Tomsk State University in 2003, and later completed a career broadening program in 2007 of Strategic Management at the Russian Presidential Academy of National Economy and Public Administration under the Government of the Russian Federation. In 2009, he completed the Economy and State Regulation of Economy program.

Vyacheslav Solomin
Chief Operating Officer

Vyacheslav Solomin was appointed Chief Operations Officer in 2018. He focuses on day-to-day operations and project management, implementation of management best practices, digital strategy, as well as strengthening the Group's environmental practices.

Mr Solomin joined the Group in 2007 as Chief Financial Officer of EuroSibEnergo, where he was appointed deputy CEO in 2010. In May 2014, he was appointed CEO of EuroSibEnergo.

Before joining EuroSibEnergo, Mr Solomin held senior positions with the financial departments of INTERRAO UES Power Generating Company and SIBUR Holding. He also worked for PriceWaterhouseCoopers for nine years.

Mr Solomin graduated from the Far Eastern State University (Vladivostok) and University of Maryland University College (USA).

Alexander Danilov
Acting General Counsel

Alexander Danilov was appointed General Counsel of the Company in March 2019. He is responsible for legal support to the Company's business and projects, legal proceedings, and general supervision of legal functions at En+ Group's businesses.

Before joining the Company, Mr Danilov held various legal positions at Lukoil Overseas Group. Prior to his experience with Lukoil, he was a Partner at Akin Gump Strauss Hauer & Feld LLP from December 2006.

Mr Danilov graduated cum laude from the international law faculty of the Moscow State Institute of International Relations in 1995 and received his LLM from the University of Michigan Law School in 2000 as well as an MBA degree from University of Chicago Booth School of Business in 2016.

Yulia Chekunaeva
Director for Capital Markets and Strategic Initiatives

Yulia Chekunaeva is Director for Capital Markets and Strategic Initiatives. She is responsible for capital markets, investor relations, non-financial reporting, international strategic partnerships, and stakeholder management.

Ms Chekunaeva joined the Company in September 2016. She successfully led the execution team to completing En+ Group's IPO on the London Stock Exchange in November 2017.

Before joining the Group, Ms Chekunaeva was Executive Director in Goldman Sachs Global Investment Research. Prior to GS, she was employed at Sberbank of Russia in various positions from 2002 to 2010, her latest position was Head of Metals and Mining Corporate lending at Sberbank CIB – Largest Corporate Clients department.

She holds an MSc from Warwick Business School (University of Warwick) in Economics and Finance. She completed her undergraduate studies at International College of Economics and Finance, which allowed her to graduate with two degrees: a BSc in Economics with honours from State University – Higher School of Economics, and a BSc in Banking and Finance from The London School of Economics and Political Sciences.

Valery Freis
Deputy Chief Executive Officer and Head of Resource Protection

Valery Freis was appointed Deputy Chief Executive Officer and Head of Resource Protection at En+ Group in 2015. He is responsible for setting up the security methodology of the Company and oversees the organization and implementation of the security system of the Company.

Prior to joining En+ Group, Mr Freis was Head of Resource Protection at RUSAL Global Management from 2008, and previously served as Deputy CEO for Security of JSC Irkutskenergo. Previously, he served in the financial police of Russia's Ministry of Internal Affairs.

In 1979, he graduated from the Kuibyshev Planning Institute.

Igor Galanin
Human Resources Director

Igor Galanin was appointed as En+ Group's Human Resources Director in March 2019. He is responsible for the Group's HR management strategy, the implementation of staff engagement policies and the management of recruitment programs.

From 2015 to 2019, Mr Galanin served as Human Resources Director at JSC Irkutskenergo, a subsidiary of En+ Group.

Mr Galanin has developed extensive experience across various industries in Human Resource (HR) management since 1999. From 2001 to 2010, he worked in the automotive sector.

Mr Galanin graduated with a degree in Engineering from Nizhny Novgorod State University of Architecture and Civil Engineering in 1998. He also received a degree in economics from the Lobachevsky State University, Nizhny Novgorod, in 2000.

He obtained his MBA degree in Personnel Management from Nizhny Novgorod State Technical University in 2005.

Egor Ivanov
Head of Control and Internal Audit

Egor Ivanov has been Head of Control and Internal Audit at En+ Group since December 2017. He is responsible for the implementation, structuring, and improvement of the Internal Control system, providing support to the Company's risk management system, and implementing and maintaining internal control over the purchasing activities of the Company.

From 2012 to 2017, he served as Head of Control, Internal Audit and Business Co-ordination at RUSAL. Previously he headed the Directorate for Control, Internal Audit, and Business Coordination, led RUSAL's planning and budgeting department, and served as the company's First Deputy CFO.

Prior to joining RUSAL, Mr Ivanov worked at ITERA Group, one of the largest independent manufacturers and suppliers of natural gas in the CIS and Baltic countries.

Mr Ivanov graduated with a degree in Accounting, Analysis, and Business Auditing from the Financial Academy of the Russian Government.

Roman Kashcheyev
Chief Compliance Officer

Roman Kashcheyev was appointed as Chief Compliance Officer of the Group in January 2019. He oversees compliance with Group policies, standards, and procedures, provides guidance to En+ Group businesses, and drives compliance with regulatory obligations.

Roman joined En+ Group in November 2017 as Head of International Corporate Governance and has been responsible for implementing best corporate practices and standards following the Company's IPO.

Prior to joining En+ Group, he worked at RUSAL starting in 2005. Mr Kashcheyev was a member of the Supervisory Board of RUSAL Global Management B.V. from 2009 to 2017. In 2016, he was appointed Global Compliance Officer of RUSAL,

From 2001 to 2005 Mr Kashcheyev worked as a project manager and business consultant at different consulting companies, including IBM Business Consulting Services.

Roman Kashcheyev holds a Master's degree in Economics from Lomonosov Moscow State University. He also holds the ICA Diploma in Governance, Risk, and Compliance.

Andrey Lymarev
Chief Technical Officer

Andrey Lymarev was appointed Chief Technical Officer of En+ Group's EuroSibEnergo in January 2017. He is in charge of developing both a medium-term and long-term technical strategy for the Company, and also manages the maintenance of the Company's energy assets and oversees the accidents' reduction strategy.

Before joining EuroSibEnergo, Mr Lymarev was Deputy Chief Engineer for Repairs and then Deputy Chief Engineer for Maintenance at INTER RAO Electricity Generation Management from 2015 to 2016.

From 1992 to 2015, he rose through the Company ranks from a turbine inspection operator to Chief Technical Officer (in 2004) at the Siberian Energy Company.

He was awarded the Gratitude of the Ministry of Energy of the Russian Federation in 2008 and an Honorary Diploma of the Ministry of Energy of the Russian Federation in 2012.

David Pogosbekov
Commercial Director

David Pogosbekov was appointed Commercial Director of En+ Group in 2018. David Pogosbekov's responsibilities include price optimisation in procurement through streamlining and consolidating purchases across the Company as well as the development of both a unified procurement policy and uniform standards for engaging with suppliers and contractors.

He joined En+ Group in 2008 as a tax manager of the Company's hydro power segment, EuroSibEnergo. In 2011, he was appointed Commercial Director of EuroSibEnergo and subsequently became CEO of EuroSibEnergo Trading House in 2015.

In 2003, David Pogosbekov graduated from the Finance Academy under the Government of the Russian Federation with a degree in Finance and Credit. His started his career in tax consulting with both Russian and international consultancies including Deloitte.

Evgeny Tikhonov
Business Development Director

Evgeny Tikhonov was appointed Development Director of En+ Group's EuroSibEnergo in 2011. He is responsible for the Company's strategy and new projects such as acquisition of assets, construction of power plants, and exploration of new business areas, etc.

Mr Tikhonov joined the Company's EuroSibEnergo in May 2011. Prior to that, he worked for seven years as Director of the Energy Projects Department at TNK-BP, where he was engaged in developing the company's energy strategy. Previously, he was a project manager and leading consultant for CARANA Corp., an international consulting company.

Evgeny Tikhonov graduated from the Belarussian State University with a PhD in Economics. He is a Certified Financial Manager (CFM).

Biographies of the management team members that served through 2018 and are resigned as at the date of this Report

Oleg Deripaska

President, Executive Director, Non-Executive Director

APPOINTED AS A DIRECTOR
23 DECEMBER 2010
RESIGNED AS PRESIDENT 15 MARCH 2018
RESIGNED AS DIRECTOR OF THE COMPANY
ON 18 MAY 2018

Oleg Deripaska served as a member of the Board of Directors from 2010 and as the Company's President from 2011. In March 2018, Mr Deripaska stepped down from his position of President of the Company. Following this, he was re-affirmed by the Board as a non-executive director of the Company.

Mr Deripaska was President of RUSAL from December 2014 until March 2018, and served as a member of RUSAL's Board of Directors from March 2007. From January 2009 to December 2014, Mr Deripaska served as Chief Executive Officer of RUSAL.

Since 2009, Mr Deripaska has been a Director of Basic Element Limited (Basic Element).

Maxim Sokov

President (resigned on 1 June 2018)

APPOINTED AS DIRECTOR 28 APRIL 2014
RESIGNED AS CEO 15 MARCH 2018
APPOINTED AS PRESIDENT 15 MARCH 2018
RESIGNED AS PRESIDENT 1 JUNE 2018

Maxim Sokov served as a member of the Board of Directors from 2013. Mr Sokov joined the Company as First Deputy Chief Executive Officer in 2013 and was the Chief Executive Officer of the Company from 2014 to 15 March 2018 when he was appointed as the Company's President.

Andrey Yashchenko

Chief Financial Officer (resigned on 1 May 2018)

Mr Yashchenko served as Chief Financial Officer from July 2013.

Resigned on 30 April 2018.

Between 2006 and 2010, Mr Yashchenko acted as Deputy Chief Financial Officer and Corporate Finance Director at Basic Element. Between 2000 and 2006, he served as Head of Capital Markets at RUSAL.

Prior to joining the Group in 2013, Mr Yashchenko was Chief Financial Officer of the Russian Platinum Group. Prior to this, he held various positions with TNK and served as a research analyst at both MC Securities and Montes Auri investment companies. At the beginning of his career, Mr Yashchenko was an auditor with Deloitte.

Diversity

The Company is committed to promoting a diverse and inclusive workforce while recognising and embracing the benefits of a diverse Board to enhance the quality of its performance.

The Board recognises the desire of stakeholders to have greater diversity in senior management and on boards. En+ does not have a formal diversity policy in place, as the Corporate Governance and Nominations Committee is mindful of diversity when considering potential candidates for appointment to the Board.

Inclusion

En+ aims to create an environment of inclusion, where everyone is treated without discrimination.

We are working to ensure equal opportunity in recruitment, promotion, training, and reward for all employees regardless of ethnicity, national origin, religion, gender, age, sexual orientation, marital status, disability, or any other characteristic protected by law.

When existing employees become disabled, we provide continued employment, training, and occupational assistance where needed.

Information for shareholders and investors

Ordinary shares

As of 31 December 2018, the authorised and issued fully paid share capital of En+ Group was divided into 571,428,572 ordinary shares with a par value of USD 0.00007 each.

Following the completion of the Lord Barker Plan, 67,420,324 new shares in the form of Global Depositary Receipts (the "GDRs") were issued to a subsidiary of Glencore International AG, representing approximately 10.55% of the enlarged share capital of the Company (638,848,896 shares), in exchange for the transfer to the Company by Amokenga Holdings Limited of its 8.75% holding in RUSAL in two stages. The first stage was settled on 31 January 2019, in which 1.97% of RUSAL's shares was transferred to the Company following the removal of the Company and RUSAL from the SDN List, with the remaining 6.78% of RUSAL's shares to be transferred by February 2020.

The issued share capital of En+ Group is divided into 638,848,896 ordinary shares with a par value of USD 0.00007 each.

Global Depositary Receipts

En+ Group's ordinary shares in the form of the GDRs are listed on the London Stock Exchange (ticker: ENPL) and the Moscow Exchange (ticker: ENPL). GDRs are included in the First Level Quotation List of the Moscow Exchange. One GDR represents one share.

As of 31 December 2018, the GDR program of En+ Group represented less than 5% of the Company's share capital, compared to approximately 18.8% as of 31 December 2017 (represented by 107,142,858 GDRs). The key reason behind this is the imposition of sanctions, as owners of GDRs converted their GDRs into ordinary shares according to the recommendation of the Company's depositary, Citibank N.A. ("Citibank"). Citibank closed and subsequently re-opened the books to permit cancellation of En+ Group GDR 144A and Reg S from 10 April 2018, with the authorisation granted by OFAC.

Depositary bank

The Company's depositary bank is Citibank N.A., registered address: 388 Greenwich Street New York, New York 10013, United States of America.

En+ Group's securities identification numbers

London Stock Exchange

	Rule 144A GDR	Regulation S GDR
Ticker	ENPL	ENPL
ISIN[1]	US29355E1091	US29355E2081
Common Code[2]	171560667	170465199
CUSIP[3]	29355E109	29355E208

London Stock Exchange

Bloomberg code	Reuters instrument code
ENPL LI	ENPL.LN

Moscow Exchange

	Regulation S GDR
Ticker	ENPL
ISIN	US29355E2081

MOSCOW EXCHANGE

Bloomberg code	Reuters instrument code
ENPL RM	ENPLDR.MM

1. ISIN (International Securities Identification Number) – international identification number of the share.
2. Common Code – a nine-digit identification code issued jointly by CEDEL and Euroclear.
3. CUSIP (Committee on Uniform Security Identification Procedures) – the identification number given to the issue of shares for the purposes of facilitating clearing.

En+ Group share performance and trading volumes

The price of En+ Group GDRs on the LSE decreased from USD 13.80 as of 1 January 2018 to USD 9.65 as of 6 April 2018. En+ Group's market capitalisation decreased from USD 7.89 billion at the beginning of the year to USD 5.51 billion on 6 April 2018. The average daily trading volume during that period was 53,577 GDRs. The key reason behind the very low liquidity on the LSE after 6 April 2018 was the imposition of sanctions. In the period starting from 13 April 2018 to 30 January 2019 trades were held occasionally on regular and over-the-counter markets (bilateral transactions between owners of GDRs).

En+ Group's GDR price on the Moscow Exchange decreased from RUB 801 as of 3 January 2018 to RUB 415 as of 31 December 2018. En+ Group's market capitalisation decreased from RUB 457.71 billion at the beginning of the year to RUB 237.14 billion on 31 December 2018. The average daily trading volume during the year was 77,391 GDRs.

Analyst coverage

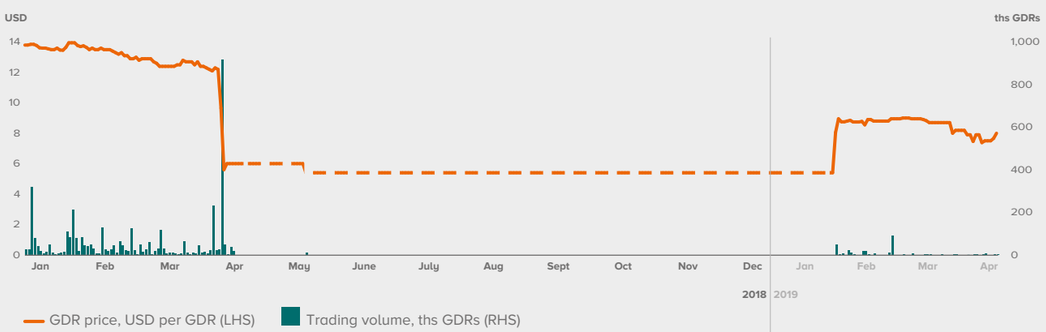
En+ Group's IR team works with banks in order to extend analysts coverage as well as monitors and communicates analyst consensus to the Company's Board of Directors and top management on a regular basis.

Within five weeks of removal from the SDN List, five research houses have reinitiated coverage of En+ GDRs:

- Citi: recommendation Buy/High risk, target price USD 9.80 per GDR
- BAML: recommendation Buy, target price USD 11.00 per GDR
- Gazprombank: recommendation Overweight, target price USD 13.10 per GDR
- UBS: recommendation Neutral, target price USD 10.00 per GDR
- Aton: recommendation Outperform, target price USD 12.00 per GDR.

The IR team is currently working with other brokers in order to extend analyst coverage of the Company.

London Stock Exchange



Note: In the period beginning 13 April 2018 until 30 January 2019, trades were held occasionally on regular and over-the-counter markets.

Credit ratings

In 2017 Fitch assigned En+ Group a "BB–" rating with a Stable outlook. It was suspended in April 2018 due to the OFAC Sanctions.

RUSAL's ratings before imposition of sanctions were:

- Fitch: "BB–" with a Stable outlook
- Moody's: "Ba3" with a Positive outlook.

Due to the sanctions, both agencies had to withdraw the ratings. RUSAL's coverage of Fitch was resumed on 26 March 2019 and coverage of Moody's was resumed on 4 April 2019.

Currently the Group is working on resuming the coverage from international rating agencies and expects the ratings to be reinstated in the near future.

Dividend policy

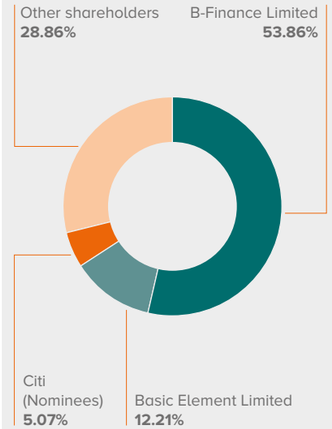
In June 2017, the Board of Directors of En+ Group adopted a new dividend policy, which ensures the payment, on at least a semi-annual basis, of dividends, which will be equal to the sum of:

- 75% of the Free Cash Flow of the Energy segment, subject to a minimum of USD 250 million per annum
- 100% of the dividends received from RUSAL[1].

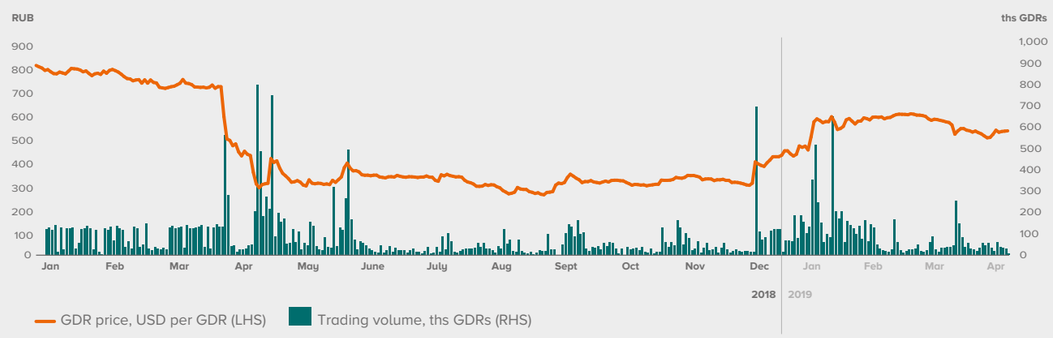
Dividend payments

During 2018, the Board approved the distribution of the additional interim dividend for 2017 in the total amount of USD 68 million, which was paid to the Company's shareholders in March 2018.

En+ Group shareholder structure as of 31 December 2018

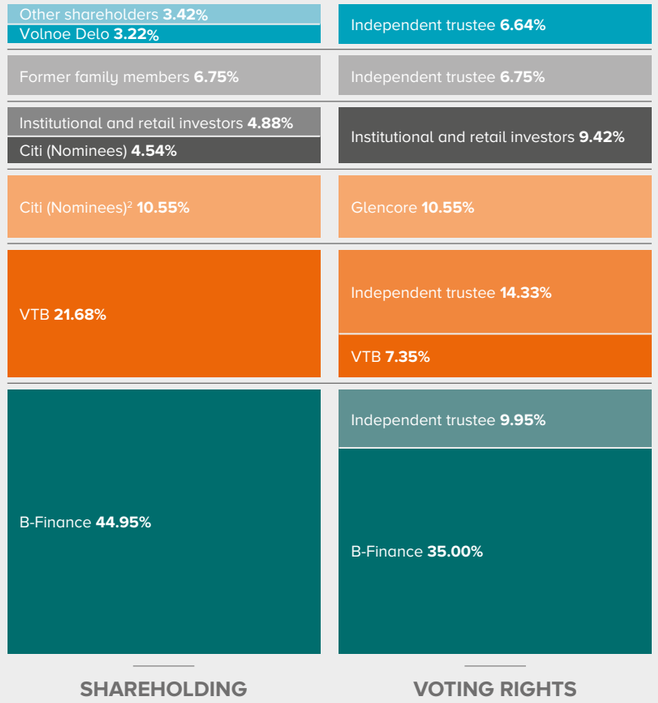


Moscow Exchange



1. RUSAL dividend policy: annual payout of up to 15% of Covenant EBITDA subject to compliance with relevant regulation and loan agreements. Covenant EBITDA is defined as RUSAL EBITDA on an LTM basis as defined in the relevant credit agreements, adding dividends declared by Norilsk Nickel and attributable to the shares owned by RUSAL.

NEW VOTING AND SHAREHOLDER STRUCTURE[1]



1. As at 26 January 2019.
2. GDRs issued as part of the Glencore swap transaction.

Note: percentages may not add up to 100% due to rounding.

Information disclosure

The Company pays considerable attention to ensure that any relevant information is delivered to all shareholders and analysts at the same time, in accordance with the FCA's Disclosure Guidance and Transparency Rules.

The information is distributed through the following channels:

- London Stock Exchange and Moscow Exchange websites – the Company's price-sensitive information is disclosed through information disclosure systems
- The En+ Group website – the Company publishes press releases on key events as well as operational and financial results

Annual general meeting

Annual general meeting of shareholders (the "AGM") information can be found on the Investors' section of the Group's website: https://www.enplusgroup.com/en/

Email

The Investor Relations Department can be contacted with respect to any queries at: ir@enplus.ru

General meetings through 2018

The Company's AGM was held on 26 July 2018. The quorum required to pass resolutions on each of the proposed agenda items was present. The AGM considered and passed the following ordinary resolutions:

- "That the audited financial statements of the Company, the report of the directors of the Company (the "Directors") and the auditor's report on the financial statements of the Company, each for the year ended 31 December 2017, be received and considered"
- "That JSC KPMG be appointed as the auditor of the Company and that the Directors be authorised to fix the remuneration of the auditor for the financial year ending 31 December 2018"
- "To re-appoint Rt Hon Lord Barker of Battle as a Director of the Company"
- "To re-appoint Philippe Mailfait as a Director of the Company"
- "To re-appoint Timur Valiev as a Director of the Company"
- "To re-appoint Alexander Krovushkin as a Director of the Company"
- "To re-appoint Mikhail Likhotnikov as a Director of the Company"
- "To re-appoint Konstantin Molodkin as a Director of the Company"
- "To re-appoint Alexander Shistko as a Director of the Company"
- "To re-appoint Yuri Dvoryansky as a Director of the Company"
- "To re-appoint Denis Kholodilov as a Director of the Company"

The Company also held a general meeting of shareholders (the "GM") on 20 December 2018. The quorum required passing resolutions on each of the proposed agenda items was present. The GM considered and passed the following ordinary resolutions:

1. "That the members hereby acknowledge as follows:

(a) Following imposition of the OFAC Sanctions on 6 April 2018, the Company announced that its primary focus remained on the maintenance of its operations and the protection of the interests of its investors (including holders of GDRs) and partners

(b) In pursuit of the key priorities mentioned above, the Board of Directors of the Company (the "Board") unanimously endorsed a plan on 18 May 2018, initially announced on 27 April 2018, providing for both the reduction of Mr Deripaska's shareholding to below 50% and the appointment of certain new directors so that the Board will comprise a majority of new appointed independent directors (this plan has come to be known as the "Barker Plan"). The Barker Plan has been further communicated to OFAC

(c) The implementation of the Barker Plan is in the best interests of the Company and of utmost significance, as upon its implementation, it is expected that this will result in the lifting of the OFAC Sanctions, as these apply to the Company"

2. "That Lord Barker, as the independent chairman of the Board and implementing the Barker Plan, is entitled to select and nominate up to seven individuals to be appointed by the Board in accordance with Article 16.8 of the existing Articles of Association (the "Articles") to serve as non-executive directors. Any actions previously taken by Lord Barker in this regard are hereby ratified and endorsed by the members"

3. "In order to proceed with the continuance of the Company, that:

(a) the Company is authorised to allot and issue 571,428,572 ordinary shares (the "Migration Shares") of USD 0.00007 each in the capital of the Company or such amended number of shares should the Company issue any further shares prior to the Charter being finalised and filed

(b) the Migration Shares shall be issued to the existing members pro rata to their existing shareholding in the Company as part of the continuance process

(c) the full terms applicable to the Migration Shares shall be set out in a document titled, "Decision on Issuance of Shares", a copy of which has been circulated with this Notice as Schedule 2

(d) the Decision on Issuance of Shares is hereby approved

(e) the Board is hereby authorised to approve the prospectus in connection with the issue of the Migration Shares

(f) the Board is hereby authorised to do all other such acts and things as considered necessary at its discretion or desirable for the purposes of giving effect to the issue of the Migration Shares, including approving the issue of the number of shares as may be required prior to the finalisation of the Charter and making such non-material amendments to the Decision on Issuance of Shares (including for the avoidance of doubt amending the number of shares) as may be required"

The GM has also considered and passed the following special resolutions:

1. "That the application by the Company to the Jersey Financial Services Commission (the "JFSC") pursuant to Article 127T of the Companies (Jersey) Law 1991 (the "Jersey Companies Law") for continuance of the Company out of Jersey be and is hereby approved (the "Jersey Application")"
2. "That the application by the Company to the Russian Federal Tax Service (through the Ministry of Economic Development of the Russian Federation) in the Russian Federation ("Russia" or the "Russian Federation") for continuance as a company established under the laws of the Russian Federation be and is hereby approved (the "Russian Application")"
3. "That the Company alters its memorandum of association (the "Memorandum") and its Articles by adopting the charter of the Company (the "Charter") as the Charter in place of the present Memorandum and Articles, with effect from the date of registration of the Company in the Unified State Register of Legal Entities of the Russian Federation. The Charter is approved in the form circulated, which has been signed by a Director of the Company for identification purposes and circulated with this Notice as Schedule 1, subject to such amendments as may be considered necessary or desirable and approved by the Board or any one Director of the Company (as the case may be). Included in the Charter are the following provisions:

(a) The par value of the Company's ordinary shares shall be denominated in United States dollars

(b) The Company's charter capital shall be divided into 571,428,572 ordinary shares with a par value of USD 0.00007 each (subject to change should the Company issue any further shares prior to the Charter being finalised and filed)

(c) The aggregate amount of the Company's charter capital shall be USD 40,000 (subject to change should the Company issue any further shares prior to the Charter being finalised and filed)

(d) The governing law (lex societatis) of the Company will be Russian law

(e) The Company's registered office will be located in Oktyabrsky Island of Kaliningrad in the Kaliningrad Region of Russia"

4. "With effect from the date of registration of the Company in the Unified State Register of Legal Entities of the Russian Federation, that the Company is authorised to change its name as follows:

(a) the full name of the Company in Russian to be: Международная компания публичное акционерное общество «ЭН+ ГРУП»

(b) the short name of the Company in Russian to be: МКПАО «ЭН+ ГРУП»

(c) the full name of the Company in English to be amended to: EN+ GROUP International public joint-stock company

(d) the short name of the Company in English to be amended to: EN+ GROUP IPJSC

Information regarding Company's general meetings can also be found on the Investors' section of the Group's website: https://www.enplusgroup.com/en/

Financial statements

Contents

Statement of Directors' Responsibilities

The Directors acknowledge that it is their responsibility to prepare the consolidated financial statements for the year ended 31 December 2018, in accordance with applicable law and regulations.

Company law requires the Directors to prepare consolidated financial statements for each financial year. Under that law the Directors have elected to prepare the consolidated financial statements in accordance with International Financial Reporting Standards and applicable law.

Under the Companies (Jersey) Law 1991 the Directors must not approve the consolidated financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the EN+ GROUP PLC and its subsidiaries (together referred to as "the Group") and of the profit or loss of the Group for that period. In preparing these financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- state whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- assess the EN+ GROUP PLC's (the "Parent Company") ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and
- use the going concern basis of accounting unless they either intend to liquidate the Parent Company or to cease operations of the Group, or have no realistic alternative but to do so.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Group's transactions and disclose with reasonable accuracy at any time the financial position of the Group and enable them to ensure that the financial statements comply with Companies (Jersey) Law 1991. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Group and to prevent and detect fraud and other irregularities.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the Parent Company's website. Legislation in Jersey governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Independent Auditors' Report

To the Members of EN+ GROUP PLC

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of EN+ GROUP PLC (the "Company") and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as at 31 December 2018, the consolidated statements of profit or loss and other comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at 31 December 2018, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS) as issued by IASB, and have been prepared in accordance with the requirements of the Companies (Jersey) Law 1991.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) and applicable law. Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our report. We are independent of the Group in accordance with the International Ethics Standards Board for Accountants' *Code of Ethics for Professional Accountants* (IESBA Code), and we have fulfilled our other ethical responsibilities in accordance with the IESBA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter

We draw attention to Note 1(d) of the consolidated financial statements, which describes the inclusion of the Company, its ultimate beneficial owner and certain companies under common control in the Specially Designated Nationals List issued by the Office of Foreign Assets Control of the Department of the Treasury of the United States of America in April 2018 with further removal of the Company from the above-mentioned List in January 2019. Our opinion is not modified in respect of this matter.

Audited entity: EN+ GROUP PLC

Independent auditor: JSC "KPMG", a company incorporated under the Laws of the Russian Federation, a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity.

Registration No. in the Unified State Register of Legal Entities 1027700125628.

Member of the Self-regulated organization of auditors "Russian Union of auditors" (Association). The Principal Registration Number of the Entry in the Register of Auditors and Audit Organisations: No. 11603053203.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, 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.

Valuation of property, plant and equipment

Please refer to the Note 11 in the consolidated financial statements.

The key audit matter	How the matter was addressed in our audit
The Group has significant property, plant and equipment balance which is material to the consolidated financial statements as at 31 December 2018. Current global market conditions, including fluctuations in LME aluminium prices, coal prices, market premiums and alumina purchase prices, uncertainty regarding volumes and tariffs for electricity transmission, may indicate that some property, plant and equipment items may be subject to either impairment loss or reversal of previously recognised impairment loss. This is in particular related to such cash generating units (CGUs) as alumina plants, bauxite mines, coal mines and Irkutsk GridCo. As at the reporting date management performs valuation of the recoverable amount of the Group's assets and cash generating units as their value in use. Due to the inherent uncertainty involved in forecasting and discounting future cash flows, which are the basis of the assessment of recoverability, this is one of the key	For aluminium, alumina, bauxite, coal and Irkutsk GridCo CGUs we evaluated the reasonableness of the expected cash flow forecasts by comparing them with the latest budgets approved by the Board of Directors, externally derived data as well as our own assessments in relation to key inputs such as production levels, forecasted aluminium sales prices, forecasted coal sales prices, forecasted volumes and tariffs of electricity transmission, forecasted alumina purchase prices, costs inflation, foreign currency exchange rates, discount rates and terminal growth rates. We also considered the historic accuracy of management's forecasts by comparing prior year forecasts to actual results. We used our own valuation specialists to assist us in evaluating the assumptions and methodology used by the Group. In particular, we challenged: - aluminium and alumina smelters and bauxite mines costs projections by comparing them with historical results and industry peers; - coal prices and tariffs for electricity transmission by comparing them with historical data, economic and industry forecasts; - volumes of electricity transmission by comparing them with historical volumes and potential Taishet aluminium smelter demand; - the key assumptions for long term revenue growth rates in the forecasts by comparing them

judgmental areas that our audit is concentrated on.	with historical results, economic and industry forecasts; and - the discount rates used. Specifically, we recalculated the Group's weighted average cost of capital using market comparable information. We also performed sensitivity analysis on the discounted cash flow forecasts and assessed whether the Group's disclosures about the sensitivity of the outcome of the impairment assessment to changes in key assumptions, including forecasted aluminium, alumina, coal prices and transmission tariffs, coal sales and electricity transmission volumes, terminal growth and discount rates, reflected the risks inherent in the valuation of property, plant and equipment.

Revaluation of hydro assets

Please refer to the Note 11(f) in the consolidated financial statements.

The key audit matter	How the matter was addressed in our audit
The Group has a significant class of assets which is material to the consolidated financial statements as at 31 December 2018 and is measured under revaluation model. Changes in macroeconomic environment including, but not limited to discount rates and inflation, as well as a two year period from last revaluation may indicate that as at 31 December 2018 carrying amount of hydro assets could be different from their fair value. As at the reporting date management performed a revaluation of hydro assets involving independent valuer. Due to the significant judgement required to determine depreciated replacement costs ("DRC") as well as inherent uncertainty involved in forecasting and discounting future cash flows used to test DRC for economic obsolescence, this is one	We evaluated competence, capabilities and objectivity of the expert used by the Group. We used our own valuation specialists to assist us in evaluating the assumptions and methodology used by the Group. In particular, we challenged: - methodology used for different types of assets; - key assumptions including costs to reproduce or replace property, plant and equipment, adjustments for physical depreciation and functional obsolescence; - reliability and appropriateness of market data sources used by independent valuer; - volumes of electricity sales and tariffs as well as costs projections by comparing them with historical data, approved budgets and economic and industry forecasts; - the key assumptions for long term revenue growth rates in the forecasts by comparing them with historical results, economic and industry forecasts; and - the discount rates used.

of the key judgmental areas that our audit is concentrated on.	We also assessed whether the Group's disclosures about the revaluation of hydro assets are adequate.

Other Information

The Directors are responsible for the other information. The other information comprises the information included in the Group's Annual Report but does not include the consolidated financial statements and our auditors' report thereon. The Annual Report is expected to be made available to us after the date of this auditors' report.

Our opinion on the consolidated financial statements does not cover the other information and we will 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 identified above when it becomes available 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.

Responsibilities of the Directors and Those Charged with Governance for the Consolidated Financial Statements

The Directors are responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS and the Companies (Jersey) Law 1991, 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 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 either intend to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditors' 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 auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs 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.

As part of an audit in accordance with ISAs, we exercise professional judgment 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 auditors' 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 auditors' 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.

We communicate with those charged with governance 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 those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and 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 those charged with governance, 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 auditors' 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.

Report on Other Legal and Regulatory Requirements

Matters on which we are required to report by exception.

We have nothing to report in respect of the following matters where the Companies (Jersey) Law 1991 requires us to report to you if, in our opinion:

— adequate accounting records have not been kept by the Company; or

— returns adequate for our audit have not been received from branches not visited by us; or

— the financial statements of the Company are not in agreement with the accounting records; or

— we have not received all the information and explanations we require for our audit.

The engagement partner on the audit resulting in this independent auditors' report is:

Yerkozha Akylbek

For and on behalf of JSC "KPMG"
Recognized Auditors

Moscow, Russia

28 March 2019

Consolidated Statement of Profit or Loss and Other Comprehensive Income for the year ended 31 December 2018

		Year ended 31 December	
		2018	2017
	Note	USD million	USD million
Revenues	5	12,378	12,094
Cost of sales		(8,209)	(7,970)
Gross profit		**4,169**	**4,124**
Distribution expenses		(629)	(666)
General and administrative expenses		(880)	(863)
Impairment of non-current assets		(244)	(89)
Net other operating expenses	6	(136)	(136)
Results from operating activities		**2,280**	**2,370**
Share of profits of associates and joint ventures	13	948	621
Finance income	8	216	59
Finance costs	8	(1,176)	(1,432)
Profit before taxation		**2,268**	**1,618**
Income tax expense	10	(406)	(215)
Profit for the year		**1,862**	**1,403**
Attributable to:			
Shareholders of the Parent Company		967	727
Non-controlling interests	16(g)	895	676
Profit for the year		**1,862**	**1,403**
Earnings per share			
Basic and diluted earnings per share (USD)	9	**1.692**	**1.425**

The consolidated statement of profit or loss and other comprehensive income is to be read in conjunction with the notes to, and forming part of, the consolidated financial statements set out on pages 138 to 201.

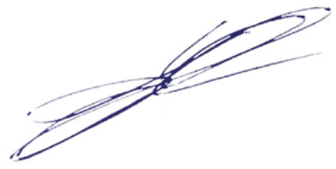
Consolidated Statement of Profit or Loss and Other Comprehensive Income for the year ended 31 December 2018 (continued)

		Year ended 31 December	
		2018	2017
	Note	USD million	USD million
Profit for the year		1,862	1,403
Other comprehensive income			
Items that will never be reclassified subsequently to profit or loss:			
Actuarial gain/(loss) on post retirement benefit plans	18(b)	10	(8)
Revaluation of non-current assets	11(f)	301	–
Taxation	10(c)	(60)	–
		251	(8)
Items that are or may be reclassified subsequently to profit or loss:			
Foreign currency translation differences on foreign operations		(222)	39
Foreign currency translation differences for equity-accounted investees	13	(811)	245
Share of other comprehensive income/(loss) of associates	13	10	(28)
Change in fair value of financial assets		(2)	9
		(1,025)	265
Other comprehensive income for the year, net of tax		(774)	257
Total comprehensive income for the year		**1,088**	**1,660**
Attributable to:			
Shareholders of the Parent Company		741	853
Non-controlling interests	16(g)	347	807
Total comprehensive income for the year		**1,088**	**1,660**

These consolidated financial statements were authorised for issue by the Board of Directors on 28 March 2019 and were signed on its behalf by:

Vladimir Kiriukhin
Chief Executive Officer

Mikhail Khardikov
Chief Financial Officer



The consolidated statement of profit or loss and other comprehensive income is to be read in conjunction with the notes to, and forming part of, the consolidated financial statements set out on pages 138 to 201.

Consolidated Statement of Financial Position as at 31 December 2018

	Note	31 December 2018 USD million	2017 USD million
ASSETS			
Non-current assets			
Property, plant and equipment	11	9,322	9,940
Goodwill and intangible assets	12	2,195	2,392
Interests in associates and joint ventures	13	3,701	4,459
Deferred tax assets	10(b)	125	87
Derivative financial assets	19	33	34
Other non-current assets		77	75
Total non-current assets		**15,453**	**16,987**
Current assets			
Inventories	14	3,037	2,495
Trade and other receivables	15(a)	1,389	1,309
Short-term investments		211	26
Derivative financial assets	19	9	29
Cash and cash equivalents	15(c)	1,183	974
Total current assets		**5,829**	**4,833**
Total assets		**21,282**	**21,820**
EQUITY AND LIABILITIES			
Equity	16		
Share capital		–	–
Share premium		973	973
Additional paid-in capital		9,193	9,193
Revaluation reserve		2,718	2,471
Other reserves		(62)	(72)
Foreign currency translation reserve		(5,024)	(4,544)
Accumulated losses		(5,143)	(6,030)
Total equity attributable to shareholders of the Parent Company		**2,655**	**1,991**
Non-controlling interests	16(g)	2,747	2,394
Total equity		**5,402**	**4,385**
Non-current liabilities			
Loans and borrowings	17	10,007	10,962
Deferred tax liabilities	10(b)	1,219	1,306
Provisions – non-current portion	18	459	542
Derivative financial liabilities	19	24	61
Other non-current liabilities		208	262
Total non-current liabilities		**11,917**	**13,133**
Current liabilities			
Loans and borrowings	17	2,270	2,067
Provisions – current portion	18	71	40
Trade and other payables	15(b)	1,615	2,143
Derivative financial liabilities	19	7	52
Total current liabilities		**3,963**	**4,302**
Total equity and liabilities		**21,282**	**21,820**

The consolidated statement of financial position is to be read in conjunction with the notes to, and forming part of, the consolidated financial statements set out on pages 138 to 201.

Consolidated Statement of Cash Flows for 2018

	Note	Year ended 31 December 2018 USD million	2017 USD million
OPERATING ACTIVITIES			
Profit for the year		**1,862**	**1,403**
Adjustments for:			
Depreciation and amortisation		752	736
Impairment of non-current assets		244	89
Net foreign exchange loss/(gain)	8	253	(29)
Loss on disposal of property, plant and equipment	6	11	28
Share of profits of associates and joint ventures	13	(948)	(621)
Interest expense	8	923	1,117
Net effect of discounting of trade receivables and payables		(2)	5
Interest income	8	(42)	(21)
Income tax expense	10	406	215
Dividend income	8	(1)	(1)
(Reversal of impairment)/ impairment of inventories		(22)	3
Impairment of trade and other receivables	6	65	28
Reversal of tax provision		–	(2)
Pension provision		(1)	3
Environmental provision		2	3
Change in fair value of derivative financial instruments	8	(171)	287
Operating profit before changes in working capital		**3,331**	**3,243**
Increase in inventories		(468)	(431)
Increase in trade and other receivables		(201)	(163)
(Decrease)/increase in trade and other payables		(703)	294
Cash flows from operations before income tax		**1,959**	**2,943**
Income taxes paid	10(f)	(251)	(289)
Cash flows from operating activities		**1,708**	**2,654**

The consolidated statement of cash flows is to be read in conjunction with the notes to, and forming part of, the consolidated financial statements set out on pages 138 to 201.

Consolidated Statement of Cash Flows for 2018 continued

	Note	Year ended 31 December 2018 USD million	2017 USD million
INVESTING ACTIVITIES			
Proceeds from disposal of property, plant and equipment		23	48
Acquisition of property, plant and equipment		(982)	(970)
Acquisition of intangible assets		(22)	(20)
Other investments		(345)	(1)
Interest received		39	14
Dividends from associates and joint ventures		909	806
Dividends from financial assets		4	7
Proceeds from disposal of financial assets		1	–
Acquisition of subsidiaries		(53)	(4)
Change in restricted cash		(26)	(4)
Cash flows used in investing activities		**(452)**	**(124)**
FINANCING ACTIVITIES			
Proceeds from borrowings		4,431	8,610
Repayment of borrowings		(4,445)	(9,832)
Acquisition of non-controlling interest		(103)	(241)
Proceeds from Offering		–	1,000
Interest paid		(881)	(980)
Restructuring fees and expenses related to Offering		(19)	(64)
Payments from settlement of derivative instruments		125	(182)
Distributions to shareholder	16(e)	–	(15)
Dividends to shareholders	16(d)	(68)	(373)
Dividends to non-controlling shareholders of subsidiaries	16(d)	–	(155)
Cash flows used in financing activities		**(960)**	**(2,232)**
Net increase in cash and cash equivalents		**296**	**298**
Cash and cash equivalents at beginning of the year, excluding restricted cash		957	656
Effect of exchange rate changes on cash and cash equivalents		(113)	3
Cash and cash equivalents at end of the year, excluding restricted cash	15(c)	**1,140**	**957**

Restricted cash amounted to USD 43 million and USD 17 million at 31 December 2018 and 31 December 2017, respectively.

Consolidated Statement of Changes in Equity for 2018

	Attributable to shareholders of the Parent Company								
USD million	Share premium	Additional paid-in capital	Revaluation reserve	Other reserves	Foreign currency translation reserve	Accumulated losses	Total	Non-controlling interests	Total equity
Balance at 1 January 2017	**–**	**9,193**	**2,456**	**(63)**	**(4,683)**	**(6,503)**	**400**	**1,785**	**2,185**
Comprehensive income									
Profit for the year	–	–	–	–	–	727	727	676	1,403
Other comprehensive income for the year	–	–	–	(9)	135	–	126	131	257
Total comprehensive income for the year	**–**	**–**	**–**	**(9)**	**135**	**727**	**853**	**807**	**1,660**
Transactions with owners									
Shares issued upon Offering, net of related expenses of USD 27 million (16(a)(i))	973	–	–	–	–	–	973	–	973
Change in effective interest in subsidiaries (16(a))	–	–	15	–	4	(3)	16	(43)	(27)
Dividends to shareholders (16(d))	–	–	–	–	–	(350)	(350)	–	(350)
Dividends to non-controlling shareholders (16(d))	–	–	–	–	–	–	–	(155)	(155)
Other contributions (16(e))	–	–	–	–	–	99	99	–	99
Total transactions with owners	**973**	**–**	**15**	**–**	**4**	**(254)**	**738**	**(198)**	**540**
Balance 31 December 2017	**973**	**9,193**	**2,471**	**(72)**	**(4,544)**	**(6,030)**	**1,991**	**2,394**	**4,385**
Balance at 1 January 2018	**973**	**9,193**	**2,471**	**(72)**	**(4,544)**	**(6,030)**	**1,991**	**2,394**	**4,385**
Comprehensive income									
Profit for the year	–	–	–	–	–	967	967	895	1,862
Revaluation of hydro assets as at 31 December 2018 (16(f),11(f))	–	–	305	–	–	–	305	(4)	301
Taxation (10(c))	–	–	(61)	–	–	–	(61)	1	(60)
Other comprehensive income for the year	–	–	–	10	(480)	–	(470)	(545)	(1,015)
Total comprehensive income for the year	**–**	**–**	**244**	**10**	**(480)**	**967**	**741**	**347**	**1,088**
Transactions with owners									
Change in effective interest in subsidiaries (16(a))	–	–	3	–	–	(12)	(9)	6	(3)
Dividends to shareholders (16(d))	–	–	–	–	–	(68)	(68)	–	(68)
Total transactions with owners	**–**	**–**	**3**	**–**	**–**	**(80)**	**(77)**	**6**	**(71)**
Balance 31 December 2018	**973**	**9,193**	**2,718**	**(62)**	**(5,024)**	**(5,143)**	**2,655**	**2,747**	**5,402**

The consolidated statement of changes in equity is to be read in conjunction with the notes to, and forming part of, the consolidated financial statements set out on pages 138 to 201.

Notes to the Consolidated Financial Statements for 2018

1. Background

(a) Organisation

EN+ GROUP PLC (the "Parent Company") was established as a limited liability company according to the legislation of the British Virgin Islands on 30 April 2002 under the name of Baufinanz Limited. On 18 March 2004 the Parent Company registered a change of its legal name to Eagle Capital Group Limited. On 25 August 2005 the Parent Company changed its domicile to Jersey and was renamed to En+ Group Limited. On 1 June 2017 the Parent Company changed its status to a public company and was renamed to EN+ GROUP PLC. The Parent Company's registered office is 44 Esplanade, St Helier, Jersey, JE4 9WG, British Channel Islands.

On 8 November 2017 the Parent Company successfully completed an initial public offering of global depositary receipts on the London Stock Exchange and the Moscow Exchange.

EN+ GROUP PLC is the parent company for a vertically integrated aluminium and power group, engaged in aluminium production and energy generation (together with the Parent Company referred to as "the Group").

The shareholding structure of the Parent Company as at 31 December 2018 and 31 December 2017 was as follows:

	31 December 2018	31 December 2017
B-Finance Limited	53.86%	53.86%
Basic Element Limited	12.21%	12.21%
Citi (Nominees)	5.07%	18.75%
Other shareholders	28.86%	15.18%
Total	**100.00%**	**100.00%**

At 31 December 2018 and 2017, the immediate parent of the Group was B-Finance Limited, incorporated in British Virgin Islands and beneficially controlled by Mr. Oleg Deripaska.

Subsequent to 31 December 2018 there were a number of changes to shareholder structure in order to satisfy conditions for removal of the Parent Company from the OFAC's SDN List as disclosed in Notes 1(d) and 24.

At 31 January 2019 the shareholding structure and voting rights of the Parent Company were as follows:

	Shareholding	Voting rights
B-Finance Limited	44.95%	35.00%
VTB	21.68%	7.35%
Citi (Nominees), including	15.09%	15.09%
Glencore Group Funding Limited	10.55%	10.55%
Other shareholders	18.28%	4,88%
Independent trustees	–	37.68%
Total	**100.00%**	**100.00%**

Glencore Group Funding Limited is a subsidiary of Glencore Plc.

At the date of these financial statements the immediate largest shareholder of the Group is B-Finance Limited, which is incorporated in British Virgin Islands, and beneficially controlled by Mr. Oleg Deripaska.

Based on the information at the Group's disposal at the date of these financial statements, there is no individual that has an indirect prevailing ownership interest in the Parent Company exceeding 50%, who could exercise voting rights in respect of more than 35% of the Parent Company's issued share capital or has an opportunity to exercise control over the Parent Company.

Related party transactions are detailed in Note 23.

(b) Operations

The Group is a leading vertically integrated aluminium and power producer, which combines the assets and results of its Metals and Energy segments.

The Metals segment operates in the aluminium industry primarily in the Russian Federation, Ukraine, Guinea, Jamaica, Ireland, Italy, Nigeria and Sweden and is principally engaged in the mining and refining of bauxite and nepheline ore into alumina, the smelting of primary aluminium from alumina and the fabrication of aluminium and aluminium alloys into semi-fabricated and finished products.

The Energy segment engages in all aspects of the power industry, including electric power generation, power trading and supply. It also includes supporting operations engaged in the supply of logistics services and coal resources to the Group. The Group's principal power plants are located in East Siberia, Russia.

(c) Business environment in emerging economies

The Russian Federation, Ukraine, Jamaica, Nigeria and Guinea have been experiencing political and economic changes that have affected, and may continue to affect, the activities of enterprises operating in these environments. Consequently, operations in these countries involve risks that typically do not exist in other markets, including reconsideration of privatisation terms in certain countries where the Group operates following changes in governing political powers.

Starting in 2014, the United States of America, the European Union and some other countries have imposed and gradually expanded economic sanctions against a number of Russian individuals and legal entities. The imposition of the sanctions has led to increased economic uncertainty, including more volatile equity markets, a depreciation of the Russian rouble, a reduction in both local and foreign direct investment inflows and a significant tightening in the availability of credit. As a result, some Russian entities may experience difficulties accessing the international equity and debt markets and may become increasingly dependent on state support for their operations. The longer-term effects of the imposed and possible additional sanctions are difficult to determine.

The consolidated financial statements reflect management's assessment of the impact of the Russian, Ukrainian, Jamaican, Nigerian and Guinean business environments on the operations and the financial position of the Group. The future business environment may differ from management's assessment.

(d) OFAC sanctions

On 6 April 2018, the U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC") designated, amongst others, the Parent Company, JSC Eurosibenergo ("Eurosibenergo") and UC RUSAL Plc ("UC RUSAL") as a Specially Designated Nationals ("SDN") (the "OFAC Sanctions").

As a result, all property or interests in property of the Parent Company and its subsidiaries located in the United States or in the possession of U.S. Persons were blocked, must have been frozen, and could not have been transferred, paid, exported, withdrawn, or otherwise dealt in. Several general licenses were issued at the time of the designation and subsequently certain transactions were authorised with the Parent Company, Eurosibenergo and UC RUSAL, and with their respective debt and equity.

On 19 December 2018, OFAC submitted a notification to the U.S. Congress regarding its intention to remove the Parent Company and its Subsidiaries from the SDN List.

On 27 January 2019, OFAC announced the removal of the Parent Company and its subsidiaries, including UC RUSAL and Eurosibenergo, from OFAC's SDN list and Blocked Persons with immediate effect. The removal was subject to and conditional upon the satisfaction of a number of conditions including, but not limited to,

- ending Mr Oleg Deripaska's control of the Group, through the reduction of his direct and indirect ownership interest in the Group to below 50%;
- establishing independent voting arrangements for the Parent Company's shares held by certain shareholders;
- making changes in corporate governance framework, including, inter alia, overhauling the composition of the Board to ensure that independent directors constitute the majority of the Board, and
- ongoing transparency through auditing, reporting and certifications by the Parent Company and UC RUSAL to OFAC concerning compliance with the conditions for sanctions' removal.

These arrangements also ensure that Mr Deripaska, as long as he remains on the SDN list, will not be able to exercise voting rights in respect of more than 35% of the Company's issued share capital and will not be able to obtain cash from future dividends issued by Parent Company, which will need to be placed into a blocked account so long as Mr. Deripaska remains on the SDN list. Certain voting rights of other shareholders are also to be controlled and exercised by independent trustees as presented in Note 1(a).

2. Basis of preparation

(a) Statement of compliance

These consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRSs"), which collective term includes all International Accounting Standards and related interpretations, promulgated by the International Accounting Standards Board ("IASB").

This is the first set of the Group's annual financial statements in which IFRS 15 Revenue from Contracts with Customers and IFRS 9 Financial Instruments have been applied. Changes to significant accounting policies are described in Note 3(c). A number of other new standards are also effective from 1 January 2018 but they do not have a material effect on the Group's financial statements.

Due to the transition methods chosen by the Group in applying these standards, comparative information throughout these financial statements has not been restated to reflect the requirements of the new standards.

A number of new standards and amendments to standards are effective for annual periods beginning after 1 January 2019 and earlier application is permitted; however, the Group has not early adopted the following new or amended standards in preparing these consolidated financial statements.

Notes to the Consolidated Financial Statements for 2018 continued

The following amended standards and interpretations are not expected to have a significant impact on the Group's consolidated financial statements.

- IFRIC 23 Uncertainty over Tax Treatments.
- Prepayment Features with Negative Compensation (Amendments to IFRS 9).
- Long-term Interests in Associates and Joint Ventures (Amendments to IAS 28).
- Plan Amendment, Curtailment or Settlement (Amendments to IAS 19).
- Annual Improvements to IFRS Standards 2015–2017 Cycle – various standards.
- Amendments to References to Conceptual Framework in IFRS Standards.
- IFRS 17 Insurance Contracts.

Of those standards that are not yet effective, based on the information collected to date and analysis performed by the Group, IFRS 16 Leases is expected to have a material impact on the Group's financial statements in the period of initial application.

IFRS 16 replaces existing leases guidance including 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 is effective for annual periods beginning on or after 1 January 2019. The Group has not elected the early adoption option.

IFRS 16 introduces a single, on-balance sheet lease accounting model for lessees. A lessee recognises a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. There are recognition exemptions for short-term leases and leases of low value items. Lessor accounting remains similar to the current standard – i.e. lessors continue to classify leases as finance or operating leases.

As a lessee, the Group can either apply the standard using a:

- retrospective approach; or
- modified retrospective approach with optional practical expedients.

The lessee applies the election consistently to all of its leases.

The Group will apply IFRS 16 initially on 1 January 2019, using the modified retrospective approach. Therefore, the cumulative effect of adopting IFRS 16 will be recognised as an adjustment to the opening balance of retained earnings at 1 January 2019, with no restatement of comparative information.

When applying the modified retrospective approach to leases previously classified as operating leases under IAS 17, the lessee can elect, on a lease-by-lease basis, whether to apply a number of practical expedients on transition. The Group is assessing the potential impact of using these practical expedients.

(b) Basis of measurement

The consolidated financial statements have been prepared in accordance with the historical cost basis except as set out in the significant accounting policies in notes 11 and 19.

(c) Functional and presentation currency

The Parent Company's functional currency is the United States Dollar ("USD") because it reflects the economic substance of the underlying events and circumstances of the Parent Company. The functional currencies of the Group's significant subsidiaries are the currencies of the primary economic environment and key business processes of these subsidiaries and include USD, Russian Roubles ("RUB"), Ukrainian Hryvna and Euros ("EUR"). The consolidated financial statements are presented in USD, rounded to the nearest million, except as otherwise stated herein.

(d) Use of judgements, estimates and assumptions

The preparation of consolidated financial statements in conformity with IFRSs requires management to make judgements, estimates and assumptions that affect the application of accounting policies and reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the consolidated financial statements, and the reported revenue and costs during the relevant period.

Management bases its judgements and estimates on historical experience and various other factors that are believed to be appropriate and reasonable under the circumstances, the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions and conditions.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Judgements made by management in the application of IFRSs that have a significant effect on the consolidated financial statements and estimates with a significant risk of material adjustment in the next year are discussed in Note 25.

(e) Consolidation of UC RUSAL

Following the UC RUSAL global offering and issuance of additional shares by UC RUSAL the Group's interest in UC RUSAL reduced below 50% to 47.41% by 31 December 2010. In November 2012 the Parent Company purchased additional 0.72% shares of UC RUSAL for cash consideration of USD 70 million.

The Group's management believes that, as at the reporting date, the Parent Company's shareholding in UC RUSAL of 48.13%, considering the size and dispersion of shareholding of other UC RUSAL's vote holders and the terms of the shareholders' agreements between UC RUSAL's principal shareholders, enable the Parent Company to retain control over UC RUSAL, and therefore UC RUSAL's results of operations are consolidated into the Group's consolidated financial statements. The terms of the shareholders' agreements include, among others, provisions entitling the Parent Company to:

- nominate at least 50% of UC RUSAL's board of directors and two independent directors;
- appoint UC RUSAL's CEO.

Subsequent to the reporting date the Parent Company increased its shareholding in UC RUSAL to 50.10% as disclosed in Note 24.

(f) Consolidation of OJSC Irkutsk Electric Grid Company ("Irkutsk GridCo")

In December 2009, the Group sold to third parties under share purchase contracts all the shares in two Cypriot companies of the Group controlling 34.16% of the shares in Irkutsk GridCo; subsequently the Group purchased 19.9% of the shares in Irkutsk GridCo. The arrangements attached to the share purchase contracts enable the Group to retain certain rights with respect to the disposed shares and the sale did not result in deconsolidation. As at 31 December 2018, the effective interest in Irkutsk GridCo held by the Group is 52.3% (31 December 2017: 52.3%).

As laws and regulations in the electricity sector in Russia are in the developing stage there is an uncertainty with respect to the legal interpretation of the existing arrangements which enable the Group to control Irkutsk GridCo and, consequently, these may be interpreted by the Russian regulatory authorities as noncompliant with applicable legislation upon enforcement. Management believes that such arrangements are compliant with the legislation and therefore the Group has the ability to control Irkutsk GridCo as described above. Should the arrangements be found non-compliant upon their enforcement, the Group may be required to unwind the arrangements subsequent to their enforcement and sell Irkutsk GridCo to a third party at that time.

3. Significant accounting policies

Significant accounting policies are described in the related notes to the consolidated financial statements captions and in this note.

The accounting policies and judgements applied by the Group in these consolidated financial statements are the same as those applied by the Group in its consolidated financial statements as at and for the year ended 31 December 2017, except for those disclosed in 3(c), and have been consistently applied to all periods presented in these consolidated financial statements.

(a) Basis of consolidation

(i) Subsidiaries and non-controlling interests

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing control, potential voting rights that presently are exercisable are taken into account.

The consolidated financial statements of subsidiaries are included in the consolidated financial statements from the date that control commences until the date that control ceases. The accounting policies of subsidiaries have been changed when necessary to align them with the policies adopted by the Group.

Non-controlling interests represent the portion of the net assets of subsidiaries attributable to interests that are not owned by the Group, whether directly or indirectly through subsidiaries, 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.

Non-controlling interests are presented in the consolidated statement of financial position within equity, separately from equity attributable to the equity shareholders of the Group. Non-controlling interests in the results of the Group are presented on the face of 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 Group.

Losses applicable to the non-controlling interests in a subsidiary are allocated to the non-controlling interests even if doing so causes the non-controlling interests to have a deficit balance.

Notes to the Consolidated Financial Statements for 2018 continued

Changes in the Group's interest 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.

When the Group loses control of a subsidiary, it is accounted for as a disposal of the entire interest in that subsidiary, with a resulting gain or loss being recognised in profit or loss. Any interest retained in that former subsidiary at the date when control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (refer to notes 15 and 20) or, when appropriate, the cost on initial recognition of an investment in an associate or joint venture (refer to note 13).

(ii) Acquisitions of non-controlling interests

The acquisition of an additional non-controlling interest in an existing subsidiary after control has been obtained is accounted for as an equity transaction with any difference between the cost of the additional investment and the carrying amount of the net assets acquired at the date of exchange recognised directly in equity.

A put option (a mandatory offer) to acquire a non-controlling interest in subsidiary after control has been obtained and accounted by the Group as an equity transaction whereby the issue of the put option results in the recognition of a liability for the present value of the expected exercise price and the derecognition of non-controlling interests within consolidated equity. Subsequent to initial recognition, changes in the carrying amount of the put liability are recognised within equity. If the put option expires unexercised then the put liability is derecognised and non-controlling interests are recognised.

(iii) Acquisitions from entities under common control

Business combinations arising from transfers of interests in entities that are under the common control of the shareholder that controls the Group are accounted for as if the acquisition had occurred at the beginning of the earliest period presented 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 Group's controlling shareholder's consolidated financial statements. The components of the equity of the acquired entities are added to the same components within Group equity except that any share capital of the acquired entities is recognised as part of additional paid-in capital. Any cash paid for the acquisition is recognised directly in equity.

(iv) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealised income and expenses arising from intra-group transactions, are eliminated in preparing the consolidated financial statements. Unrealised gains arising from transactions with equity accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

(b) Foreign currencies

(i) Foreign currency transactions

Transactions in foreign currencies are translated into the respective functional currencies of Group entities at the exchange rates ruling at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies at the reporting date are retranslated to the functional currency at the exchange rate at that date. The foreign currency gain or loss on monetary items is the difference between the amortised cost in the functional currency at the beginning of the period, adjusted for effective interest and payments during the period, and the amortised cost in foreign currency translated at the exchange rate at the end of the reporting period. Non-monetary items in a foreign currency are measured based on historical cost and are translated using the exchange rate at the date of transaction. Foreign currency differences arising on retranslation are recognised in profit or loss, except for differences arising on the retranslation of qualifying cash flow hedges to the extent the hedge is effective, which is recognised in other comprehensive income.

(ii) Foreign operations

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated from their functional currencies to USD at the exchange rates ruling at the reporting date. The income and expenses of foreign operations are translated to USD at exchange rates approximating exchange rates at the dates of the transactions.

Foreign currency differences arising on translation are recognised in other comprehensive income and presented in the currency translation reserve in equity. For the purposes of foreign currency translation, the net investment in a foreign operation includes foreign currency intra-group balances for which settlement is neither planned nor likely in the foreseeable future and foreign currency differences arising from such a monetary item are recognised in the statement of profit or loss and other comprehensive income.

When a foreign operation is disposed of, such that control, significant influence or joint control is lost, the cumulative amount of the currency translation reserve is transferred to profit or loss as part of the gain or loss on disposal. When the Group disposes of only part of its interest in a subsidiary that includes a foreign operation while retaining control, the relevant proportion of the cumulative amount is reattributed to non-controlling interests. When the Group disposes of only part of its investment in an associate or joint venture that includes a foreign operation while retaining significant influence or joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

When the settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, foreign exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the translation reserve in equity.

(c) Adoption of new IFRS standards

The Group has initially adopted IFRS 15 Revenue from Contracts with Customers and IFRS 9 Financial Instruments from 1 January 2018.

The effect of initially applying these standards is mainly attributed to the following:

- timing of recognition of revenue for the transportation services after the control for the related goods has been transferred to customer (revenue is to be recognised over time from goods control transfer till completion of the transportation);
- classification of revenue earned from the contracts which bear price finalisation options as other revenue instead of revenue from contracts with customers;
- an increase in impairment losses recognised on financial assets;
- disclosures to be presented as required by the new standards.

(i) IFRS 15 Revenue from Contracts with Customers

IFRS 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognised. It replaced IAS 18 Revenue, IAS 11 Construction Contracts and related interpretations.

The Group has adopted IFRS 15 using the cumulative effect method (without practical expedients), with the effect of initially applying this standard recognised at the date of initial application (i.e. 1 January 2018). Accordingly, the information presented for 2017 has not been restated – i.e. it is presented, as previously reported, under IAS 18, IAS 11 and related interpretations.

The details of the nature and effects of the resultant changes to the Group's previous accounting policies are set out below.

	Nature, timing of satisfaction of performance obligations, significant payment terms	**Nature of change in accounting policy**
Sales of goods	Comprise sale of primary aluminium, alloys, alumina, bauxite, coal and other products. Customers obtain control of the goods supplied when the goods are delivered to the point when risks are transferred based on the delivery terms stated in the contract. Invoices are generated and revenue is recognised at that point in time. Invoices are usually payable within 60 days or in advance. Under certain Group sale contracts the final price for the goods shipped is determined a few months after the delivery. Under current requirements, the Group determines the amount of revenue at the moment of recognition based on estimated selling price at the date of the invoice. At price finalisation the difference between the estimated and actual prices is recognised as other revenue.	Under IAS 18, revenue was recognised when related risks and rewards of ownership were transferred under delivery terms of the contracts. Revenue was recognised at this point provided that the revenue and costs could be measured reliably, the recovery of the consideration was probable and there was no continuing management involvement with the goods. Under IFRS 15, revenue is recognised when a customer obtains control of the goods. It has not significantly impacted the Group's revenue recognition approach and the timing of revenue recognition. For contracts with a revenue finalisation feature, IFRS 15 has not resulted in a significant change in the amount of revenue recognised and the moment of recognition. However, IFRS 15 effects the classification of the revenue recognised: revenue initially recognised at the moment of control transfer to the customer is recognised as revenue from contracts with customers. The amount of any price adjustment on finalisation is recognised as other revenue.
Rendering of transportation services	As part of sales of goods the Group also provides transportation to the customer under contract terms. In certain cases, the control for goods delivered is transferred to customer at earlier point than the transportation is completed. The fee for the transportation services is included in the amount invoiced for the goods supplied (refer to the above caption).	Under IAS 18 revenue was recognised both for goods and transportation services at the point in time when the risks and rewards of goods ownership transferred to the customer. Under IFRS 15 transportation revenue is recognised over the time from goods control transfer till completion of the transportation. This has resulted in the deferral of the recognition of some revenue, but has not had a significant impact.
Rendering of electricity supply services	The Group is involved in sales of energy to 3rd and related parties. Invoices are issued monthly, at the end of the month, and paid within 30 days.	Under prior accounting policies, revenue was recognised on the last day of the month. Under IFRS 15, revenue is recognised over time. Effectively it has not impacted either total amount of revenue recognized, or its classification.

The impact of transition to IFRS 15 on retained earnings is not significant. Thus no transitional adjustments were made by the Group.

Notes to the Consolidated Financial Statements for 2018 continued

(ii) IFRS 9 Financial Instruments

IFRS 9 Financial Instruments sets out requirements for recognising and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. This standard replaces IAS 39 Financial Instruments: Recognition and Measurement.

The details of the nature and effects of the resultant changes to the Group's accounting policies are set out below.

Classification and measurement of financial assets and financial liabilities

IFRS 9 contains a new classification and measurement approach for financial assets that reflects the business model in which assets are managed and their cash flow characteristics.

IFRS 9 contains three principal classification categories for financial assets: measured at amortised cost, fair value through other comprehensive income ("FVOCI") and fair value through profit or loss ("FVTPL"). The classification of financial assets under IFRS 9 is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. The standard eliminates the existing IAS 39 categories of held to maturity, loans and receivables and available for sale. Under IFRS 9, derivatives embedded in contracts where the host is a financial asset in the scope of the standard are never bifurcated. Instead, the hybrid financial instrument as a whole is assessed for classification.

IFRS 9 largely retains the existing requirements in IAS 39 for the classification of financial liabilities.

The Group's financial assets most fall within the category of financial assets measured at amortised cost both under IAS 39 and IFRS 9 requirements. The only exception is derivative financial assets measured at fair value through profit or loss. The same applies to the Group's financial liabilities. Thus the adoption of IFRS 9 has not had a significant effect on the Group's accounting policies relating to the classification and measurement of financial assets and financial liabilities as well as derivative financial instruments. The impact of IFRS 9 on the impairment of financial assets is set out below.

Impairment of financial assets

IFRS 9 replaces the 'incurred loss' model in IAS 39 with an 'expected credit loss' (ECL) model. The new impairment model applies inter alia to financial assets measured at amortised cost. Under IFRS 9, credit losses are recognised earlier than under IAS 39. The Group's financial assets at amortised cost consist of trade and other receivables and cash and cash equivalents.

Under IFRS 9, loss allowances are measured on either of the following bases:

- 12-month ECLs: these are ECLs that result from possible default events within the 12 months after the reporting date; and
- lifetime ECLs: these are ECLs that result from all possible default events over the expected life of a financial instrument.

The Group measures loss allowances at an amount equal to lifetime ECLs, except for bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition. The Group measures loss allowances for trade receivables at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment and including forward-looking information.

The Group considers a financial asset to be in default when:

- 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
- the financial asset is more than 90 days past due, but additional analysis is conducted for each such receivable and assessment is updated accordingly.

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset in the case of long-term assets.

At each reporting date, the Group assesses whether financial assets carried at amortised cost are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Loss allowances for financial assets measured at amortised cost are deducted from the gross carrying amount of the assets. Impairment losses related to trade and other receivables are presented as part of net other operating expenses.

For assets within the scope of the IFRS 9 impairment model, impairment losses are generally expected to increase and become more volatile. The Group has determined that the application of IFRS 9's impairment requirements at 1 January 2018 does not result in any significant additional impairment allowance and thus has not recognized any additional allowance as part of transition to the new standard.

The following analysis provides further detail about the calculation of ECLs related to trade receivables on the adoption of IFRS 9 for each business segment. Each segment has their own structure of sales and main customers, so different ECLs were used for the business segments.

The Group uses an allowance matrix to measure the ECLs of trade receivables from the customers. Loss rates are calculated using a 'roll rate' method based on the probability of a receivable progressing through successive stages of delinquency to write-off. The ECLs were calculated based on actual credit loss experience over the past two years. Actual credit loss experience was not further adjusted as at 1 January 2018 as the Group has not expected significant adverse changes in the economic conditions during the period over which the historical data was collected, current conditions and the Group's view of economic conditions over the expected lives of the receivables, potential impact of the sanctions described in Note 1(d) on further expected credit losses assessment was not considered as it could not be reliably estimated during the reporting period and is not expected to have a significant impact after 31 December 2018 due to sanctions lifting in January 2019 (Note 1(d)).

UC RUSAL

UC RUSAL performed the calculation of ECL rates separately for the customers of each key trading company of the Metals segment. Exposures within each trading company were not further segmented except for individually significant customers which bear specific credit risk depending on the repayment history of the customer and relationship with the Group.

The following table provides information about determined ECLs rates for trade receivables of UC RUSAL both as at 1 January 2018 and 31 December 2018.

	Weighted-average loss rate		
	1 January 2018	31 December 2018	Credit-impaired
Current (not past due)	1%	2%	No
1–30 days past due	11%	10%	No
31–60 days past due	28%	40%	No
61–90 days past due	64%	50%	No
More than 90 days past due	90%	85%	Yes

ENERGY

The Energy segment performed the calculation of ECL rates separately for the customers of each key trading company of the Energy segment. Exposures within each trading company were not further segmented.

The following table provides information about determined ECLs rates for trade receivables of the Energy segment both as at 1 January 2018 and 31 December 2018.

	Weighted-average loss rate		
	1 January 2018	31 December 2018	Credit-impaired
Current (not past due)	1%	1%	No
1–90 days past due	1%	1%	No
90 - 180 days past due	30%	30%	No
More than 180 days past due	100%	100%	Yes

There were no changes during the period to the Group's exposure to credit risk that may impact the above loss rates calculation. Fluctuations (if any) reflect differences between economic conditions during the period over which the historical data has been collected, current conditions and the Group's view of economic conditions over the expected lives of the receivables.

Hedge accounting

When initially applying IFRS 9, the Group may choose as its accounting policy to continue to apply the hedge accounting requirements of IAS 39 instead of the requirements in IFRS 9. The Group has chosen to apply the hedge accounting requirements of IAS 39.

Transition

Changes in accounting policies resulting from the adoption of IFRS 9 have been applied retrospectively, except as described below.

The Group has taken an exemption not to restate comparative information for prior periods with respect to classification and measurement (including impairment) requirements. Accordingly, the information presented for 2017 does not generally reflect the requirements of IFRS 9 but rather those of IAS 39.

The determination of the business model within which a financial asset is held has been made on the basis of the facts and circumstances that existed at the date of initial application.

Notes to the Consolidated Financial Statements for 2018 continued

4. Segment reporting

(a) Reportable segments

An operating segment is a component of the Group that engages in business activities from which it may earn revenue and incur expenses, including revenue and expenses that relate to transactions with any of the Group's other components. All operating segments' operating results are reviewed regularly by the Group's CEO to make decisions about resources to be allocated to the segment and assess its performance and for which discrete consolidated financial statements are available.

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.

In 2018, the Group has changed its internal management reporting structure, which resulted in a revision of its reportable segments and restatement of comparative information for earlier periods, respectively.

Based on the current management structure and internal reporting the Group has identified two operating segments:

(a) Metals. The Metals segment comprises UC RUSAL with disclosures being based on the public financial statements of UC RUSAL. All adjustments made to UC RUSAL, including any adjustments arising from different timing of IFRS first time adoption, are included in "Adjustments" column.
The Power assets of UC RUSAL are included within the Metals segment.

(b) Energy. The Energy segment mainly comprises the power assets, as described in note 1(b).

These business units are managed separately and the results of their operations are reviewed by the CEO and Board of Directors on a regular basis.

(b) Segment results, assets and liabilities

For the purposes of assessing segment performance and allocating resources between segments, the Group's senior executive management monitor the results, assets and liabilities and cashflows attributable to each reportable segment on the following bases:

Total segment assets include all tangible, intangible assets and current assets.

Total segment liabilities include all current and non-current liabilities.

Revenue and expenses are allocated to the reportable segments with reference to sales generated by those segments and the expenses incurred by those segments or which otherwise arise from the depreciation or amortisation of assets attributable to those segments.

The measure used for reporting segment results is the net profit and Adjusted EBITDA (key non-IFRS financial measure used by the Group as reference for assessing operating effectiveness). Segment profit or loss and Adjusted EBITDA are used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

Adjusted EBITDA for any period represents the results from operating activities adjusted for amortisation and depreciation, impairment charges and loss on disposal of property, plant and equipment for the relevant period.

In addition to receiving segment information concerning segment results, management is provided with segment information concerning revenue (including inter-segment revenue), the carrying value of investments and share of profits/(losses) of associates and joint ventures, depreciation, amortisation, interest income and expenses, other finance income and costs, income tax, loss on disposal of property, plant and equipment, impairment of non-current assets and additions of non-current segment assets used by the segments in their operations. Inter-segment pricing is determined primarily on a consistent basis using market benchmarks.

	Year ended 31 December 2018			
USD million	**Metals**	**Energy**	**Adjustments**	**Total**
Statement of profit or loss and other comprehensive income				
Revenue from external customers	10,145	2,233	–	12,378
Primary aluminium and alloys	8,165	–	–	8,165
Alumina and bauxite	984	–	–	984
Semi-finished products and foil	346	181	–	527
Electricity	77	1,252	–	1,329
Heat	44	417	–	461
Other	529	383	–	912
Inter-segment revenue	135	914	(1,049)	–
Total segment revenue	**10,280**	**3,147**	**(1,049)**	**12,378**
Operating expenses (excluding depreciation and loss on disposal of PPE)	(8,117)	(1,973)	999	(9,091)
Adjusted EBITDA	**2,163**	**1,174**	**(50)**	**3,287**
Depreciation and amortisation	(513)	(239)	–	(752)
Loss on disposal of PPE	(12)	1	–	(11)
Impairment of non-current assets	(157)	(87)	–	(244)
Results from operating activities	**1,481**	**849**	**(50)**	**2,280**
Share of profits/(loss) of associates and joint ventures	955	(7)	–	948
Interest expense, net	(471)	(410)	–	(881)
Other finance income/(costs), net	(12)	(67)	–	(79)
Profit before tax	**1,953**	**365**	**(50)**	**2,268**
Income tax expense	(255)	(154)	3	(406)
Profit for the year	**1,698**	**211**	**(47)**	**1,862**
Additions to non-current segment assets during the year	(837)	(197)	11	(1,023)
Statement of financial position				
Segment assets, excluding cash and cash equivalents and interests in associates and jointly ventures	11,235	5,842	(679)	16,398
Investment in Metals segment	–	4,053	(4,053)	–
Cash and cash equivalents	844	339	–	1,183
Interests in associates and jointly ventures	3,698	3	–	3,701
Total segment assets	**15,777**	**10,237**	**(4,732)**	**21,282**
Segment liabilities, excluding loans and borrowings and bonds payable	2,282	1,445	(124)	3,603
Loans and borrowings	8,286	3,991	–	12,277
Total segment liabilities	**10,568**	**5,436**	**(124)**	**15,880**
Total segment equity	5,209	4,801	(4,608)	5,402
Total segment equity and liabilities	**15,777**	**10,237**	**(4,732)**	**21,282**
Statement of cash flows				
Cash flows from operating activities	**680**	**1,039**	**(11)**	**1,708**
Cash flows (used in)/from investing activities	**(106)**	**(357)**	**11**	**(452)**
Acquistion of property, plant and equipment, intangible assets	(834)	(181)	11	(1,004)
Other investments	(153)	(192)	–	(345)
Dividends from the jointly controlled entities and other associates	909	–	–	909
Interest received	29	10	–	39
Other investing activities	(57)	6	–	(51)
Cash flows (used in)/from financing activities	**(517)**	**(443)**		**(960)**
Interest paid	(490)	(391)	–	(881)
Restructuring fee and expenses related to Offering	(6)	(13)	–	(19)
Settlements of derivative financial instruments	125	–	–	125
Dividends to shareholders	–	(68)	–	(68)
Other financing activities	(146)	29	–	(117)
Net change in cash and cash equivalents	**57**	**239**	**–**	**296**

Notes to the Consolidated Financial Statements for 2018 continued

Year ended 31 December 2017

USD million	Metals	Energy	Adjustments	Total
Statement of profit or loss and other comprehensive income				
Revenue from external customers	9,807	2,287	–	12,094
Primary aluminium and alloys	8,169	–	–	8,169
Alumina and bauxite	778	–	–	778
Semi-finished products and foil	323	213	–	536
Electricity	61	1,258	–	1,319
Heat	47	415	–	462
Other	429	401	–	830
Inter-segment revenue	162	948	(1,110)	–
Total segment revenue	**9,969**	**3,235**	**(1,110)**	**12,094**
Operating expenses (excluding depreciation and loss on disposal of PPE)	(7,849)	(2,088)	1,066	(8,871)
Adjusted EBITDA	**2,120**	**1,147**	**(44)**	**3,223**
Depreciation and amortisation	(488)	(248)		(736)
Loss on disposal of PPE	(25)	(3)	–	(28)
Impairment of non-current assets	(84)	(5)	–	(89)
Results from operating activities	**1,523**	**891**	**(44)**	**2,370**
Share of profits of associates and joint ventures	620	1	–	621
Dividend income	–	144	(144)	–
Interest expense, net	(572)	(524)	–	(1 096)
Other finance income/(costs), net	(283)	6	–	(277)
Profit before tax	**1,288**	**518**	**(188)**	**1,618**
Income tax expense	(66)	(151)	2	(215)
Profit for the year	**1,222**	**367**	**(186)**	**1,403**
Additions to non-current segment assets during the year	(852)	(306)	–	(1,158)
Statement of financial position				
Segment assets, excluding cash and cash equivalents and interests in associates and jointly ventures	10,495	6,517	(625)	16,387
Investment in Metals segment	–	4,053	(4,053)	–
Cash and cash equivalents	831	143	–	974
Interests in associates and jointly ventures	4,448	11	–	4,459

Year ended 31 December 2017 continued

USD million	Metals	Energy	Adjustments	Total
Total segment assets	**15,774**	**10,724**	**(4,678)**	**21,820**
Segment liabilities, excluding loans and borrowings and bonds payable	2,851	1,670	(115)	4,406
Loans and borrowings	8,479	4,550	–	13,029
Total segment liabilities	**11,330**	**6,220**	**(115)**	**17,435**
Total segment equity	4,444	4,504	(4,563)	4,385
Total segment equity and liabilities	**15,774**	**10,725**	**(4,678)**	**21,820**
Statement of cash flows				
Cash flows from operating activities	**1,702**	**952**	**–**	**2,654**
Cash flows from/(used in)investing activities	**2**	**18**	**(144)**	**(124)**
Acquisition of property, plant and equipment, intangible assets	(842)	(148)	–	(990)
Dividends from Metals segment	–	144	(144)	–
Dividends from the jointly controlled entities and other associates	806	–	–	806
Interest received	8	6	–	14
Other investing activities	30	16	–	46
Cash flows (used in)/from financing activities	**(1,421)**	**(955)**	**144**	**(2 232)**
Interest paid	(493)	(487)	–	(980)
Restructuring fee and expenses related to Offering	(36)	(28)	–	(64)
Settlements of derivative financial instruments	(182)	–	–	(182)
Dividends to shareholders	(299)	(373)	299	(373)
Dividends to non-controlling shareholders	–		(155)	(155)
Other financing activities	(411)	(67)	–	(478)
Net change in cash and cash equivalents	**283**	**15**	**–**	**298**

Notes to the Consolidated Financial Statements for 2018 continued

(i) Geographic information

The Group's operating segments are managed on a worldwide basis, but operate in four principal geographical areas: the CIS, Europe, Africa and the Americas. In the CIS, production facilities operate in Russia, Ukraine and Armenia. In Europe, production facilities are located in Italy, Ireland and Sweden. African production facilities are represented by the bauxite mines and an alumina refinery in Guinea and an aluminium plant in Nigeria. In the Americas the Group operates one production facility in Jamaica, one in Guyana and a trading subsidiary in the United States of America.

The following table sets out information about the geographical location of the Group's revenue from external customers and the Group's property, plant and equipment, intangible assets, interests in associates and joint ventures and goodwill ("specified non-current assets"). The geographical location of customers is based on the location at which the services were provided or the goods delivered. The geographical location of the specified non-current assets is based on the physical location of the asset. Unallocated specified non-current assets comprise mainly goodwill and interests in associates and joint ventures.

	Year ended 31 December	
	2018	2017
Revenue from external customers	**USD million**	**USD million**
Russia	4,441	4,067
Netherlands	1,122	728
USA	890	1,445
Japan	806	872
Turkey	751	658
Norway	372	295
Italy	364	261
Sweden	337	251
Poland	335	411
France	311	277
South Korea	282	380
Greece	262	450
Germany	249	259
China	77	52
Other countries	1,779	1,688
	12,378	**12,094**

	31 December	
	2018	2017
Specified non-current assets	**USD million**	**USD million**
Russia	11,754	13,058
Ireland	376	407
Ukraine	158	183
Guinea	152	200
Sweden	126	153
Unallocated	2,887	2,986
	15,453	**16,987**

5. Revenues

The effect of initially applying IFRS 15 on the Group's revenue from contracts with customers and key accounting policies applied are described in Note 3(c). Due to the transition method chosen in applying IFRS 15, comparative information has not been restated to reflect the new requirements.

	Year ended 31 December	
	2018	2017
	USD million	**USD million**
Sales of primary aluminium and alloys	**8,165**	**8,169**
Third parties	4,706	5,537
Related parties – companies capable of exerting significant influence	3,443	2,622
Related parties – companies under common control	16	10
Sales of alumina and bauxite	**984**	**778**
Third parties	601	434
Related parties – companies capable of exerting significant influence	218	227
Related parties – associates and joint ventures	165	117
Sales of semi-finished products and foil	**527**	**536**
Third parties	525	536
Related parties – associates and joint ventures	2	–
Sales of electricity	**1,329**	**1,319**
Third parties	1,268	1,256
Related parties – companies under common control	28	47
Related parties – associates and joint ventures	33	16
Sales of heat	**461**	**462**
Third parties	430	434
Related parties – companies capable of exerting significant influence	4	2
Related parties – companies under common control	27	26
Other revenues	**912**	**830**
Third parties	741	703
Related parties – companies capable of exerting significant influence	8	8
Related parties – companies under common control	27	36
Related parties – associates and joint ventures	136	83
	12,378	**12,094**

The Group's customer base is diversified and includes only one major customer - Glencore International AG (a member of Glencore International Plc Group which is a shareholder of the UC RUSAL Plc with a 8.75% share as at the reporting date) with whom transactions have exceeded 10% of the Group's revenue. In 2018 revenues from sales of primary aluminium and alloys to this customer amounted to USD 3,115 million (2017: USD 2,431 million). Almost all revenue of the Group relates to revenue from contracts with customers.

Notes to the Consolidated Financial Statements for 2018 continued

6. Net other operating expenses

	Year ended 31 December	
	2018	2017
	USD million	USD million
Impairment of trade and other receivables	(65)	(28)
Charity	(31)	(35)
Loss on disposal of property, plant and equipment	(11)	(28)
Other operating expenses, net	(29)	(45)
	(136)	**(136)**

Other expenses in the amount of USD 45 million for the year ended 31 December 2017 include penalties of USD 22 million that relate to the amount paid by the Group in relation to the legal claim from Swedish electricity supplier.

7. Personnel costs

Personnel costs comprise salaries, annual bonuses, annual leave and cost of non-monetary benefits. Salaries, annual bonuses, paid annual leave and 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.

The employees of the Group are also members of retirement schemes operated by local authorities. The Group is required to contribute a certain percentage of their payroll to these schemes to fund the benefits.

The Group's total contribution to those schemes charged to profit or loss during the years presented is shown below.

The Group's net obligation in respect of defined benefit pension and other post-retirement plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value and the fair value of any plan assets are deducted. The discount rate is the yield at the reporting date on government bonds that have maturity dates approximating the terms of the Group's obligations. The calculation is performed using the projected unit credit method. When the calculation results in a benefit to the Group, the recognised asset is limited to the present value of any future refunds from the plan or reductions in future contributions to the plan.

Where there is a change in actuarial assumptions, the resulting actuarial gains and losses are recognised directly in other comprehensive income.

When the benefits of a plan are improved, the portion of the increased benefit relating to past service by employees is recognised in profit or loss immediately.

The Group recognises gains and losses on the curtailment or settlement of a defined benefit plan when the curtailment or settlement occurs. The gain or loss on curtailment comprises any resulting change in the fair value of plan assets, any change in the present value of the defined benefit obligation, any related actuarial gains and losses.

The Group also makes contributions for the benefit of employees to Russia's and the Ukrainian State's pension funds. The contributions are expensed as incurred.

	Year ended 31 December	
	2018	2017
	USD million	USD million
Contributions to defined contribution retirement plans	(247)	(273)
Contributions to defined benefit retirement plans	(1)	(4)
Total retirement costs	(248)	(277)
Wages and salaries	(1,135)	(1,133)
	(1,383)	**(1,410)**

8. Finance income and costs

Finance income comprises interest income on funds invested, dividend income, changes in the fair value of financial assets at fair value through profit or loss and foreign currency gains. Interest income is recognised as it accrues, using the effective interest method.

Finance expenses comprise interest expense on borrowings, unwinding of the discount on provisions, foreign currency losses and changes in the fair value of financial assets at fair value through profit or loss. All borrowing costs are recognised in profit or loss using the effective interest method, except for borrowing costs related to the acquisition, construction and production of qualifying assets which are recognised as part of the cost of such assets.

Foreign currency gains and losses are reported on a net basis.

	Year ended 31 December	
	2018	2017
	USD million	USD million
Finance income		
Change in fair value of derivative financial instruments (refer to note 19)	171	–
Interest income	42	21
Dividend income	1	1
Net foreign exchange gain	–	29
Other finance income	2	8
	216	**59**
Finance costs		
Interest expense – third parties	(915)	(1,115)
Interest expenses on company loans from related parties – companies capable of exerting significant influence	(2)	(2)
Net foreign exchange loss	(253)	–
Change in fair value of derivative financial instruments (refer to note 19)	–	(287)
Other finance costs	(6)	(28)
	(1,176)	**(1,432)**

9. Earnings per share

The calculation of basic earnings per share is based on the profit attributable to ordinary equity shareholders for the years ended 31 December 2018 and 31 December 2017.

	Year ended 31 December	
	2018	2017
Issued ordinary shares at the beginning of the year	571,428,572	500,000,000
Issuance of shares on the Offering (note 16(a))	–	71,428,572
Weighted average number of shares	571,428,572	510,317,460
Profit for the year attributable to the shareholders of the Parent Company, USD million	967	727
Basic and diluted earnings per share, USD	**1.692**	**1.425**

There were no outstanding dilutive instruments during the years ended 31 December 2018 and 31 December 2017.

Notes to the Consolidated Financial Statements for 2018 continued

10. Income tax expense

Income tax expense comprises current and deferred tax. Income tax expense is recognised in the statement of profit or loss and other comprehensive income except to the extent that it relates to items recognised directly in equity, in which case it is recognised in equity.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the following temporary differences: the initial recognition of goodwill, the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit, and differences relating to investments in subsidiaries to the extent that they probably will not reverse in the foreseeable future. New information may become available that causes the Company to change its judgement regarding the adequacy of existing tax liabilities. Such changes to tax liabilities will impact tax expenses in the period that such a determination is made. Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, based on the laws that have been enacted or substantively enacted by the reporting date. Deferred tax assets and liabilities are offset when they relate to income taxes levied by the same taxation authority and the Group has both the right and the intention to settle its current tax assets and liabilities on a net or simultaneous basis.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which temporary differences can be utilised. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realised.

Additional income taxes that arise from the distribution of dividends are recognised at the same time as the liability to pay the related dividends is recognised.

(a) Income tax expense

	Year ended 31 December	
	2018	2017
	USD million	USD million
Current tax expense		
Current tax for the year	(462)	(319)
Deferred tax expense		
Origination and reversal of temporary differences	56	104
	(406)	**(215)**

The Parent Company is a tax resident of Cyprus with an applicable corporate tax rate of 12.5%. Subsidiaries pay income taxes in accordance with the legislative requirements of their respective tax jurisdictions. For subsidiaries domiciled in Russia the applicable tax rate is 20%; in Ukraine of 18%; Guinea of 0%; China of 25%; Kazakhstan of 20%; Australia of 30%; Jamaica of 25%; Ireland of 12.5% and Sweden of 22%. For the Group's subsidiaries domiciled in Switzerland the applicable tax rate for the year is the corporate income tax rate in the Canton of Zug, Switzerland, which differs depending on the company's tax status. The rate consists of a federal income tax and a cantonal/communal income and capital taxes. The latter includes a base rate and a multiplier, which may change from year to year. Applicable income tax rates for 2017 were 9.27% and 14.60% for different subsidiaries. For the UC RUSAL's significant trading companies, the applicable tax rate is 0%. The applicable tax rates for the year ended 31 December 2018 were the same as for the year ended 31 December 2017 except for tax rates for subsidiaries domiciled in Switzerland which amounted to 9.6% and 14.51% accordingly.

Reconciliation of effective tax rate

	Year ended 31 December			
	2018		2017	
	USD million	%	USD million	%
Profit before taxation	**2,268**	**(100)**	**1,618**	**(100)**
Income tax at tax rate applicable for the Parent Company	(284)	13	(202)	13
Non-deductible expenses	(65)	3	(23)	1
Effect of changes in investment in Norilsk Nickel	63	(3)	35	(2)
Change in unrecognised deferred tax assets	(30)	1	(32)	2
Effect of reversal of impairment	35	(2)	–	–
Income tax related to prior periods, including provision	(117)	5	–	–
Tax provision reversal	–	–	22	(1)
Effect of different income tax rates	(8)	–	(15)	1
Income tax	**(406)**	**18**	**(215)**	**13**

(b) Recognised deferred tax assets and liabilities

Deferred tax assets and liabilities are attributable to the following items:

	Assets		Liabilities		Net	
	31 December		31 December		31 December	
USD million	2018	2017	2018	2017	2018	2017
Property, plant and equipment	61	49	(1,315)	(1,433)	(1,254)	(1,384)
Inventories	58	49	(15)	(13)	43	36
Trade and other receivables	22	18	(9)	(8)	13	10
Financial instruments	6	16	(8)	(7)	(2)	9
Tax losses carried-forward	52	62	–	–	52	62
Others	255	189	(201)	(141)	54	48
Tax assets/(liabilities)	454	383	(1,548)	(1,602)	(1,094)	(1,219)
Set off of tax	(329)	(296)	329	296	–	–
Net deferred tax assets/(liabilities)	**125**	**87**	**(1,219)**	**(1,306)**	**(1,094)**	**(1,219)**

(c) Movement in temporary differences during the year

USD million	1 January 2018	Recognised in profit or loss	Recognised in equity	Currency translation	31 December 2018
Property, plant and equipment	(1,384)	50	(60)	140	(1,254)
Inventories	36	5	–	2	43
Trade and other receivables	10	9	–	(6)	13
Financial instruments	9	(11)	–	–	(2)
Tax loss carry-forwards	62	(5)	–	(5)	52
Others	48	8	–	(2)	54
	(1,219)	**56**	**(60)**	**129**	**(1,094)**

Notes to the Consolidated Financial Statements for 2018 continued

USD million	1 January 2017	Recognised in profit or loss	Currency translation	31 December 2017
Property, plant and equipment	(1,346)	3	(41)	(1,384)
Inventories	44	(8)	–	36
Trade and other receivables	16	(6)	–	10
Financial instruments	(11)	20	–	9
Tax loss carry-forwards	43	17	2	62
Others	(32)	78	2	48
	(1,286)	**104**	**(37)**	**(1,219)**

Recognised tax losses expire in the following years:

Year of expiry	31 December 2018 USD million	31 December 2017 USD million
Without expiry	52	62
	52	**62**

(d) Unrecognised deferred tax assets

Deferred tax assets have not been recognised in respect of the following items:

	31 December 2018 USD million	31 December 2017 USD million
Deductible temporary differences	808	719
Tax loss carry-forwards	331	436
	1,139	**1,155**

Deferred tax assets have not been recognised in respect of these items because it is not probable that future taxable profits will be available against which the Group can utilise the benefits therefrom. Tax losses expire in the following years:

Year of expiry	31 December 2018 USD million	31 December 2017 USD million
Without expiry	330	430
From 2 to 5 years	1	4
Up to 1 year	–	2
	331	**436**

(e) Unrecognised deferred tax liabilities

The Group's subsidiaries have retained earnings where dividend distributions are subject to taxation, for which deferred taxation has not been provided because remittance of the earnings has been indefinitely postponed through reinvestment and, as a result, such amounts are considered to be permanently invested. It was not practicable to determine the amount of temporary differences relating to investments in subsidiaries where the Group is able to control the timing of reversal of the difference. Reversal is not expected in the foreseeable future.

(f) Current taxation in the consolidated statement of financial position represents:

	31 December 2018 USD million	31 December 2017 USD million
Net income tax receivable at the beginning of the year	(33)	(18)
Income tax for the year	462	319
Income tax paid	(251)	(289)
Dividend withholding tax	(47)	(26)
Income tax provision (note 18)	(20)	-

	31 December 2018 USD million	31 December 2017 USD million
Translation difference	5	(19)
	116	**(33)**
Represented by:		
Income tax payable (note 15(b))	146	18
Income tax receivable (note 15(a))	(30)	(51)
Net income tax payable/(receivable)	**116**	**(33)**

11. Property, plant and equipment

(a) Accounting policy

(i) Recognition and measurement

Until 1 January 2016 all items of property, plant and equipment were measured at cost less accumulated depreciation and impairment losses. The cost of property, plant and equipment at 1 January 2004, the date of transition to IFRSs, was determined by reference to its fair value at that date.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the asset to a working condition for its intended use, the costs of dismantling and removing the items and restoring the site on which they are located and capitalised borrowing costs. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

The cost of periodic relining of electrolysers is capitalised and depreciated over the expected production period.

Gains or losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment, and are recognised net within gain/(loss) on disposal of property, plant and equipment in profit or loss.

Most of the hydro assets have long useful lives (up to 100 years) and their performance does not deteriorate significantly. Considering recent changes in the regulation of Russian power sector (100% liberalisation) and the fact that hydropower is one of the most efficient sectors of the electric power industry, the management believes that hydropower assets were significantly undervalued prior to 1 January 2016.

On 1 January 2016 the Group identified a separate class of assets – hydro assets – and changed its accounting policy for this class from the cost to the revaluation model to provide users with more relevant information on the Group's financial position.

Hydro assets are a class of property, plant and equipment with unique nature and use in their hydropower plants. Since 1 January 2016 hydro assets are measured at a revalued amount, being their fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations are made based on periodic valuation by an external independent valuer.

A class of assets may be revalued on a rolling basis provided that revaluations of the class of assets are completed within a short period and provided the revaluations are kept up to date.

After an item of property, plant and equipment is revalued, any accumulated depreciation at the date of the revaluation is eliminated against the gross carrying amount of the asset and the net amount restated to the revalued amount of the asset.

A revaluation increase on hydro assets is recognised directly under the heading of revaluation surplus in other comprehensive income. However, the increase is recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss. A revaluation decrease on hydro assets is recognised in profit or loss. However, the decrease is recognised in other comprehensive income to the extent of any credit balance existing in the revaluation surplus.

(ii) Subsequent costs

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the part will flow to the Group and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

Notes to the Consolidated Financial Statements for 2018 continued

(iii) Exploration and evaluation assets

Exploration and evaluation activities involve the search for mineral resources, the determination of technical feasibility and the assessment of commercial viability of an identified resource. Exploration and evaluation activities include:

- researching and analysing historical exploration data;
- gathering exploration data through topographical, geochemical and geophysical studies;
- exploratory drilling, trenching and sampling;
- determining and examining the volume and grade of the resource;
- surveying transportation and infrastructure requirements; and
- conducting market and finance studies.

Administration costs that are not directly attributable to a specific exploration area are charged to profit or loss.

License costs paid in connection with a right to explore in an existing exploration area are capitalised and amortised over the term of the permit.

Exploration and evaluation expenditure is capitalised as exploration and evaluation assets when it is expected that expenditure related to an area of interest will be recouped by future exploitation, sale, or, at the reporting date, the exploration and evaluation activities have not reached a stage that permits a reasonable assessment of the existence of commercially recoverable ore reserves. Capitalised exploration and evaluation expenditure is recorded as a component of property, plant and equipment at cost less impairment losses. As the asset is not available for use, it is not depreciated. All capitalised exploration and evaluation expenditure is monitored for indications of impairment. Where there are indicators of potential impairment, an assessment is performed for each area of interest in conjunction with the group of operating assets (representing a cash-generating unit) to which the exploration is attributed. Exploration areas at which reserves have been discovered but which require major capital expenditure before production can begin are continually evaluated to ensure that commercial quantities of reserves exist or to ensure that additional exploration work is underway or planned. To the extent that capitalised expenditure is not expected to be recovered it is charged to profit or loss.

Exploration and evaluation assets are transferred to mining property, plant and equipment or intangible assets when development is sanctioned.

(iv) Stripping costs

Expenditure relating to the stripping of overburden layers of ore, including estimated site restoration costs, is included in the cost of production in the period in which it is incurred.

(v) Mining assets

Mining assets are recorded as construction in progress and transferred to mining property, plant and equipment when a new mine reaches commercial production.

Mining assets include expenditure incurred for acquiring mineral and development rights and developing new mining operations.

Mining assets include interest capitalised during the construction period, when financed by borrowings.

(vi) Depreciation

The carrying amounts of property, plant and equipment (including initial and any subsequent capital expenditure) are depreciated to their estimated residual value over the estimated useful lives of the specific assets concerned, or the estimated life of the associated mine or mineral lease, if shorter. Estimates of residual values and useful lives are reassessed annually and any change in estimate is taken into account in the determination of remaining depreciation charges. Leased assets are depreciated over the shorter of the lease term and their useful lives. Land is not depreciated.

Any accumulated depreciation at the date of the revaluation is eliminated against the gross amount of the assets, and the net amount is restated to the revalued amount of the asset.

The property, plant and equipment is depreciated on a straight-line or units of production basis over the respective estimated useful lives as follows:

– Hydro assets	predominantly 49 to 62 years;
– Buildings and constructions	predominantly 15 to 50 years;
– Machinery and equipment	4 to 50 years;
– Electrolysers	4 to 15 years;
– Mining assets	units of production on proven and probable reserves;
– Other	1 to 30 years.

(vii) Leased assets

Leases under the terms of which the Group assumes substantially all the risks and rewards of ownership are classified as finance leases. Upon initial recognition the leased asset is measured at an amount equal to the lower of its fair value and the present value of the minimum lease payments. Subsequent to initial recognition, the asset is accounted for in accordance with the accounting policy applicable to that asset.

The corresponding finance lease obligation is included within interest bearing liabilities. The interest element is allocated to accounting periods during the lease term to reflect a constant rate of interest on the remaining balance of the obligation for each accounting period.

Assets held under other leases (operating leases) are not recognised in the statement of financial position. Payments made under the lease are charged to profit or loss in equal instalments over the accounting periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the leased assets. Lease incentives received are recognised in profit or loss as an integral part of the aggregate net lease payments made. Contingent rentals are charged to profit or loss in the accounting period in which they are incurred.

Long-term land leases may be recognised as finance leases even without the transfer of ownership of the land at the end of the lease if in the Group's judgment, the lease transfers significantly all the risks and rewards of ownership of the land such that the Group is in a position economically similar to that of a purchaser.

On 1 January 2019 the Group will apply IFRS 16 which changes the approach to recognition of the lease (see Note 2(a)).

Notes to the Consolidated Financial Statements for 2018 continued

(b) Disclosure

USD million	Land and buildings	Machinery and equipment	Electrolysers	Hydroassets	Mining assets	Construction in progress	Other	Total
Cost/Deemed cost								
At 1 January 2017	**4,376**	**6,865**	**2,217**	**3,919**	**685**	**1,823**	**327**	**20,212**
Additions	–	157	109	–	17	868	7	1,158
Acquired through business combinations	–	–	–	–	–	–	10	10
Disposals	(20)	(50)	(13)	–	(75)	(30)	(5)	(193)
Transfers	127	437	24	24	13	(638)	13	–
Change in estimate of site restoration provision	–	–	–	–	7	–	–	7
Translation difference	99	117	3	208	37	25	9	498
At 31 December 2017	**4,582**	**7,526**	**2,340**	**4,151**	**684**	**2,048**	**361**	**21,692**
Additions	20	23	101	–	7	872	–	1,023
Acquired through business combinations	–	3	–	–	–	1	16	20
Disposals	(12)	(69)	–	–	(4)	(92)	(5)	(182)
Transfers	150	329	118	13	8	(635)	17	–
Reclassification to other assets	(6)	–	–		–	(16)	(4)	(26)
Revaluation of hydro assets as at 31.12.2018	–	–	–	120	–	–	–	120
Change in estimate of site restoration provision	–	–	–	–	(4)	–	–	(4)
Translation difference	(266)	(302)	(15)	(706)	(101)	(106)	(27)	(1,523)
At 31 December 2018	**4,468**	**7,510**	**2,544**	**3,578**	**590**	**2,072**	**358**	**21,120**

USD million	Land and buildings	Machinery and equipment	Electrolysers	Hydro assets	Mining assets	Construction in progress	Other	Total
Depreciation and impairment losses								
At 1 January 2017	**(2,215)**	**(4,796)**	**(1,879)**	**–**	**(593)**	**(1,121)**	**(253)**	**(10,857)**
Depreciation charge	(135)	(345)	(149)	(101)	(7)	–	(18)	(755)
(Impairment losses)/reversal of impairment	(3)	33	(5)	–	27	(80)	3	(25)
Disposals	5	36	11	–	23	–	3	78
Translation difference	(67)	(76)	(3)	(1)	(28)	(13)	(5)	(193)
At 31 December 2017	**(2,415)**	**(5,148)**	**(2,025)**	**(102)**	**(578)**	**(1,214)**	**(270)**	**(11,752)**
Depreciation charge	(136)	(357)	(151)	(94)	(8)	–	(17)	(763)
Reversal of impairment/(impairment losses)	42	(20)	–	(12)	30	(116)	(2)	(78)
Disposals	4	56	–	–	–	7	5	72
Transfers	(14)	60	(46)	–	–	1	(1)	–
Reclassification to other assets	–	–	–	–	–	8	1	9
Revaluation of hydro assets as at 31.12.2018	–	–	–	181	–	–	–	181
Translation difference	159	196	12	27	83	38	18	533
At 31 December 2018	**(2,360)**	**(5,213)**	**(2,210)**	**–**	**(473)**	**(1,276)**	**(266)**	**(11,798)**
Net book value								
At 1 January 2017	2,161	2,069	338	3,919	92	702	74	9,355
At 31 December 2017	**2,167**	**2,378**	**315**	**4,049**	**106**	**834**	**91**	**9,940**
At 31 December 2018	**2,108**	**2,297**	**334**	**3,578**	**117**	**796**	**92**	**9,322**

Notes to the Consolidated Financial Statements for 2018 continued

Depreciation expense of USD 721 million (2017: USD 703 million) has been charged to cost of goods sold, USD 12 million (2017: USD 7 million) to distribution expenses and USD 14 million (2017: USD 18 million) to administrative expenses.

Interest capitalised for the years ended 31 December 2018 and 31 December 2017 was USD 21 million and USD 19 million, respectively.

Included in construction in progress at 31 December 2018 and 31 December 2017 are advances to suppliers of property, plant and equipment of USD 34 million and USD 136 million, respectively.

(c) Leases

At 31 December 2018 and 31 December 2017 the carrying value of plant and equipment held under finance leases was USD 163 million and USD 170 million, respectively.

(d) Impairment

Management reviewed the carrying amount of the Group's non-financial assets at the reporting date to determine whether there were any indicators of impairment or reversal of impairment.

Management identified several factors that indicated that for a number of Group's cash-generating units previously recognised impairment losses may require reversal and for a number of cash-generating units impairment losses may need to be recognised. These include significant fluctuations of aluminium and alumina prices during the year as a result of LME and overall market instability. In aluminium production, the Group faced cash cost increases due to increases in alumina costs partially counterbalanced by application of cash cost control measures. For alumina cash generating units, the major influence was the recovery in alumina prices, increase in prices of energy resources being a significant part of cash cost and unbalanced change in alumina and bauxite prices. For bauxite cash generating units, bauxite sales prices were generally stable. For Irkutsk GridCo cash generating unit the regulated tariffs were set for additional volumes of electricity transmission from 2021. Coal segment extended its sales to foreign markets.

For the purposes of impairment testing, value in use of each cash generating unit was determined by discounting expected future net cash flows of the cash generating unit.

UC RUSAL

At 31 December 2018 and 31 December 2017 management identified several indicators that a number of the Group's cash-generating units may be impaired or that previously recognised impairment losses may need to be reversed.

Based on results of impairment testing as at 31 December 2018, management has concluded that a reversal of previously recognised impairment loss relating to property, plant and equipment should be recognised in respect of BAZ and UAZ cash generating unit in the amount of USD 177 million. Additionally, management has concluded that an impairment loss in respect of Cobad cash generating unit in the amount of USD 78 million should be recognised.

Based on results of impairment testing as at 31 December 2017, management has concluded that a reversal of previously recognised impairment loss relating to property, plant and equipment should be recognised in respect of the Windalco cash generating unit in the amount of USD 63 million.

The pre-tax discount rates applied to the above mentioned cash generating units, estimated in nominal terms based on an industry weighted average cost of capital, are presented in the table below.

	Year ended 31 December	
	2018	**2017**
Kubikenborg Aluminium	11.1%	14.4%
BAZ and UAZ (Bogoslovsk and Ural aluminium smelters)	19.2%	–
Compagnie de Bauxites de Dian-Dian (Cobad)	22.0%	–
Aughinish Alumina	13.4%	14.3%
Windalco	21.0%	22.7%

The recoverable amount of a number of the cash generating units tested for impairment are particularly sensitive to changes in forecast aluminium and alumina prices, foreign exchange rates and applicable discount rates.

Additionally, management identified specific items of property, plant and equipment that are no longer in use and therefore are not considered to be recoverable amounting to USD 146 million at 31 December 2018 (2017: USD 83 million). These assets have been impaired in full. No further impairment of property, plant and equipment or reversal of previously recorded impairment was identified by management.

ENERGY

At 31 December 2018 and 2017 management identified several indicators that property, plant and equipment of Coal and Irkutsk GridCo cash-generating units may be impaired or that previously recognised impairment losses may need to be reversed..

Based on results of impairment testing as at 31 December 2018, management has concluded that a reversal of previously recognised impairment loss relating to property, plant and equipment should be recognised in respect of the Coal cash generating unit in the amount of USD 36 million.

The following key assumptions were used to determine the recoverable amount of the Coal cash-generating unit at 31 December 2018:

- The sales volumes in 2019 were projected based on the approved budget for 2019. The sales volumes of coal in 2019 are planned at the level of 14,951 thousand tons. The expected growth till 2028 was estimated as 2% as compared to 2019;
- Weighted average price for coal in 2019 was estimated at the level of USD 14 (RUB 974) per ton of coal and changed from decrease of 2% for 2019 to increase of 9% after 2019 per annum till 2028. The anticipated price growth included in the cash flow projections for the years from 2020 to 2028 has been based on the publicly available forecasts of Ministry of Economic Development of the Russian Federation;
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital and was 15%;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

The following key assumptions were used to determine the recoverable amount of the Coal cash-generating unit at 31 December 2017:

- The sales volumes in 2018 were projected based on the approved budget for 2018. The sales volumes of coal in 2018 were planned at the level of 13,394 thousand tons. The expected growth till 2027 was estimated as 5% as compared to 2018;
- Weighted average price for coal in 2018 was estimated at the level of USD 15 (RUB 873) per ton of coal and changed from decrease of 1% for 2018 to increase of 4% after 2018 per annum till 2027. The anticipated price growth included in the cash flow projections for the years from 2019 to 2027 has been based on the publicly available forecasts of Ministry of Economic Development of the Russian Federation;
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital and was 13%;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

The recoverable amount of the Coal cash-generating unit is particularly sensitive to changes in forecast of sales volumes, coal prices and applicable discount rates.

The
following key assumptions were used to determine the recoverable amount of the Irkutsk GridCo cash-generating unit at 31 December 2018:

- The sales volume of electricity transmission in 2019 were planned at the level of 45 million MWh. The expected growth till 2027 was estimated as 19.9% as compared to 2019;
- Tariffs for electricity transmission were estimated at the levels of USD 6-9 (RUB 385-605) per MWh depending on market segment in 2019 and increased by 42% till 2028 as compared to 2019. The anticipated growth of tariffs included in the cash flows projections for the years from 2020 to 2028 has been based on the publicly available forecasts of Ministry of Economic Development of the Russian Federation in relation to inflation;
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital and amounted to 12.3%;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

The
following key assumptions were used to determine the recoverable amount of the Irkutsk GridCo cash-generating unit at 31 December 2017:

- The sales volume of electricity transmission in 2018 were planned at the level of 43 million MWh. The expected growth till 2027 was estimated as 14.2% as compared to 2018;
- Tariffs for electricity transmission were estimated at the levels of USD 7-11 (RUB 431-663) per MWh depending on market segment in 2018 and increased by 40% till 2027 as compared to 2018. The anticipated growth of tariffs included in the cash flows projections for the years from 2019 to 2027 has been based on the publicly available forecasts of Ministry of Economic Development of the Russian Federation in relation to inflation;
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital and amounted to 12.2%;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

The recoverable amounts estimated at 31 December 2018 and 31 December 2017 includes cash flows from sales of electricity transmission to Taishet aluminium smelter starting from 2021. If the Taishet aluminium smelter is not launched, a significant impairment of property, plant and equipment may need to be recognised.

The recoverable amount of the Irkutsk GridCo cash-generating unit is also particularly sensitive to changes in forecast of electricity transmission volumes and tariffs, as well as applicable discount rates.

Notes to the Consolidated Financial Statements for 2018 continued

Additionally, management identified specific items of property, plant and equipment that are no longer in use and therefore are not considered to be recoverable amounting to USD 56 million (2017: USD 5 million). These assets have been impaired in full. No further impairment of property, plant and equipment or reversal of previously recorded impairment was identified by management.

(e) Security

The carrying value of property, plant and equipment which subject to lien under loan agreements was USD 1,112 million at 31 December 2018 (31 December 2017: USD 1,150 million) (note 17).

(f) Hydro assets

As disclosed in note 11(a)(i), the Group regularly performs an independent valuation of its hydro assets. As at 31 December 2018 the independent appraiser estimated the fair value of hydro assets at USD 3,578 million with an equity effect of USD 301 million and revaluation loss of USD 11 million recognised in profit or loss.

As at 31 December 2018 the increase in fair value of 9% mostly refers to inflation and the respective increase of replacement cost of hydro assets.

As at 31 December 2017 a valuation by external independent appraiser was not performed because based on the management analysis the fair value of hydro assets approximated their carrying amount at that date.

Net book value as at 31 December 2018 according to the cost model amounted to USD 358 million (31 December 2017: USD 433 million).

The valuation analysis was primarily based on the cost approach to determine depreciated replacement cost as it is the most reliable method to estimate value for assets that do not have an active market and do not generate an identifiable revenue stream by asset. This method considers the cost to reproduce or replace the property, plant and equipment, adjusted for physical depreciation, functional and economic obsolescence.

Depreciated replacement cost was estimated based on internal sources and, where available, analysis of the Russian and international markets for similar property, plant and equipment. Various market data were collected from published information, catalogues, statistical data etc.

In addition, cash flow testing was conducted to identify if there is any economic obsolescence of the hydro assets. Forecasts of net cash flows were determined based on the actual results for the preceding years and approved budgets. Based on the analysis results, there is no economic obsolescence as at 31 December 2018.

The fair value measurement for hydro assets have been categorised as Level 3 fair values based on the inputs to the valuation techniques used.

12. Goodwill and intangible assets

(a) Accounting policy

(i) Goodwill

On the acquisition of a subsidiary, an interest in a joint venture or an associate or an interest in a joint arrangement that comprises a business, the identifiable assets, liabilities and contingent liabilities of the acquired business (or interest in a business) are recognised at their fair values unless the fair values cannot be measured reliably. Where the fair values of assumed contingent liabilities cannot be measured reliably, no liability is recognised but the contingent liability is disclosed in the same manner as for other contingent liabilities.

Goodwill arises when the cost of acquisition exceeds the fair value of the Group's interest in the net fair value of identifiable net assets acquired. Goodwill is not amortised but is tested for impairment annually. For this purpose, goodwill arising on a business combination is allocated to the cash-generating units expected to benefit from the acquisition and any impairment loss recognised is not reversed even where circumstances indicate a recovery in value.

In respect of associates or joint ventures, the carrying amount of goodwill is included in the carrying amount of the interest in the associate and joint venture and the investment as a whole is tested for impairment whenever there is objective evidence of impairment. Any impairment loss is allocated to the carrying amount of the interest in the associate and joint venture.

When the fair value of the Group's share of identifiable net assets acquired exceeds the cost of acquisition, the difference is recognised immediately in profit or loss.

(ii) Research and development

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in profit or loss when incurred.

Development activities involve a plan or design for the production of new or substantially improved products and processes. Development expenditure is capitalised only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable and the Group intends to and has sufficient resources to complete development and to use or sell the asset. The expenditure capitalised includes the cost of materials, direct labour and overhead costs that are directly attributable to preparing the asset for its intended use and capitalised borrowing costs. Other development expenditure is recognised in profit or loss when incurred.

Capitalised development expenditure is measured at cost less accumulated amortisation and accumulated impairment losses (refer to note 11(d)).

(iii) Other intangible assets

Other intangible assets that are acquired by the Group, which have finite useful lives, are measured at cost less accumulated amortisation and accumulated impairment losses (refer to note 11(d)).

(iv) Subsequent expenditure

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated goodwill and brands, is recognised in profit or loss when incurred.

(v) Amortisation

Amortisation is recognised in profit or loss on a straight-line basis over the estimated useful lives of intangible assets, other than goodwill, from the date that they are available for use. The estimated useful lives are as follows:

- software 5 years;
- other intangible assets 2-8 years.

The amortisation method, useful lives and residual values are reviewed at each financial year end and adjusted if appropriate.

(b) Disclosure

USD million	Goodwill	Other intangible assets	Total
Cost			
Balance at 1 January 2017	**2,648**	**585**	**3,233**
Additions	17	23	40
Disposals	–	(20)	(20)
Foreign currency translation	80	2	82
Balance at 31 December 2017	**2,745**	**590**	**3,335**
Additions	48	40	88
Disposals	–	(9)	(9)
Foreign currency translation	(265)	(9)	(274)
Balance at 31 December 2018	**2,528**	**612**	**3,140**
Amortisation and impairment losses			
Balance at 1 January 2017	**(450)**	**(483)**	**(933)**
Amortisation charge	–	(8)	(8)
Foreign currency translation	–	(2)	(2)
Balance at 31 December 2017	**(450)**	**(493)**	**(943)**
Amortisation charge	–	(5)	(5)
Foreign currency translation	–	3	3
Balance at 31 December 2018	**(450)**	**(495)**	**(945)**
Net book value			
At 1 January 2017	2,198	102	2,300
At 31 December 2017	**2,295**	**97**	**2,392**
At 31 December 2018	**2,078**	**117**	**2,195**

(c) Amortisation charge

The amortisation charge is included in cost of sales in statement of profit or loss and other comprehensive income.

(d) Impairment testing of goodwill and other intangible assets

For the purposes of impairment testing, goodwill is allocated to the following cash-generating units. These units represent the lowest level within the group at which the goodwill is monitored for internal management purposes.

Notes to the Consolidated Financial Statements for 2018 continued

The aggregate carrying amounts of goodwill allocated to each business, and the related impairment losses recognised, are as follows:

USD million	Allocated goodwill 2018	Accumulated impairment loss 2018	Allocated goodwill 2017	Accumulated impairment loss 2017
UC RUSAL	2,301	(449)	2,468	(449)
Irkutskenergo	226	–	276	–
Strikeforce Mining and Resources PLC ("SMR")	1	(1)	1	(1)
	2,528	**(450)**	**2,745**	**(450)**

UC RUSAL

For the purposes of impairment testing, the entire amount of goodwill is allocated to the aluminium segment of the UC RUSAL's operations. The aluminium segment represents the lowest level within the UC RUSAL at which goodwill is monitored for internal management purposes. The recoverable amount represents value in use as determined by discounting the future cash flows generated from the continuing use of the plants within the UC RUSAL's aluminium segment.

At 31 December 2018, management analysed changes in the economic environment and developments in the aluminium industry and the Group's operations since 31 December 2017 and performed an impairment test for goodwill at 31 December 2018 using the following assumptions to determine the recoverable amount of the segment:

- Total production was estimated based on average sustainable production levels of 3.8 million metric tonnes of primary aluminium, of 8.1 million metric tonnes of alumina and of 16.5 million metric tonnes of bauxite. Bauxite and alumina are be used primarily internally for production of primary aluminium;
- Sales prices were based on the long-term aluminium price outlook derived from available industry and market sources at USD 2,117 per tonne for primary aluminium in 2019, USD 2,159 in 2020, USD 2,193 in 2021, USD 2,193 in 2022 and USD 2,216 in 2023. Operating costs were projected based on the historical performance adjusted for inflation;
- Nominal foreign currency exchange rates applied to convert operating costs of the Group denominated in RUB into USD were RUB 66.8 for one USD in 2019, RUB 68.3 in 2020, RUB 66.7 in 2021, RUB 65.1 in 2022 and RUB 65.0 in 2023. Inflation of 4.0% – 4.5% in RUB and 1.6% - 2.4% in USD was assumed in determining recoverable amounts;
- The pre-tax discount rate was estimated in nominal terms based on the weighted average cost of capital basis and was 15.9%;
- A terminal value was derived following the forecast period assuming a 1.7% annual growth rate.

Values assigned to key assumptions and estimates used to measure the units' recoverable amount was based on external sources of information and historic data. Management believes that the values assigned to the key assumptions and estimates represented the most realistic assessment of future trends. The results were particularly sensitive to the following key assumptions:

- A 5% reduction in the projected aluminium price level would have resulted in a decrease in the recoverable amount by 22% but would not lead to an impairment;
- A 5% increase in the projected level of electricity and alumina costs in the aluminium production would have resulted in a 14% decrease in the recoverable amount but would not lead to an impairment;
- A 1% increase in the discount rate would have resulted in a 8% decrease in the recoverable amount but would not lead to an impairment.

Based on results of impairment testing of goodwill, management concluded that no impairment should be recorded in the consolidated financial statements as at 31 December 2018.

At 31 December 2017, management analysed changes in the economic environment and developments in the aluminium industry and the Group's operations since 31 December 2016 and performed an impairment test for goodwill at 31 December 2017 using the following assumptions to determine the recoverable amount of the segment:

- Total production was estimated based on average sustainable production levels of 3.8 million metric tonnes of primary aluminium, of 8.0 million metric tonnes of alumina and of 12.3 million metric tonnes of bauxite. Bauxite and alumina will be used primarily internally for production of primary aluminium;
- Sales prices were based on the long-term aluminium price outlook derived from available industry and market sources at USD 2,058 per tonne for primary aluminium in 2018, USD 2,043 in 2019, USD 2,035 in 2020, USD 2,037 in 2021, USD 2,053 in 2022. Operating costs were projected based on the historical performance adjusted for inflation;
- Nominal foreign currency exchange rates applied to convert operating costs of the Group denominated in RUB into USD were RUB 62.3 for one USD in 2018, RUB 61.4 in 2019, RUB 62.2 in 2020, RUB 60.5 in 2021, RUB 59.5 in 2022. Inflation of 3.9% – 4.9% in RUB and 1.3% - 2.3% in USD was assumed in determining recoverable amounts;
- The pre-tax discount rate was estimated in nominal terms based on the weighted average cost of capital basis and was 13.1%;
- A terminal value was derived following the forecast period assuming a 1.7% annual growth rate.

Values assigned to key assumptions and estimates used to measure the unit's recoverable amount was based on external sources of information and historic data. Management believes that the values assigned to the key assumptions and estimates represented the most realistic assessment of future trends. The results were particularly sensitive to the following key assumptions:

- A 5% reduction in the projected aluminium price level would have resulted in a decrease in the recoverable amount by 26% but would not lead to an impairment;
- A 5% increase in the projected level of electricity and alumina costs in the aluminium production would have resulted in a 17% decrease in the recoverable amount but would not lead to an impairment;
- A 1% increase in the discount rate would have resulted in a 7% decrease in the recoverable amount but would not lead to an impairment.

Based on results of impairment testing of goodwill, management concluded that no impairment should be recorded in the consolidated financial statements as at 31 December 2017.

ENERGY

Goodwill primarily resulted from the acquisition of Irkutskenergo. For the purposes of impairment testing, goodwill is allocated to Irkutskenergo cash generating unit. This represents the lowest level within the Group at which goodwill is monitored for internal management purposes.

Management performs impairment testing of goodwill annually at 31 December of the respective calendar year.

The recoverable amount of Irkutskenergo in 2018 and 2017 was determined by reference to its value in use derived by discounting of the future cash flows generated from continuing use of production facilities within Irkutskenergo cash generating unit of the Group.

The following key assumptions were used to determine the recoverable amount of the segment at 31 December 2018:

- The sales volumes in 2019 were projected based on the approved budgets for 2019. In particular, the sales volumes of electricity in 2019 were planned at the level of 68 million MWh and 69 million MWh in 2020. The expected growth till 2028 was estimated as 7.4% as compared to 2019. The sales volumes of heat in 2019 were planned at the level of 20 million Gcal and no growth till 2028 is expected.
- Sales prices were based on the long-term price outlook derived from the available industry and market sources. The prices for electricity were estimated at the levels of USD 0.4 – 25.1 (RUB 30-1,747) per MWh depending on market segment in 2019 and increased by 20-42% respectively till 2028. The tariffs for heat were estimated as USD 16.4 (RUB 1,094) per Gcal in 2019 and grew by 42% till 2028. Operating costs were projected based on the historical performance of Irkutskenergo and the anticipated increase during the projected period was in line with inflation.
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital amounted to 14.1% ;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

The following key assumptions were used to determine the recoverable amount of the segment at 31 December 2017:

- The sales volumes in 2018 were projected based on the approved budgets for 2018. In particular, the sales volumes of electricity in 2018 were planned at the level of 64 million MWh and 64 million MWh in 2019. The expected growth till 2027 was estimated as 8.5% as compared to 2018. The sales volumes of heat in 2018 were planned at the level of 20 million Gcal and no growth till 2027 is expected.
- Sales prices were based on the long-term price outlook derived from the available industry and market sources. The prices for electricity were estimated at the levels of USD 2.3 – 31.1 (RUB 137-1,817) per MWh depending on market segment in 2018 and increased by 42-45% respectively till 2027. The tariffs for heat were estimated as USD 16.9 (RUB 988) per Gcal in 2018 and grew by 38% till 2027. Operating costs were projected based on the historical performance of Irkutskenergo and the anticipated increase during the projected period was in line with inflation.
- The post-tax discount rate was estimated in nominal terms based on the weighted average cost of capital amounted to 14.0%;
- A terminal value was derived following the forecast period assuming a 4% annual growth rate.

Reasonable possible change in key assumptions will not lead to an impairment.

Notes to the Consolidated Financial Statements for 2018 continued

13. Interests in 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 Company and other parties contractually agree to share control of the arrangement, and have rights to the net assets of the arrangement.

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). 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. 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 the consolidated statement of profit or loss and other comprehensive income, whereas the Group's share of the post-acquisition post-tax items of the investees' other comprehensive income is recognised in the consolidated statement of other comprehensive income.

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.

Unrealised profits and losses resulting from transactions between the Group and its associates and joint venture 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.

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.

In the Group's statement of financial position, investments in associates and joint venture are stated at cost less impairment losses, unless classified as held for sale (or included in a disposal group that is classified as held for sale).

An impairment loss in respect of an investment in an associate or joint venture is calculated as the difference between its carrying amount after application of the equity method of accounting and its recoverable amount. The recoverable amount of such investment is the greater of its value in use and its fair value less cost to sell. In determining the value in use of the investment the Group estimates: (a) its share of the present value of the estimated future cash flows expected to be generated by the investee, including the cash flows from the operations of the investee and the proceeds on the ultimate disposal of the investment; or (b) the present value of the estimated future cash flows expected to arise from the dividends to be received from the investee and from its ultimate disposal depending on which available information with respect to each investee is more reliable. An impairment loss is reversed to the extent that the recoverable amount of the investment subsequently increases and the resulting carrying amount does not exceed the carrying amount that would have been determined, after application of the equity method, had no impairment loss previously been recognised.

	31 December	
	2018	2017
	USD million	USD million
Balance at the beginning of the year	**4,459**	**4,156**
Group's share of profits, impairment and reversal of impairment	948	621
Prepayment for shares	41	–
Dividends	(946)	(535)
Group's share of other comprehensive income/(loss)	10	(28)
Foreign currency translation	(811)	245
Balance at the end of the year	**3,701**	**4,459**
Goodwill included in interests in associates	2,163	2,609

The following list contains only the particulars of associates, all of which are corporate entities, which principally affected the results or assets of the Group.

			Proportion of ownership interest		
Name of associate/ joint venture	Place of incorporation and operation	Particulars of issued and paid up capital	Group's effective interest	Group's nominal interest	Principal activity
PJSC MMC Norilsk Nickel	Russian Federation	158,245,476 shares, RUB 1 par value	13.39%	27.82%	Nickel and other metals production
Queensland Alumina Limited	Australia	2,212,000 shares, AUD 2 par value	9.63%	20%	Production of alumina under a tolling agreement
BEMO project	Cyprus, Russian Federation	BOGES Limited and BALP Limited – 10,000 shares EUR 1.71 each	24.07%	50%	Energy / Aluminium production

The summary of the consolidated financial statements of associates and joint ventures for the year ended 31 December 2018 is presented below:

	PJSC MMC Norilsk Nickel		Queensland Alumina Limited		BEMO project		Other associates and joint ventures	
	Group share	100%	Group share	100%	Group share	100%	Group share	100%
Non-current assets	5,123	10,697	104	503	1,366	2,849	150	371
Current assets	1,267	4,554	38	196	126	252	105	352
Non-current liabilities	(2,633)	(9,420)	(67)	(194)	(986)	(1,972)	(38)	(173)
Current liabilities	(656)	(2,358)	(75)	(379)	(37)	(75)	(86)	(308)
Net assets	**3,101**	**3,473**	**–**	**126**	**469**	**1,054**	**131**	**242**

	PJSC MMC Norilsk Nickel		Queensland Alumina Limited		BEMO project		Other associates and joint ventures	
	Group share	100%	Group share	100%	Group share	100%	Group share	100%
Revenue	3,247	11,670	140	701	288	575	971	3,306
Profit/(loss) and impairment from continuing operations	885	3,085	–	(1)	41	69	22	70
Other comprehensive income	(693)	(853)	–	(13)	(92)	(184)	(16)	(30)
Total comprehensive income	**192**	**2,232**	**–**	**(14)**	**(51)**	**(115)**	**6**	**40**

The summary of the consolidated financial statements of associates and joint ventures for the year ended 31 December 2017 is presented below:

	PJSC MMC Norilsk Nickel		Queensland Alumina Limited		BEMO project		Other associates and joint ventures	
	Group share	100%	Group share	100%	Group share	100%	Group share	100%
Non-current assets	5,889	12,109	119	552	1,422	2,970	177	356
Current assets	1,259	4,526	29	153	100	200	115	391
Non-current liabilities	(2,698)	(9,625)	(76)	(207)	(960)	(1,920)	(41)	(85)
Current liabilities	(654)	(2,352)	(72)	(358)	(39)	(78)	(111)	(407)
Net assets	**3,796**	**4,658**	**–**	**140**	**523**	**1,172**	**140**	**255**

	PJSC MMC Norilsk Nickel		Queensland Alumina Limited		BEMO project		Other associates and joint ventures	
	Group share	100%	Group share	100%	Group share	100%	Group share	100%
Revenue	2,545	9,146	134	670	273	546	868	2,990
Profit/(loss) from continuing operations	528	2,129	–	14	58	(17)	35	71
Other comprehensive income	188	223	–	9	25	51	–	8

Notes to the Consolidated Financial Statements for 2018 continued

Total comprehensive income	**716**	**2,352**	**-**	**23**	**83**	**34**	**35**	**79**

(a) PJSC MMC Norilsk Nickel

The Group's investment in Norilsk Nickel is accounted for using the equity method and the carrying value as at 31 December 2018 and 31 December 2017 amounted USD 3,101 million and USD 3,796 million, respectively. The market value amounted USD 8,286 million and USD 8,294 million as at 31 December 2018 and 31 December 2017, respectively, and is determined by multiplying the quoted bid price per share on the Moscow Exchange on the year-end date by the number of shares held by the Group.

(b) Queensland Alumina Limited

The carrying value of the Group's investment in Queensland Alumina Limited as at both 31 December 2018 and 31 December 2017 amounted to USD nil million. At 31 December 2018 management has not identified any impairment reversal indicators relating to the Group's investment in QAL and as a result no detailed impairment testing was performed in relation to this investment.

(c) BEMO project

The carrying value of the Group's investment in BEMO project as at 31 December 2018 and 31 December 2017 amounted to USD 469 million and USD 523 million, respectively.

For the purposes of impairment testing, the BEMO project was separated into two cash generating units – the Boguchansky Aluminium Smelter ("BoAZ') and the Boguchansky Hydro Power Plant ("BoGES"). The recoverable amount was determined by discounting the expected future net cash flows of each cash generating unit.

At 31 December 2018 management has not identified any impairment indicators relating to the Group's investment in BoGES nor any impairment reversal indicators relating to investments in BoAZ and as a result no detailed impairment testing was performed in relation to this investment.

At 31 December 2018, accumulated losses of USD 639 million (2017: USD 573 million) related to impairment charges at BoAZ have not been recognised because the Group's investment has already been fully written down to USD nil million.

The recoverable amounts of the two cash generating units are particularly sensitive to changes in forecast aluminium and electricity prices, foreign exchange rates, applicable discount rates and, in respect to BoAZ, the forecast period to reach full production capacity.

A summary of the additional financial information of the Group's effective interest in BEMO project for the year ended 31 December 2018 and 31 December 2017 is presented below (all in USD million):

	31 December 2018	31 December 2017
	USD million	USD million
Cash and cash equivalents	51	21
Current financial liabilities	(12)	(11)
Non-current financial liabilities	(947)	(920)
Depreciation and amortisation	(19)	(18)
Interest income	2	1
Interest expense	(19)	(25)
Income tax expense	(11)	(4)

14. Inventories

Inventories are measured at the lower of cost or net realisable value. Net realisable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The cost of inventories is determined under the weighted average cost method, and includes expenditure incurred in acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. In the case of manufactured inventories and work in progress, cost includes an appropriate share of production overheads based on normal operating capacity.

Net realisable value is the estimated selling price in the ordinary course of business, less the estimated cost of completion and selling expenses.

Production costs include mining and concentrating costs, smelting, treatment and refining costs, other cash costs and depreciation and amortisation of operating assets.

	31 December	
	2018	2017
	USD million	USD million
Raw materials and consumables	1,240	1,103
Work in progress	703	684
Finished goods and goods for resale	1,217	895
	3,160	2,682
Provision for inventory obsolescence	(123)	(187)
	3,037	**2,495**

Inventories at 31 December 2018 and 31 December 2017 are stated at cost.

Inventories with a carrying value of USD 5 million and USD 373 million were pledged as collateral for secured bank loans at 31 December 2018 and 31 December 2017, respectively (note 17).

Inventory with a carrying value of USD 314 million was pledged under existing trading contracts at 31 December 2017.

15. Non-derivative financial instruments

Non-derivative financial instruments comprise investments in securities, trade and other receivables (excluding prepayments and tax assets), cash and cash equivalents, loans and borrowings and trade and other payables (excluding advances received and tax liabilities).

Non-derivative financial instruments except for trade and other receivables are recognised initially at fair value plus any directly attributable transaction costs. Trade and other receivables are recognised at transaction price.

A financial instrument is recognised when the Group becomes a party to the contractual provisions of the instrument. Financial assets are derecognised if the Group's contractual rights to the cash flows from the financial assets expire or if the Group transfers the financial asset to another party without retaining control or substantially all risks and rewards of the asset. Financial liabilities are derecognised if the Group's obligations specified in the contract expire or are discharged or cancelled.

The effect of initially applying IFRS 9 on the Group's financial assets and liabilities and key accounting policies applied are described in Note 3(c). Due to the transition method chosen in applying IFRS 9, comparative information has not been restated to reflect the new requirements.

(a) Trade and other receivables

	31 December	
	2018	2017
	USD million	USD million
Trade receivables from third parties	**572**	**588**
Trade receivables from related parties, including	**87**	**50**
Related parties – companies capable of exerting significant influence	76	31
Related parties – companies under common control	4	5
Related parties – associates and joint ventures	7	14
VAT recoverable	**330**	**336**
Advances paid to third parties	**197**	**105**
Advances paid to related parties, including	**51**	**41**
Related parties – companies capable of exerting significant influence	1	–
Related parties – companies under common control	1	1
Related parties – associates and joint ventures	49	40
Other receivables from third parties	**174**	**131**
Other receivables from related parties, including	**–**	**4**
Related parties – companies capable of exerting significant influence	–	3
Related parties – companies under common control	–	–
Related parties – associates and joint ventures	–	1
Other taxes receivable	**22**	**28**
Income tax receivable	**30**	**51**

Notes to the Consolidated Financial Statements for 2018 continued

	31 December	
	2018	2017
	USD million	USD million
Dividends receivable from related parties	**–**	**3**
Related parties – associates and joint ventures	–	3
Other current assets	**23**	**34**
	1,486	**1,371**
Allowance for doubtful debts	(97)	(62)
Total short-term receivables	**1,389**	**1,309**

(i) Ageing analysis

Included in trade and other receivables are trade receivables (net of allowance for doubtful debts) with the following ageing analysis as of the statement of financial position dates:

UC RUSAL

	31 December	
	2018	2017
	USD million	USD million
Current	346	309
Past due 0-30 days	62	61
Past due 31-60 days	6	4
Past due 61-90 days	2	2
Past due over 90 days	10	10
Amounts past due	80	77
	426	**386**

ENERGY

	31 December	
	2018	2017
	USD million	USD million
Current	151	156
Past due 0-30 days	17	24
Past due 31-60 days	7	10
Past due 61-90 days	6	9
Past due 91 - 180 days	5	11
Past due over 180 days	–	3
Amounts past due	35	57
	186	**213**

Trade receivables are on average due within 60 days from the date of billing. The receivables that are neither past due nor impaired (i.e. current) relate to a wide range of customers for whom there was no recent history of default.

Further details of the Group's credit policy are set out in note 20(e).

(b) Trade and other payables

	31 December	
	2018	2017
	USD million	USD million
Accounts payable to third parties	**658**	**751**
Accounts payable to related parties, including	**31**	**52**
Related parties – companies capable of exerting significant influence	5	14
Related parties – companies under common control	2	9
Related parties – associates and joint ventures	24	29
Advances received from third parties	**72**	**440**
Advances received from related parties, including	**260**	**308**

	31 December	
	2018	2017
	USD million	USD million
Related parties – companies capable of exerting significant influence	260	288
Related parties – associates and joint ventures	–	20
Other payables and accrued liabilities	**239**	**380**
Income tax payable	**146**	**18**
Other taxes payable	**209**	**194**
	1,615	**2,143**

All of the trade and other payables are expected to be settled or recognised as income within one year or are repayable on demand.

As at 31 December 2017 USD 109 million for the acquisition of Irkutskenergo were included in short-term other payables and accrued liabilities.

(c) Cash and cash equivalents

	31 December	
	2018	2017
	USD million	USD million
Bank balances, USD	51	560
Bank balances, RUB	461	118
Bank balances, EUR	300	133
Bank balances, other currencies	28	12
Cash in transit	16	30
Short-term bank deposits	273	104
Other cash equivalents	11	–
Cash and cash equivalents in the statement of cash flows	**1,140**	**957**
Restricted cash	43	17
Cash and cash equivalents in the statement of financial position	**1,183**	**974**

As at 31 December 2018 and 31 December 2017 included in cash and cash equivalents was restricted cash of USD 43 million and USD 17 million, respectively, pledged under a Swiss Law Pledged Agreement with BNP Paribas (Suisse) SA and Allied Irish Bank.

16. Equity

(a) Share capital, additional paid-in capital and transactions with shareholders

(i) Parent Company's share capital and initial public offering of GDRs

The Parent Company's authorised share capital comprises 714,285,714.286 ordinary shares, out of which 571,428,572 shares are issued with a par value of USD 0.00007 each.

On 8 November 2017 the Parent Company successfully completed the Offering on the London Stock Exchange and the Moscow Exchange (note 1(a)). The offer price was set at USD 14 per GDR for London Stock Exchange and RUB 840 per GDR for the Moscow Exchange, with each GDR representing one ordinary share in the Parent Company. The total size of the offering amounted to 107,142,858 GDRs, representing USD 1.5 billion at the offer price, of which USD 1.0 billion (71,428,572 GDRs) is primary proceeds and USD 0.5 billion (35,714,286 GDRs) is a secondary component (placement of existing shares). The Parent Company raised from the Offering approximately USD 973 million, net of related expenses of USD 27 million, of which USD 942 million was used to repay the Parent Company's Loan. In addition to USD 27 million directly related to the primary proceeds, another part of the listing expenses related to the secondary component of USD 14 million was recognised in the statement of profit or loss and other comprehensive income.

As at 31 December 2018 and 31 December 2017 all issued ordinary shares were fully paid.

On 26 January 2019, the Parent Company issued 67,420,324 shares with a par value of USD 0.00007 each with a subsequent issue of GDRs on these shares, to Glencore Group Funding Limited pursuant to securities exchange agreement in exchange for 8.75% shares in UC RUSAL in two stages (see Note 24). As a result of this transaction the issued share capital of the Parent Company at the date of these financial statements comprises 638,848,896 shares with a par value of USD 0.00007 each.

Notes to the Consolidated Financial Statements for 2018 continued

(ii) Change in effective interest in subsidiaries

In September 2018 the Group acquired 0.3% of Irkutskenergo shares for USD 3 million. As a result the Group's shareholding in Irkutskenergo increased to 92.8%.

In 2017, the Group increased its shareholding in Irkutskenergo to 92.5%. As a result of the transactions the Group recognised a total distribution of USD 27 million.

In June 2017, Eurosibenergo-Hydrogeneration submitted a mandatory offer to non-controlling shareholders of Irkutskenergo for the purchase of non-controlling interests. The offer price was based on the weighted six-months' trading average price prior to the offer and amounted to RUB 17.42 per share (USD 0.3). The Group has accepted for purchase 0.7458% of Irkutskenergo shares for the aggregate amount of RUB 619 million (USD 11 million).

(b) Currency translation reserve

The currency translation reserve comprises all foreign exchange differences arising from the translation of the consolidated financial statements of foreign operations. The reserve is dealt with in accordance with the accounting policies set out in note 3(b).

(c) Other reserves

Other reserves include the cumulative unrealised actuarial gains and losses on the Group's defined post retirement benefit plans, the effective portion of the accumulative net change in fair value of cash flow hedges, the Group's share of other comprehensive income of associates and cumulative unrealised gains and losses on Group's financial assets which have been recognised directly in other comprehensive income.

(d) Dividends

In accordance with the Companies (Jersey) Law 1991 (the "Law"), the Parent Company may make distributions at any time in such amounts as are determined by the Parent Company out of the assets of the Parent Company other than the capital redemption reserves and nominal capital accounts, provided that the directors of the Parent Company make a solvency statement in accordance with that Law of Jersey at the time the distributions are proposed.

In March 2018 the Parent Company declared and paid interim dividends for 2017 in the amount of USD 68 million (USD 0.119 per share).

During 2017, the Parent Company declared interim dividends for 2016 in the amount of USD 24 million and interim dividends for 2017 in the amount of USD 326 million.

During 2017 dividends in the total amount of USD 373 million were distributed in cash including USD 47 million for 2016 (USD 23 million were accrued as a liability as at 31 December 2016) and USD 326 million for 2017.

During 2017, Group's subsidiaries paid dividends in the amount of USD 155 million to the non-controlling shareholders of subsidiaries.

(e) Accrual and reversal of provision for guarantees

In 2015 the Group recognised a provision in the amount of RUB 6.5 billion (USD 89 million) for a guarantee issued in favour of the bank in respect of certain loan obligations of several borrowers directly in equity.

During 2017, the Group paid USD 15 million under this agreement and recorded this transaction as an "other distribution". In September 2017, the guarantee agreement was terminated, which resulted in the recognition of "other contribution" of USD 114 million.

(f) Revaluation reserve

The revaluation reserve comprises the cumulative net change in the fair value of hydro assets at the reporting date and is dealt with in accordance with the accounting policies set out in note 11(a)(i).

An independent valuation analysis of hydro assets has been carried out as at 31 December 2018, the fair value of hydro assets was estimated at USD 3,578 million (note 11(f)).

As a result of this fair value valuation, the Group recognised an additional revaluation reserve in the amount of USD 241 million net of tax (including USD 244 million attributable to shareholders of the Parent Company). During 2018, as a result of changes in effective interest in subsidiaries (note 11(f)), the revaluation reserve attributable to the Parent company increased by USD 3 million, net of tax.

During 2017, as a result of changes in effective interest in Irkutskenergo, the revaluation reserve attributable to the shareholders of the Parent Company increased by USD 15 million, net of tax.

As at 31 December 2018, the revaluation reserve amounted to USD 2,781 million, including USD 2,718 million attributable to shareholders of the Parent company (31 December 2017: USD 2,540 million and USD 2,471 million, respectively).

(g) Non-controlling interests

The following table summarises the information relating to each of the Group`s subsidiaries that has material non-controlling interest:

	31 December 2018			
	UC RUSAL	Irkutskenergo Group[1]	OJSC Irkutsk Electric Grid Company	Total
NCI percentage	**51.9%**	**7.2%**	**47.7%**	
Assets	15,293	3,640	502	
Liabilities	(10,568)	(1,872)	(149)	
Net assets	**4,725**	**1,768**	**353**	
Carrying amount of NCI	2,451	128	168	**2,747**
Revenue	10,280	1,996	341	
Profit	1,698	102	14	
Other comprehensive income	(933)	(43)	–	
Total comprehensive income	**765**	**59**	**14**	
Profit attributable to NCI	881	9	5	**895**
Other comprehensive income attributable to NCI	(484)	(30)	(34)	**(548)**
Cash flows generated from/(used in) operating activities	680	182	70	
Cash flows used in investing activities	(106)	(81)	(71)	
Cash flows (used in)/generated from financing activities	(517)	(76)	11	
Net increase/(decrease) in cash and cash equivalents	**57**	**25**	**10**	

	31 December 2017			
	UC RUSAL	Irkutskenergo Group[2]	OJSC Irkutsk Electric Grid Company	Total
NCI percentage	**51.9%**	**7.5%**	**47.7%**	
Assets	15,290	4,264	558	
Liabilities	(11,330)	(2,227)	(143)	
Net assets	**3,960**	**2,037**	**415**	
Carrying amount of NCI	2,054	142	198	**2,394**
Revenue	9,969	2,345	362	
Profit/(loss)	1,222	360	23	
Other comprehensive income	222	1	–	
Total comprehensive income	**1,444**	**361**	**23**	
Profit/(loss) attributable to NCI	634	32	10	**676**
Other comprehensive income attributable to NCI	115	6	10	**131**
Cash flows generated from operating activities	1,702	482	93	
Cash flows generated from/(used in) investing activities	2	(402)	(50)	
Cash flows (used in)/generated from financing activities	(1,421)	(98)	(43)	
Net increase/(decrease) in cash and cash equivalents	**283**	**(18)**	**–**	**–**
Dividends paid to NCI	**155**	**–**	**–**	**155**

1. Net assets of Irkutskenergo Group were adjusted for the effect of Irkutskenergo investments in Irkutsk GridCo, Krasnoyarsk HPP and LLC KRAMZ.
2. Net assets of Irkutskenergo Group were adjusted for the effect of Irkutskenergo investments in Irkutsk GridCo, Krasnoyarsk HPP and LLC KRAMZ.

Notes to the Consolidated Financial Statements for 2018 continued

17. Loans and borrowings

This note provides information about the contractual terms of the Group's loans and borrowings. For more information about the Group's exposure to interest rate and foreign currency risk refer to notes 20(c)(ii) and 20(c)(iii), respectively.

	31 December	
	2018	2017
	USD million	USD million
Non-current liabilities		
Secured bank loans	7,951	8,913
Unsecured bank loans	476	650
Bonds	1,580	1,399
	10,007	**10,962**

	31 December	
	2018	2017
	USD million	USD million
Current liabilities		
Current portion of secured bank loans	663	567
Current portion of unsecured bank loans	12	3
	675	**570**
Secured bank loans	252	577
Unsecured bank loans	848	765
Accrued interest	118	133
Bonds	377	22
	1,595	**1,497**
	2,270	**2,067**

(a) Loans and borrowings

	31 December	
	2018	2017
	USD million	USD million
Non-current liabilities		
Secured bank loans		
Variable		
USD – 3M Libor + 2.5%	1,405	1,678
USD – 3M Libor + 3.6% – 3.75%	3,328	4,464
USD – 1M Libor + 5.50%	–	44
EUR – 3M Libor + 3.50% – 4.50%	–	53
EUR – 6M Euribor + 1.75% - 1.95%	3	9
RUB – CBR + 1.50% - 2.00%	1,159	2,089
Fixed		
USD – fixed at 6.00%-9.15%	–	486
RUB - fixed at 8.8% - 9.15%	1,987	–
RUB – fixed at 10.50% – 11.50%	69	86
RUB – fixed at 5.00% – 15.08%		4
	7,951	**8,913**
Unsecured bank loans		
Variable		
RUB – CBR + 2.00%	–	254
USD – 3M Libor + 3.00% – 4.80%	–	100
USD – 1M Libor + 2.4%	200	–
Fixed		
RUB – fixed at 5.00%	4	5
RUB – fixed at 8.19%-9.5%	272	291
	476	**650**
Bonds	1,580	1,399
	10,007	**10,962**
Current liabilities		
Current portion of secured bank loans		
Variable		
USD – 3M Libor + 2.50% – 3.50%	279	82
EUR – 3M Libor + 3.50%	–	13
EUR – 6M Euribor + 1.75%-1.95%	2	2
USD – 1M Libor + 5.50%	–	9
RUB – CBR + 1.5% – 2.00%	111	456
Fixed		
USD – fixed at 5.00%	–	5
RUB – fixed at 8.75%-11.5%	271	

Notes to the Consolidated Financial Statements for 2018 continued

(a) Loans and borrowings continued

	31 December	
	2018	2017
	USD million	USD million
	663	567
Current portion of unsecured bank loans		
Fixed		
RUB – fixed at 5%-8.75%	12	3
	12	3
Secured bank loans		
Variable		
USD – 1M Libor + 2.00% - 4.50%	54	145
USD - 2.15%+ cost of funds	–	100
USD – 3M Libor + 2.50% - 4.80%	–	95
USD - 2.05% - 2.50%+ cost of funds	–	34
EUR - 2.05% - 2.50%+ cost of funds	–	38
Fixed		
USD - fixed at 2.50% - 5.00%	–	31
EUR - fixed at 2.60%	–	120
RUB - fixed at 5.00% - 11.50%	198	14
	252	577
Unsecured bank loans		
Variable		
RUB – CBR + 2.00%	211	–
Fixed		
RUB - fixed at 8.10%-10.50%	637	765
	848	**765**
Accrued interest	118	133
Bonds	377	22
	1,595	**1,497**
	2,270	**2,067**

The secured bank and company loans (including guarantee agreement) are secured by pledges of shares of the following Group companies and associate:

	31 December	
	2018	2017
	% of shares	% of shares
PJSC Norilsk Nickel	25+1 share	25+1 share
Gershvin Investments Corp. Limited	100	100
Aktivium B.V.	100	100
LLC ESE - Hydrogeneration	100	100
JSC Krasnoyarsk Hydro-Power Plant	50.72	50+1 share
OJSC Irkutsk Electric Grid Company	33.27	33.27
PJCS Irkutskenergo	67.69	90.47
JSC RUSAL URAL	–	11
JSC RUSAL Sayanogorsk	–	25+1 share
JSC RUSAL Bratsk	–	25+1 share
JSC RUSAL Taishet	–	50
Skydrop	–	100
Thornstreet	–	100
LLC Sorsk Mining and Metallurgical Complex	–	100
LLC Sorsk Ferromolybdenum Plant	–	100
LLC Zhireken Ferromolybdenum Plant	–	100
OJSC Zhireken Mining and Metallurgical Complex	–	100
Strikeforce Mining and Resources (Geneva)	–	100
Strikeforce Mining and Resources Ltd	–	100

The bank loans are also secured as at 31 December 2018 and 31 December 2017 by the following:

- rights, including all monies and claims, arising out of certain sales contracts between the Group's trading subsidiaries and its ultimate customers, were assigned to secure the syndicated Pre-Export Finance Term Facility Agreement (PXF) dated 24 May 2017;
- properties, plant and equipment – refer to note 11(e);
- inventories – refer to note 14.

As at 31 December 2017 bank loans were also secured by export revenues of ferromolybdenum.

UC RUSAL

In January 2018, UC RUSAL entered into a bilateral facility agreement with Nordea Bank AB with the following key terms: principal amount of USD 200 million, tenor of 3 years, interest rate of 1M Libor + 2.4% per annum with a bullet repayment. The proceeds were applied for partial prepayment of UC RUSAL's existing debt.

On 13 December 2018, UC RUSAL executed amendments to its existing credit facility with Sberbank for conversion of ½ of the principal outstanding amount of the loan into RUB at an interest rate 9.15%. As at the date of these financial statements the amount of USD 2,107 million was converted into RUB.

As at the date of this report, UC RUSAL through its subsidiaries, has an outstanding REPO loan backed by 1,413,379 shares in Norilsk Nickel, an amount equal to USD 194 million and maturing in June 2019.

During 2018, UC RUSAL made a principal repayments of USD 579 million, EUR 55 million (USD 68 million) and RUB 18 million (USD 3 million) under credit facilities with Gazprombank, VTB Capital and Credit Bank of Moscow

On 17 March 2017 UC RUSAL executed amendments to its existing credit facilities with Sberbank. Under USD credit agreements the interest rate decreased from 3M Libor + 5.75% p.a. (incl. 1.05% PIK) to 3M Libor + 4.75% p.a. (subject to min 3M Libor at the level of 1%), effective from 29 December 2016. Under the RUB credit facility, the outstanding exposure was converted into USD (at the Central Bank of Russia rate as of the date of conversion). The interest rate of 3M Libor + 4.75% p.a. (subject to min 3M Libor at the level of 1%), was effective from 18 March 2017. On 31 August 2017, UC RUSAL agreed with Sberbank to extend final maturity under loans secured by Norilsk Nickel shares to 2024, decrease the interest margin from 4.75% to 3.75% and adjust covenants mostly in line with PXF.

Notes to the Consolidated Financial Statements for 2018 continued

On 28 March 2017, UC RUSAL through its subsidiaries entered into a REPO transaction backed by bonds issued by RUSAL Bratsk – in number of 7,527,646 series 08 bonds. As a result of the transactions, UC RUSAL raised funding of EUR 100 million (USD 107 million) with fifteen months maturity at an effective rate of 2.6% p.a.

On 24 May 2017, UC RUSAL entered into a new syndicated Pre-Export Finance Term Facility Agreement (PXF) of USD 1.7 billion, interest rate 3M LIBOR+3% per annum, maturity 5 years (repayment starting in 2 years). The proceeds of the facility were used for the purpose of refinancing the Group's current debt. In December 2017, the margin was reduced to 2.5 per cent per annum.

On 22 August 2017, UC RUSAL executed amendments to Gazprombank facilities, reducing the interest margin from 4.5% to 3.5%, extending final maturity and adjusting covenants in line with PXF. As at the date of these financial statements Gazprombank facilities were repaid in full out of proceeds of the third Eurobond placement in February 2018.

During 2017, UC RUSAL made principal repayments of USD 3,211 million and EUR 79 million (USD 104 million) under the Combined PXF Facility, credit facilities with Sberbank, Gazprombank, VTB Capital, Sovcombank and Credit Bank of Moscow.

The
nominal value of the UC RUSAL's loans and borrowings was USD 6,332 million at 31 December 2018 (31 December 2017: USD 7,072 million).

ENERGY

(i) Credit facilities of Eurosibenergo

As at 31 December 2017 Eurosibenergo had a RUB-denominated loan of USD 1,126 million (RUB 64,878 million) bearing interest at 10.5% and a USD-denominated loan of USD 486 million bearing 7.4% effective interest, respectively.

In June 2018, Eurosibenergo amended the RUB-denominated loan - maturity date was extended to June 2024, the first principal repayment was scheduled for March 2020 and the nominal interest rate was fixed at 8.8%.

In November 2018, Eurosibenergo converted (via series of transactions) its USD-denominated loan to RUB 33,179 million at the average exchange rate of 66.45 RUB/USD and with the interest rate of 9.0% p.a. while tenor and security remain unchanged.

As at 31 December 2018, Eurosibenergo had two RUB-denominated loans in the amount of USD 941 million (RUB 65,366 million) and USD 473 million (RUB 32,845 million) bearing 8.8% and 9.0% effective interest, respectively.

The terms of the above loans require Eurosibenergo to maintain a certain Net Debt/EBITDA ratio, calculated quarterly based on the Russian statutory accounting records of the certain Group's subsidiaries.

(ii) Syndicate facilities

In June 2016 LLC Eurosibenergo-Hydrogeneration entered into the syndicate loan agreement to finance the acquisition of a non-controlling interest in Irkutskenergo with a total credit line of USD 1,253 million (RUB 84,000 million). The loan is payable until June 2023 and bears CBR+2%.

In November 2016 this credit line was extended by USD 163 million (RUB 10,950 million) to finance an acquisition of dams from a third party. The extended credit line is payable by two tranches until November 2021, bearing CBR+2% and 10.5%, respectively.

In 2017 and 2018 four tranches of USD 54 million (RUB 3,125 million) each and two tranches of USD 50 million (RUB 3,125 million) each, respectively, were received according to the payment schedule for acquisition of non-controlling interest in Irkutskenergo.

As at 31 December 2018 and 31 December 2017 the outstanding amount of this loan was USD 1,337 million (RUB 92,858 million) and USD 1,500 million (RUB 86,395 million) bearing 10.3% effective interest.

The nominal value of ENERGY loans and borrowings was USD 3,932 million at 31 December 2018 (31 December 2017: USD 4,500 million).

Fair value of the Group's liabilities measured at amortised cost approximate their fair values as at 31 December 2018 and 31 December 2017.

(b) Bonds

As at 31 December 2018, 6,877,652 series 08 bonds and 4,221,951 series BO-01 bonds were outstanding (traded in the market).

The closing market price at 31 December 2018 for series 08 bonds was RUB 1,008 per bond and RUB1,013 per bond for series BO-01 bonds.

As at 31 December 2018, three tranches of Eurobonds and the first and the second tranches of Panda Bonds were outstanding.

In February 2018, UC RUSAL completed its third offering of Eurobonds with the following key terms: principal amount of USD 500 million, tenor of 5 years, coupon rate of 4.85% per annum. The bonds proceeds were applied for partial prepayment of Group's existing debt.

In February 2018, UC RUSAL has fully redeemed 1,289,314 series 07 bonds for USD 23 million.

18. Provisions

(a) Accounting policy

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as finance costs.

(i) Site restoration

The mining, refining and smelting activities of the Group can give rise to obligations for site restoration and rehabilitation. Restoration and rehabilitation works can include facility decommissioning and dismantling, removal or treatment of waste materials, land rehabilitation, and site restoration. The extent of work required and the associated costs are dependent on the requirements of law and the interpretations of the relevant authorities.

Provisions for the cost of each restoration and rehabilitation program are recognised at the time that environmental disturbance occurs. When the extent of disturbance increases over the life of an operation, the provision is increased accordingly. Costs included in the provision encompass obligated and reasonably estimable restoration and rehabilitation activities expected to occur progressively over the life of the operation and at the time of closure in connection with disturbances at the reporting date.

Routine operating costs that may impact the ultimate restoration and rehabilitation activities, such as waste material handling conducted as an integral part of a mining or production process, are not included in the provision. Costs arising from unforeseen circumstances, such as the contamination caused by unplanned discharges, are recognised as an expense and liability when the event gives rise to an obligation which is probable and capable of reliable estimation.

Restoration and rehabilitation provisions are measured at the expected value of future cash flows, discounted to their present value and determined according to the probability of alternative estimates of cash flows occurring for each operation. Discount rates used are specific to the country in which the operation is located. Significant judgements and estimates are involved in forming expectations of future activities and the amount and timing of the associated cash flows. Those expectations are formed based on existing environmental and regulatory requirements.

When provisions for restoration and rehabilitation are initially recognised, the corresponding cost is capitalised as an asset, representing part of the cost of acquiring the future economic benefits of the operation. The capitalised cost of restoration and rehabilitation activities is amortised over the estimated economic life of the operation on a units of production or straight-line basis. The value of the provision is progressively increased over time as the effect of discounting unwinds, creating an expense recognised as part of finance expenses.

Restoration and rehabilitation provisions are also adjusted for changes in estimates. Those adjustments are accounted for as a change in the corresponding capitalised cost, except where a reduction in the provision is greater than the unamortised capitalised cost, in which case the capitalised cost is reduced to nil and the remaining adjustment is recognised in profit or loss. Changes to the capitalised cost result in an adjustment to future amortisation charges. Adjustments to the estimated amount and timing of future restoration and rehabilitation cash flows are a normal occurrence in light of the significant judgements and estimates involved. Factors influencing those changes include revisions to estimated reserves, resources and lives of operations; developments in technology; regulatory requirements and environmental management strategies; changes in the estimated costs of anticipated activities, including the effects of inflation and movements in foreign exchange rates; and movements in general interest rates affecting the discount rate applied.

(ii) Restructuring

A provision for restructuring is recognised when the Group has approved a detailed and formal restructuring plan, and the restructuring either has commenced or has been announced publicly. Future operating costs are not provided for.

(iii) Legal claim

In the normal course of business the Group may be involved in legal proceedings. Where management considers that it is more likely than not that proceedings will result in the Group compensating third parties a provision is recognised for the best estimate of the amount expected to be paid. Where management considers that it is more likely than not that proceedings will not result in the Group compensating third parties or where, in rare circumstances, it is not considered possible to provide a sufficiently reliable estimate of the amount expected to be paid, no provision is made for any potential liability under the litigation but the circumstances and uncertainties involved are disclosed as contingent liabilities. The assessment of the likely outcome of legal proceedings and the amount of any potential liability involves significant judgement. As law and regulations in many of the countries in which the Group operates are continuing to evolve, particularly in the areas of taxation, sub-soil rights and protection of the environment, uncertainties regarding litigation and regulation are greater than those typically found in countries with more developed legal and regulatory frameworks.

Notes to the Consolidated Financial Statements for 2018 continued

(iv) Guarantee

Where the Group enters into financial guarantee contracts to guarantee the indebtedness of other companies, controlled by the beneficial shareholder of the Group, the Group considers these to be insurance arrangements and accounts for them as such. In this respect, the Group treats the guarantee contract as a contingent liability until such time as it becomes probable that the Group will be required to make a payment under the guarantee.

(b) Disclosure

USD million	Pension liabilities	Site restoration	Provisions for legal claims	Tax provisions	Provision for guarantee	Total
Balance at 1 January 2017	**100**	**443**	**6**	**25**	**108**	**682**
Non-current	92	422	–	6	98	618
Current	8	21	6	19	10	64
Provisions made during the year	12	10	5	–	–	27
Provisions reversed during the year	–	(42)	(1)	(10)	(114)	(167)
Actuarial gains and losses	8	–	–	–	–	8
Provisions used during the year	(8)	–	(3)	(13)	–	(24)
Change in estimates	–	7	–	–	–	7
Translation difference	4	41	–	(2)	6	49
Balance at 31 December 2017	**116**	**459**	**7**	**–**	**–**	**582**
Non-current	107	435	–	–	–	542
Current	9	24	7	–	–	40
Provisions made during the year	7	21	9	20	–	57
Provisions reversed during the year	–	(16)	–	–	–	(16)
Actuarial gains and losses	(10)	–	–	–	–	(10)
Provisions used during the year	(8)	(7)	(5)	–	–	(20)
Change in estimates	–	(4)	–	–	–	(4)
Translation difference	(16)	(42)	(1)	–	–	(59)
Balance at 31 December 2018	**89**	**411**	**10**	**20**	**–**	**530**
Non-current	82	377	–	–	–	459
Current	7	34	10	20	–	71
	89	**411**	**10**	**20**	**–**	**530**

(c) Pension liabilities

As at 31 December 2018 the pension liability is represented by UC RUSAL USD 54 million (31 December 2017: USD 69 million) and ENERGY USD 35 million (31 December 2017: USD 47 million).

The provision for pensions mainly comprises lump sum payments at retirement by aluminium plants located in Russia and Ukraine, and by electricity generating companies Irkutskenergo and Krasnoyarsk HPP. The Group also provides pension benefits to eligible participants at facilities located outside of the Russian Federation and Ukraine.

UC RUSAL

Group subsidiaries in the Russian Federation

The Group voluntarily provides long-term and post-employment benefits to its former and existing employees including death-in-service, jubilee, lump sum upon retirement, material support for pensioners and death-in-pension benefits. Furthermore, the Group provides regular social support payments to some of its veterans of World War II.

The above employee benefit programs are of a defined benefit nature. The Group finances these programs on a pay-as-you-go basis, so plan assets are equal to zero.

Group subsidiaries in Ukraine

Due to legal requirements, the Ukrainian subsidiaries are responsible for partial financing of the state hardship pensions for those of its employees who worked, or still work, under severe and hazardous labour conditions (hardship early retirement pensions). These pensions are paid until the recipient reaches the age of entitlement to the State old age pension (55-60 years for female (dependent on year of birth) and 60 years for male employees). In Ukraine, the Group also voluntarily provides long-term and post-employment benefits to its employees including death-in-service, lump sum benefits upon retirement and death-in-pension benefits.

The above employee benefit programs are of a defined benefit nature. The Group finances these programs on a pay-as-you-go basis, so plan assets are equal to zero.

Group subsidiaries outside the Russian Federation and Ukraine

At its Guinean and Nigerian entities the Group provides a death-in-service benefit and lump-sum benefits upon disability and old-age retirement.

At its Guyana subsidiary, the Group provides a death-in-service benefit.

At its Italian subsidiary (Eurallumina) the Group only provides lump sum benefits upon retirement, which relate to service up to 1 January 2007.

In Sweden (Kubikenborg Aluminium AB), the Group provides defined benefit lifelong and temporary pension benefits. The lifelong benefits are dependent on the past service and average salary level of the employee, with an accrual rate that depends on the salary bracket the employee is in. The liability relates only to benefits accrued before 1 January 2004.

The number of employees in all jurisdictions eligible for the plans as at 31 December 2018 and 2017 was 58,089 and 57,423, respectively. The number of pensioners in all jurisdictions as at 31 December 2018 and 2017 was 44,966 and 45,044, respectively.

The Group expects to pay under the defined benefit retirement plans an amount of USD 4 million during the 12 month period beginning on 1 January 2019.

Actuarial valuation of pension liabilities

The actuarial valuation of the Group and the portion of the Group funds specifically designated for the Group's employees were completed by a qualified actuary, Robert van Leeuwen AAG, as at 31 December 2018, using the projected unit credit method as stipulated by IAS 19.

The key actuarial assumptions (weighted average, weighted by DBO) are as follows:

	31 December 2018	31 December 2017
	% per annum	% per annum
Discount rate	7.9	7.2
Expected return on plan assets	N/A	N/A
Future salary increases	7.8	8.3
Future pension increases	4.6	4.6
Staff turnover	4.7	4.0
Mortality	USSR population table for 1985, Ukrainian population table for 2000	USSR population table for 1985, Ukrainian population table for 2000
Disability	70% Munich Re for Russia; 40% of death probability for Ukraine	70% Munich Re for Russia; 40% of death probability for Ukraine

As at 31 December 2018 and 31 December 2017 the Group's obligations were fully uncovered as the Group has only wholly unfunded plans.

ENERGY

The principal assumptions used in determining pension obligations for the pension plans are shown below:

	31 December 2018	31 December 2017
Discount rate	8.5%	7.5%
Future salary increase	5.6%	5.5%
Pension and inflation rate increase	4.1%	4.0%

(d) Site restoration and environmental provisions

The Group provides for site restoration obligations when there is a specific legal or constructive obligation for mine reclamation, landfill closure (primarily comprising red mud basin disposal sites) or specific lease restoration requirements. The Group does not record any obligations with respect to decommissioning of its refining or smelting facilities and restoration and rehabilitation of the surrounding areas unless there is a specific plan to discontinue operations at a facility. This is because any significant costs in connection with decommissioning of refining or smelting facilities and restoration and rehabilitation of the surrounding areas would be incurred no earlier than when the facility is closed and the facilities are currently expected to operate over a term in excess of 50-100 years due to the perpetual nature of the refineries and smelters and continuous maintenance and upgrade programs resulting in the fair values of any such liabilities being negligible.

The site restoration provision recorded in these consolidated financial statements relates primarily to mine reclamation and red mud basin disposal sites at alumina refineries and ash dumps removal at coal burning electricity and heat generation stations.

Notes to the Consolidated Financial Statements for 2018 continued

The principal assumptions used in determining site restoration provision are:

	31 December 2018	31 December 2017
	2019: USD 34 million	2018: USD 25 million
	2020-2024: USD 213 million	2019-2023: USD 239 million
	2025-2035: USD 128 million	2024-2034: USD 129 million
Timing of cash outflows	after 2035: USD 180 million	after 2034: USD 262 million
Years required to fill the ash dumps	17.7	17.8
Discount rate for Irkutskenergo	4.6%	3.9%
Discount rate for Coal segment assets	4.6%	3.9%
Risk free discount rate for UC RUSAL after adjusting for inflation	3.10%	2.29%

The risk free rate for the year 2018-2017 represents an effective rate, which comprises rates differentiated by years of obligation settlement and by currencies in which the provisions were calculated.

At each reporting date the Directors have assessed the provisions for site restoration and concluded that the provisions and disclosures are adequate.

(e) Provisions for legal claims

The Group's subsidiaries are subject to a variety of lawsuits and claims in the ordinary course of its business. As at 31 December 2018, there were several claims filed against the Group's subsidiaries contesting breaches of contract terms and non-payment of existing obligations. Management has reviewed the circumstances and estimated that the amount of probable outflow related to these claims should not exceed USD 10 million (31 December 2017: USD 7 million). The amount of claims, where management assesses outflow as possible approximates USD 31 million (31 December 2017: USD 36 million).

At each reporting date the Directors have assessed the provisions for litigation and claims and concluded that the provisions and disclosures are adequate.

(f) Tax provisions

The Group generally provides for current tax based on positions taken (or expected to be taken) in its tax returns. Where it is more likely than not that upon examination by the tax authorities of the positions taken by the Group additional tax will be payable, the Group provides for its best estimate of the amount expected to be paid (including any interest and/or penalties) as part of the tax charge.

At each reporting date the Directors have assessed the provisions for taxation and concluded that the provisions and disclosures are adequate.

(g) Provision for guarantees

In September 2013 the Group entered into an agreement with OJSC RusHydro to provide funds to BoAZ, if the latter is unable to fulfil its obligations under its credit facility with GK Vnesheconombank ("VEB"). This agreement represents a surety for the increased credit limit obtained for the financing of BoAZ. The aggregate exposure under the agreement is limited to RUB 16.8 billion (31 December 2018 and 2017 USD 242 and USD 292 million, respectively) and is split between the Group and OJSC RusHydro in equal proportion.

In 2015 the Group recognised a provision in the amount of RUB 6.5 billion for a guarantee issued in favour of the bank in respect of certain loan obligations of several borrowers directly in equity. In September 2017, the guarantee agreement was terminated, which resulted in the recognition of other contribution of USD 114 million (note 16(e)).

19. Derivative financial assets and liabilities

Accounting policies

The Group enters, from time to time, into various derivative financial instruments to manage its exposure to commodity price risk, foreign currency risk and interest rate risk.

Embedded derivatives are separated from the host contract and accounted for separately if the economic characteristics and risks of the host contract and the embedded derivative are not closely related, a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative and the combined instrument is not measured at fair value through profit or loss.

On initial designation of the derivative as a hedging instrument, the Group formally documents the relationship between the hedging instrument and hedged item, including the risk management objectives and strategy in undertaking the hedge transaction and the hedged risk, together with the methods that will be used to assess the effectiveness of the hedging relationship. The Group makes an assessment, both at the inception of the hedge relationship as well as on an ongoing basis, of whether the hedging instruments are expected to be highly effective in offsetting the changes in the fair value or cash flows of the respective hedged items attributable to the hedged risk, and whether the actual results of each hedge are within a range of 80% - 125%. For a cash flow hedge of a forecast transaction, the transaction should be highly probable to occur and should present an exposure to variation in cash flows that ultimately could affect reported profit or loss.

Derivatives are recognised initially at fair value; attributable transaction costs are recognised in profit or loss when incurred. Subsequent to initial recognition, derivatives are measured at fair value.

The measurement of fair value of derivative financial instruments, including embedded derivatives, is based on quoted market prices. Where no price information is available from a quoted market source, alternative market mechanisms or recent comparable transactions, fair value is estimated based on the Group's views on relevant future prices, net of valuation allowances to accommodate liquidity, modelling and other risks implicit in such estimates. Changes in the fair value therein are accounted for as described below.

When a derivative is designated as the hedging instrument in a hedge of the variability in cash flows attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognised in other comprehensive income and presented in the hedging reserve in equity. Any ineffective portion of changes in the fair value of a derivative is recognised in profit or loss.

When the hedged item is a non-financial asset, the amount accumulated in equity is included in the carrying amount of the asset when the asset is recognised. In other cases, the amount accumulated in equity is reclassified to profit or loss in the same period that the hedged item affects profit or loss. If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. If the forecast transaction is no longer expected to occur, then the balance in equity is reclassified to profit or loss.

Changes in the fair value of separated embedded derivatives and derivative financial instruments not designated for hedge accounting are recognised immediately in profit or loss.

Disclosures

	31 December 2018		31 December 2017	
		USD million		USD million
	Derivative assets	Derivative liabilities	Derivative assets	Derivative liabilities
Petroleum coke supply contracts and other raw materials	42	31	36	82
Forward contracts for aluminium and other instruments	–	–	27	31
Total	**42**	**31**	**63**	**113**

Derivative financial instruments are recorded at their fair value at each reporting date. Fair value is estimated in accordance with Level 3 of the fair value hierarchy based on management estimates and consensus economic forecasts of relevant future prices, net of valuation allowances to accommodate liquidity, modelling and other risks implicit in such estimates. The Group's policy is to recognise transfers between levels of fair value hierarchy as at the date of the event or change in circumstances that caused the transfer. The following significant assumptions were used in estimating derivative instruments:

	2019	2020	2021	2022	2023	2024	2025
LME Al Cash, USD per tonne	1,871	1,954	2,024	2,093	2,149	2,196	2,244
Platt's FOB Brent, USD per barrel	54	56	57	58	–	–	–

The movement in the balance of Level 3 fair value measurements of derivatives is as follows:

	31 December	
	2018	2017
	USD million	USD million
Balance at the beginning of the year	(50)	32
Unrealised changes in fair value recognised in profit or loss and other comprehensive income during the period (note 8)	171	(287)
Realised portion during the year	(110)	205
Balance at the end of the year	**11**	**(50)**

During the year 2018 there have been no changes in valuation techniques used to calculate the derivative financial instruments compared to prior year.

Notes to the Consolidated Financial Statements for 2018 continued

Management believes that the values assigned to the key assumptions and estimates represented the most realistic assessment of future trends. The results for the derivative instruments are not particularly sensitive to any factors other than the assumptions disclosed above.

Petroleum coke supply contracts and other raw materials

In May and September 2011, the UC RUSAL entered into long-term petroleum coke supply contracts where the price of coke is determined with reference to the LME aluminium price and the Brent oil price. The strike price for aluminium is set at USD 2,403.45 per tonne and USD 1,735.03 per tonne, respectively, while the strike price for oil is set at USD 61.10 per barrel and USD 47.7 per barrel, respectively.

In May 2014, the UC RUSAL entered into long-term petroleum coke supply contract where the price of coke is determined with reference to the LME aluminium price and average monthly aluminium quotations, namely of Aluminum MW US Transaction premium, MB Aluminium Premium Rotterdam Low - High» and Aluminum CIF Japan premium. The strike price for aluminium is set at USD 1,809.65 per tonne while the strike aluminium premium quotations for US, Europe and Japan are set at USD 403.96 per tonne, USD 313.30 per tonne and USD 366.00 per tonne, respectively.

In November 2015, the UC RUSAL entered into long-term pitch supply contract where the price of pitch is determined with reference to the LME aluminium price. The strike price for aluminium is set at USD 1,508 per tonne.

20. Financial risk management and fair values

(a) Fair values

Management believes that the fair values of financial assets and liabilities approximate their carrying amounts.

The methods used to estimate the fair values of the financial instruments are as follows:

Trade and other receivables, short-term investments, cash and cash equivalents, current loans and borrowings and trade and other payables: the carrying amounts approximate fair value because of the short maturity period of the instruments.

Long-term loans and borrowings, other non-current liabilities: the fair values of other non-current liabilities are based on the present value of the anticipated cash flows and approximate carrying value, other than Eurobonds and RUSAL Bratsk bonds issued.

Derivatives: the fair value of derivative financial instruments, including embedded derivatives, is based on quoted market prices. Where no price information is available from a quoted market source, alternative market mechanisms or recent comparable transactions, fair value is estimated based on the Group's views on relevant future prices, net of valuation allowances to accommodate liquidity, modelling and other risks implicit in such estimates. Option-based derivatives are valued using Black-Scholes models and Monte-Carlo simulations. The derivative financial instruments are recorded at their fair value at each reporting date.

The following table presents the fair value of 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 by 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.

		As at 31 December 2018								
		Carrying amount					Fair value			
	Note	Designated at fair value	Fair value - hedging instrument	Financial assets at amortised cost	Other financial liabilities	Total	Level 1	Level 2	Level 3	Total
		USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million
Financial assets measured at fair value										
Petroleum coke supply contracts and other raw materials	19	42	–	–	–	42	–	–	42	42
		42	**–**	**–**	**–**	**42**	**–**	**–**	**42**	**42**
Financial assets not measured at fair value[1]										
Trade and other receivables	15(a)	–	–	1,143	–	1,143	–	1,143	–	1,143
Short-term investments		–	–	211	–	211	–	211	–	211
Cash and cash equivalents	15(c)	–	–	1,183	–	1,183	–	1,183	–	1,183
		–	**–**	**2,537**	**–**	**2,537**	**–**	**2,537**	**–**	**2,537**
Financial liabilities measured at fair value										
Petroleum coke supply contracts and other raw materials	19	(31)	–	–	–	(31)	–	–	(31)	(31)
		(31)	**–**	**–**	**–**	**(31)**	**–**	**–**	**(31)**	**(31)**
Financial liabilities not measured at fair value[1]										
Loans and borrowings	17(a)	–	–	–	(10,320)	(10,320)	–	(10,391)	–	(10,391)
Unsecured bond issue	17(b)	–	–	–	(1,957)	(1,957)	(161)	(1,813)	–	(1,974)
Trade and other payables	15(b)	–	–	–	(1,283)	(1,283)	–	(1,283)	–	(1,283)
		–	**–**	**–**	**(13,560)**	**(13,560)**	**(161)**	**(13,487)**	**–**	**(13,648)**

1. The Group considers that the carrying amounts of short-term trade receivables and payables are a reasonable approximation of fair values.

Notes to the Consolidated Financial Statements for 2018 continued

		As at 31 December 2017								
		Carrying amount					Fair value			
	Note	Designated at fair value	Fair value - hedging instrument	Loans and receivables	Other financial liabilities	Total	Level 1	Level 2	Level 3	Total
		USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million	USD million
Financial assets measured at fair value										
Petroleum coke supply contracts and other raw materials	19	36	–	–	–	36	–	–	36	36
Forward contracts for aluminium and other instruments	19	27	–	–	–	27	–	–	27	27
		63	**–**	**–**	**–**	**63**	**–**	**–**	**63**	**63**
Financial assets not measured at fair value[1]										
Trade and other receivables	15(a)	–	–	1,134	–	1,134	–	1,134	–	1,134
Short-term investments		–	–	26	–	26	–	26		26
Cash and cash equivalents	15(c)	–	–	974	–	974	–	974	–	974
		–	**–**	**2,134**	**–**	**2,134**	**–**	**2,134**	**–**	**2,134**
Financial liabilities measured at fair value										
Petroleum coke supply contracts and other raw materials	19	(82)	–	–	–	(82)	–	–	(82)	(82)
Forward contracts for aluminium and other instruments	19	(31)	–	–	–	(31)	–	–	(31)	(31)
		(113)	**–**	**–**	**–**	**(113)**	**–**	**–**	**(113)**	**(113)**
Financial liabilities not measured at fair value[1]										
Loans and borrowings	17(a)	–	–	–	(11,608)	(11,608)	–	(11,736)	–	(11,736)
Unsecured bond issue	17(b)	–	–	–	(1,421)	(1,421)	(1,231)	(233)	–	(1,464)
Trade and other payables	15(b)	–	–	–	(1,395)	(1,395)	–	(1,395)	–	(1,395)
		–	**–**	**–**	**(14,424)**	**(14,424)**	**(1,231)**	**(13,364)**	**–**	**(14,595)**

1. The Group considers that the carrying amounts of short-term trade receivables and payables are a reasonable approximation of fair values.

(b) Financial risk management objectives and policies

The Group's principal financial instruments comprise bank loans and trade payables. The main purpose of these financial instruments is to raise finance for the Group's operations. The Group has various financial assets such as trade receivables and cash and short-term deposits, which arise directly from its operations.

The main risks arising from the Group's financial instruments are cash flow interest rate risk, liquidity risk, foreign currency risk and credit risk. Management reviews and agrees policies for managing each of these risks which are summarised below.

The Board of Directors has overall responsibility for the establishment and oversight of the Group's risk management framework.

The Group's risk management policies are established to identify and analyse the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group, through its training and management standards and procedures, aims to develop a disciplined and constructive control environment in which all employees understand their roles and obligations.

(c) Market risk

Market risk is the risk that changes in market prices, such as foreign exchange rates, interest rates and equity prices will affect the Group's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while optimising returns.

(i) Tariffs and commodity price risk

During the years ended 31 December 2018 and 31 December 2017, the Group has entered into certain commodity derivatives contracts in order to manage its exposure of commodity price risks.

The tariffs for electricity, heat and transmission services applied by the Group's significant subsidiaries are currently partially restraint by the government bodies. The Group cannot directly influence or mitigate the risks in relation to the change in tariffs.

A significant portion of the Group's generation activities is based on coal burning stations. A change in coal prices may have a significant impact on the Group's operations. To mitigate the risk of fluctuations in coal prices, the Group has increased its internal coal production through acquisition of coal mines and licences in the Eastern Siberia region. The Group aims at self-sufficiency in coal in the next several years.

(ii) Interest rate risk

The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's long-term debt obligations with floating interest rates (note 17). The Group's policy is to manage its interest costs by monitoring changes in interest rates with respect to its borrowings.

The following table details the interest rate profile of the Group's and the Company's borrowings at the reporting date.

	31 December 2018		31 December 2017	
	Effective interest rate %	USD million	Effective interest rate %	USD million
Fixed rate loans and borrowings				
Loans and borrowings (note 17(a))	4.85%-12.85%	5,407	2.60%-12.85%	3,231
		5,407		**3,231**
Variable rate loans and borrowings				
Loans and borrowings (note 17(a))	1.51%-9.75%	6,752	1.55%-9.75%	9,665
		6,752		**9,665**
		12,159		**12,896**

The following table demonstrates the sensitivity to cash flows from interest rate risk arising from floating rate non-derivative instruments held by the Group at the reporting date in respect of a reasonably possible change in interest rates, with all other variables held constant. The impact on the Group's profit before taxation and equity and retained profits/accumulated losses is estimated as an annualised input on interest expense or income of such a change in interest rates. The analysis has been performed on the same basis for all years presented.

Notes to the Consolidated Financial Statements for 2018 continued

	Increase/ decrease in basis points	Effect on profit before taxation for the year	Effect on equity for the year
		USD million	USD million
As at 31 December 2018			
Basis percentage points	+100	(68)	(54)
Basis percentage points	-100	68	54
As at 31 December 2017			
Basis percentage points	+100	(97)	(77)
Basis percentage points	–100	97	77

(iii) Foreign currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the respective functional currencies of group entities, primarily USD but also the Russian Rouble, Ukrainian Hryvna and Euros. The currencies in which these transactions primarily are denominated are RUB, USD and EUR.

Borrowings are primarily denominated in currencies that match the cash flows generated by the underlying operations of the Group, primarily USD but also RUB and EUR. This provides an economic hedge.

In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates when necessary to address short-term imbalances or entering into currency swap arrangements.

The Group's exposure at the reporting date to foreign currency risk arising from recognised assets and liabilities denominated in a currency other than the functional currency of the entity to which they relate is set out in the table below. Differences resulting from the translation of the financial statements of foreign operations into the Group's presentation currency are ignored.

USD million	USD-denominated vs. RUB functional currency		RUB-denominated vs. USD functional currency		EUR-denominated vs. USD functional currency		Denominated in other currencies vs. USD functional currency	
	31 December		31 December		31 December		31 December	
	2018	2017	2018	2017	2018	2017	2018	2017
Non-current assets	–	–	3	3	1	1	–	–
Derivative financial assets	–	–	42	36	–	–	–	–
Trade and other receivables	1	1	640	429	91	91	28	26
Cash and cash equivalents	–	1	417	68	312	106	42	19
Loans and borrowings	(54)	(539)	(1,030)	(57)	–	(251)	–	–
Provisions	–	–	(102)	(100)	(26)	(41)	(10)	(11)
Derivative financial liabilities	–	–	(11)	(33)	–	–	–	–
Income taxation	–	–	(15)	(2)	–	–	(11)	(7)
Non-current liabilities	–	–	–	(9)	(6)	(8)	–	–
Short-term bonds	–	–	(161)	(22)		–	(216)	–
Trade and other payables	–	(3)	(393)	(381)	(61)	(63)	(54)	(50)
Net exposure arising from recognised assets and liabilities	**(53)**	**(540)**	**(610)**	**(68)**	**311**	**(165)**	**(221)**	**(23)**

Foreign currency sensitivity analysis

The following tables indicate the instantaneous change in the Group's profit before taxation (and accumulated losses) and other comprehensive income that could arise if foreign exchange rates to which the Group has significant exposure at the reporting date had changed at that date, assuming all other risk variables remained constant.

	Year ended 31 December 2018		
		USD million	USD million
	Change in exchange rates	Effect on profit before taxation for the year	Effect on equity for the year
Depreciation of USD vs. RUB	5%	(28)	(28)
Depreciation of USD vs. EUR	5%	16	16
Depreciation of USD vs. other currencies	5%	(11)	(11)

	Year ended 31 December 2017		
		USD million	USD million
	Change in exchange rates	Effect on profit before taxation for the year	Effect on equity for the year
Depreciation of USD vs. RUB	5%	24	19
Depreciation of USD vs. EUR	5%	(8)	(8)
Depreciation of USD vs. other currencies	5%	(1)	(1)

Results of the analysis as presented in the above tables represent an aggregation of the instantaneous effects on the Group entities' profit before taxation and other comprehensive income measured in the respective functional currencies, translated into USD at the exchange rates ruling at the reporting date for presentation purposes.

The sensitivity analysis assumes that the change in foreign exchange rates had been applied to re-measure those financial instruments held by the Group which expose the Group to foreign currency risk at the reporting date. The analysis excludes differences that would result from the translation of other financial statements of foreign operations into the Group's presentation currency. The analysis has been performed on the same basis for all years presented.

(d) Liquidity risk

Liquidity risk is the risk that the Group will not be able to meet its financial obligations as they fall due. The Group policy is to maintain sufficient cash and cash equivalents or have available funding through an adequate amount of committed credit facilities to meet its operating and financial commitments.

The following tables show the remaining contractual maturities at the reporting date of the Group's non-derivative financial liabilities, which are based on contractual undiscounted cash flows (including interest payment computed using contractual rates, or if floating, based on rates current at the reporting date) and the earliest the Group can be required to pay, except loans presented as payable on demand due to breach of covenant:

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	31 December 2018 Contractual undiscounted cash outflow					
	Within 1 year or on demand	More than 1 year but less than 2 years	More than 2 years but less than 5 years	More than 5 years	TOTAL	Carrying amount
	USD million	USD million	USD million	USD million	USD million	USD million
Trade and other payables to third parties	1,252	–	–	–	1,252	1,252
Trade and other payables to related parties	31	–	–	–	31	31
Bonds, including interest payable	480	82	1,773	–	2,335	1,957
Loans and borrowings, including interest payable	2,507	2,052	5,844	2,428	12,831	10,320
	4,270	**2,134**	**7,617**	**2,428**	**16,449**	**13,560**
Financial guarantees issued: Maximum amount guaranteed	63	59	–	–	122	–

	31 December 2017 Contractual undiscounted cash outflow					
	Within 1 year or on demand	More than 1 year but less than 2 years	More than 2 years but less than 5 years	More than 5 years	TOTAL	Carrying amount
	USD million	USD million	USD million	USD million	USD million	USD million
Trade and other payables to third parties	1,343	–	–	–	1,343	1,343
Trade and other payables to related parties	52	–	–	–	52	52
Bonds, including interest payable	101	379	757	513	1,750	1,421
Loans and borrowings, including interest payable	2,679	2,361	5,833	3,442	14,315	11,608
	4,175	**2,740**	**6,590**	**3,955**	**17,460**	**14,424**
Financial guarantees issued: Maximum amount guaranteed	75	71	–	–	146	–

At 31 December 2018 and 31 December 2017 the UC RUSAL's guarantee in respect of credit arrangement between BoAZ and VEB (note 18(g)) is presented as contingent liability and included at maximum exposure for the Group in the liquidity risk disclosure above.

(e) Credit risk

The Group trades only with recognised, creditworthy third parties. It is the Group's policy that all customers who wish to trade on credit terms are subject to credit verification procedures. The majority of the Group's third party trade receivables represent balances with the world's leading international corporations operating in the metals industry. In addition, receivable balances are monitored on an ongoing basis with the result that the Group's exposure to bad debts is not significant. Goods are normally sold subject to retention of title clauses, so that in the event of non-payment the Group may have a secured claim. The Group does not require collateral in respect of trade and other receivables. The details of impairment of trade and other receivables are disclosed in note 15. Cash balances are held with high credit quality financial institutions. The extent of the Group's credit exposure is represented by the aggregate balance of financial assets and financial guarantees given.

At 31 December 2018 and 31 December 2017, the Group has certain concentrations of credit risk as 0.0% and 1.1 % of the total trade receivables were due from the Group's largest customer and 4.8% and 5.6% of the total trade receivables were due from the Group's five largest customers.

(f) Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

The Group manages its capital structure and makes adjustments to it, in light of changes in economic conditions. To maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt.

The Board's policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Board of Directors monitors the return on capital, which the Group defines as net operating income divided by total shareholders' equity, excluding non-controlling interests. The Board of Directors also monitors the level of dividends to ordinary shareholders.

The Board seeks to maintain a balance between higher returns that might be possible with higher levels of borrowings and the advantages and security afforded by a sound capital position.

There were no changes in the Group's approach to capital management during the year.

The Company and its subsidiaries were subject to externally imposed capital requirements in the both years presented in these consolidated financial statements.

(g) Master netting or similar agreements

The Group may enter into sales and purchase agreements with the same counterparty in the normal course of business. The related amount receivable and payable do not always meet the criteria for offsetting in the statement of financial position.

The following table sets out the carrying amounts of recognised financial instruments that are subject to the above agreements.

	Year ended 31 December 2018	
	USD million	USD million
	Trade receivables	Trade payables
Gross amounts	78	(51)
Net amounts presented in the statement of financial position	**78**	**(51)**
Amounts related to recognised financial instruments that do not meet some or all of the offsetting criteria	(28)	28
Net amount	**50**	**(23)**

	Year ended 31 December 2017	
	USD million	USD million
	Trade receivables	Trade payables
Gross amounts	45	(34)
Net amounts presented in the statement of financial position	**45**	**(34)**
Amounts related to recognised financial instruments that do not meet some or all of the offsetting criteria	(22)	22
Net amount	**23**	**(12)**

21. Commitments

(a) Capital commitments

UC RUSAL

UC RUSAL has entered into contracts that result in contractual obligations primarily relating to various construction and capital repair works. The commitments at 31 December 2018 and 31 December 2017 approximated USD 200 million and USD 213 million, respectively. These commitments are due over a number of years.

ENERGY

The ENERGY segment had outstanding capital commitments which had been contracted for at 31 December 2018 and 31 December 2017 in the amount of USD 78 million and USD 24 million, respectively. These commitments are due over a number of years.

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(b) Purchase commitments

Commitments with third parties for purchases of alumina, bauxite, other raw materials and other purchases in 2019-2034 under supply agreements are estimated from USD 2,932 million to USD 3,527 million at 31 December 2018 (31 December 2017: USD 3,593 million to USD 4,381 million) depending on the actual purchase volumes and applicable prices.

Commitments with a related party - joint venture for purchases of primary aluminium and alloys in 2019-2030 under supply agreements are estimated from USD 6,375 million to USD 10,019 million at 31 December 2018 (31 December 2017: USD 6,837 million to USD 9,351 million) depending on the actual purchase volumes and applicable prices.

(c) Sale commitments

Commitments with third parties for sales of alumina and other raw materials in 2019-2034 are estimated from USD 509 million to USD 2,344 million at 31 December 2018 (31 December 2017: from USD 815 million to USD 1,041 million) and will be settled at market prices at the date of delivery. Commitments with related parties for sales of alumina in 2019-2020 approximated from USD 227 million to USD 363 million at 31 December 2018 (31 December 2017: from USD 414 million to USD 516 million).

Commitments with related parties for sales of primary aluminium and alloys in 2019-2021 are estimated to range from USD 493 million to USD 739 million at 31 December 2018 (31 December 2017: USD 3,634 million to USD 3,928 million). Commitments with third parties for sales of primary aluminium and alloys in 2019-2021 are estimated to range from USD 832 million to USD 1,155 million at 31 December 2018 (31 December 2017: from USD 1,266 million to USD 1,654 million).

(d) Operating lease commitments

Non-cancellable operating lease rentals are payable as follows:

	31 December	
	2018	2017
	USD million	USD million
Less than one year	29	26
Between one and five years	20	85
More than five years	16	34
	65	**145**

(e) Social commitments

The Group contributes to the maintenance and upkeep of the local infrastructure and the welfare of its employees, including contributions toward the development and maintenance of housing, hospitals, transport services, recreation and other social needs of the regions of the Russian Federation where the Group's production entities are located. The funding of such assistance is periodically determined by management and is appropriately capitalised or expensed as incurred.

22. Contingencies

(a) Taxation

Russian tax, currency and customs legislation is subject to varying interpretations, and changes, which can occur frequently. Management's interpretation of such legislation as applied to the transactions and activities of the Group may be challenged by the relevant local, regional and federal authorities. Notably recent developments in the Russian environment suggest that the authorities in this country are becoming more active in seeking to enforce, through the Russian court system, interpretations of the tax legislation, in particular in relation to the use of certain commercial trading structures, which may be selective for particular tax payers and different from the authorities' previous interpretations or practices. Recent events within the Russian Federation suggest that the tax authorities are taking a more assertive and substance-based position in their interpretation and enforcement of tax legislation.

In addition, a number of new laws introducing changes to the Russian tax legislation have been recently adopted. In particular, starting from 1 January 2015 changes aimed at regulating tax consequences of transactions with foreign companies and their activities were introduced, such as concept of beneficial ownership of income, taxation of controlled foreign companies, tax residency rules, etc. These changes may potentially impact the Group's tax position and create additional tax risks going forward. This legislation and practice of its application is still evolving and the impact of legislative changes should be considered based on the actual circumstances. All these circumstances may create tax risks in the Russian Federation that are substantially more significant than in other countries. Management believes that it has provided adequately for tax liabilities based on its interpretations of applicable Russian tax legislation, official pronouncements and court decisions. However, the interpretations of the tax authorities and courts, especially due to reform of the supreme courts that are resolving tax disputes, could differ and the effect on these consolidated financial statements, if the authorities were successful in enforcing their interpretations, could be significant.

In addition to the amounts of income tax the Group has provided, there are certain tax positions taken by the Group where it is reasonably possible (though less than 50% likely) that additional tax may be payable upon examination by the tax authorities or in connection with ongoing disputes with tax authorities. The Group's best estimate of the aggregate maximum of additional amounts that it is reasonably possible may become payable if these tax positions were not sustained at 31 December 2018 is USD 32 million (31 December 2017: USD 37 million).

(b) Environmental contingencies

The Group and its predecessor entities have operated in the Russian Federation, Ukraine, Jamaica, Guyana, the Republic of Guinea and the European Union for many years and certain environmental problems have developed. Governmental authorities are continually considering environmental regulations and their enforcement and the Group periodically evaluates its obligations related thereto. As obligations are determined, they are recognised immediately. The outcome of environmental liabilities under proposed or any future legislation, or as a result of stricter enforcement of existing legislation, cannot reasonably be estimated. Under current levels of enforcement of existing legislation, management believes there are no possible liabilities, which will have a material adverse effect on the financial position or the operating results of the Group. However, the Group anticipates undertaking significant capital projects to improve its future environmental performance.

(c) Legal contingencies

The Group's business activities expose it to a variety of lawsuits and claims which are monitored, assessed and contested on an ongoing basis. Where management believes that a lawsuit or another claim would result in the outflow of the economic benefits for the Group, a best estimate of such outflow is included in provisions in the consolidated financial statements (note 18(e)). As at 31 December 2018 the amount of claims, where management assesses outflow as possible approximates USD 31 million (31 December 2017: USD 36 million).

In January 2013, the Company received a writ of summons and statement of claim filed in the High Court of Justice of the Federal Capital Territory of Nigeria (Abuja) by plaintiff BFIG Group Divino Corporation ("BFIG") against certain subsidiaries of the Company. It is a claim for damages arising out of the defendants' alleged tortious interference in the bid process for the sale of the Nigerian government's majority stake in the Aluminium Smelter Company of Nigeria ("ALSCON") and alleged loss of BFIG's earnings resulting from its failed bid for the said stake in ALSCON. BFIG seeks compensatory damages in the amount of USD 2.8 billion plus interest. In January 2014 the court granted the Company's motion to join the Federal Republic of Nigeria and Attorney General of Nigeria to the case as co-defendants. On the latest hearing held on 8 November 2017 the Court has not upheld the claim and the claim was struck out. In January 2018 one of the Company's subsidiaries, ALSCON and the Bureau of Public Enterprises of Nigeria entered into an addendum to the original sale and purchase contract regarding ALSCON.

23. Related party transactions

(a) Accounting policy

(a) A person, or a close member of that person's family, is related to the Group if that person:

(i) has control or joint control over the Group;

(ii) has significant influence over the Group; or

(iii) is a member of the key management personnel of the Group or the Group's parent.

(b) An entity is related to the Group if any of the following conditions applies:

(i) 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).

(ii) 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).

(iii) Both entities are joint ventures of the same third party.

(iv) One entity is a joint venture of a third entity and the other entity is an associate of the third entity.

(v) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group.

(vi) The entity is controlled or jointly controlled by a person identified in (a).

(vii) A person identified in (a)(i) 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).

(viii) 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.

Notes to the Consolidated Financial Statements for 2018 continued

(b) Transactions with related parties

The Group transacts with related parties, the majority of which are entities under common control with the Group or under the control of minority shareholders of main subsidiaries or entities under its control.

Sales to related parties for the year are disclosed in note 5, trade receivables from related parties are disclosed in note 15(a), accounts payable to related parties are disclosed in note 15(b).

Purchases of raw materials and services from related parties for the period were as follows:

	Year ended 31 December	
	2018	2017
	USD million	USD million
Purchase of raw materials	**(421)**	**(448)**
Related parties – companies capable of exerting significant influence	(78)	(123)
Related parties – companies under common control	(36)	(46)
Related parties – associates and joint ventures	(307)	(279)
Energy costs	**(51)**	**(40)**
Related parties – companies capable of exerting significant influence	(4)	(10)
Related parties – companies under common control	(1)	(1)
Related parties – associates and joint ventures	(46)	(29)
Other services	**(152)**	**(138)**
Related parties – companies under common control	(3)	(2)
Related parties – associates and joint ventures	(149)	(136)
	(624)	**(626)**

(c) Related parties balances

At 31 December 2018, included in non-current assets are balances of related parties –– associates and joint ventures of USD 42 million, net of impairment loss of USD 52 million recognized as a result of adoption of IFRS 9 (31 December 2017: USD 11 million). At 31 December 2018, included in non-current liabilities are balances of related parties – associates and joint ventures of USD 10 million (31 December 2017: USD 9 million).

(d) Remuneration to key management

For the year ended 31 December 2018 remuneration to key management personnel during the year was represented by short-term employee benefits and amounted to USD 16 million (31 December 2017: USD 18 million).

(e) Pricing policies

Prices for transactions with related parties are determined on a case by case basis but are not necessarily at arm's length.

The Group has entered into three categories of related-party transactions: (i) those entered into on an arm's length basis, (ii) those entered into on non-arm's length terms but as part of a wider deal resulting from arms' length negotiations with unrelated third parties, and (iii) transactions unique to the Group and the counterparty.

24. Events subsequent to the reporting date

Removal from OFAC's SDN list

OFAC announced the removal of the Parent Company and its subsidiaries from the SDN List with effect from 27 January 2019 (see Note 1(d)).

Security Exchange Agreement with Glencore Plc

On 26 January 2019, the Parent Company entered into a securities exchange agreement with certain subsidiaries of Glencore Plc to transfer the 8.75% of UC RUSAL's shares held by Glencore to the Parent Company in consideration for the issue of new GDRs to Glencore representing approximately 10.55% of the enlarged share capital (see Note 16(a)(i)).

Due to certain regulatory requirements, under the securities exchange agreement, Glencore has agreed to transfer its stake in UC RUSAL to the Parent Company in two stages. The first stage was settled on 31 January 2019 and 1.97% of RUSAL's shares was transferred to the Parent Company (see Note 2(e)) following the removal of the Parent Company and UC RUSAL from the SDN list (see Note 1(d)), with the remaining 6.78% of UC RUSAL's shares will be transferred not later than February 2020.

25. Accounting estimates and judgements

The Group has identified the following critical accounting policies under which significant judgements, estimates and assumptions are made and where actual results may differ from these estimates under different assumptions and conditions and may materially affect financial results of the financial position reported in future periods.

Property, plant and equipment – recoverable amount

In accordance with the Group's accounting policy, each asset or cash generating unit is evaluated every reporting period to determine whether there are any indications of impairment. If any such indication exists, a formal estimate of recoverable amount is performed and an impairment loss is recognised to the extent that carrying amount exceeds recoverable amount. The recoverable amount of an asset or cash generating group of assets is measured at the higher of fair value less costs to sell and value in use.

Fair value is determined as the amount that would be obtained from the sale of the asset in an arm's length transaction between knowledgeable and willing parties, and is generally determined as the present value of the estimated future cash flows expected to arise from the continued use of the asset, including any expansion prospects, and its eventual disposal.

Value in use is also generally determined as the present value of the estimated future cash flows, but only those expected to arise from the continued use of the asset in its present form and its eventual disposal. Present values are determined using a risk-adjusted pre-tax discount rate appropriate to the risks inherent in the asset. Future cash flow estimates are based on expected production and sales volumes, commodity prices (considering current and historical prices, price trends and related factors), reserves (refer "Reserve estimates" below), operating costs, restoration and rehabilitation costs and future capital expenditure. This policy requires management to make these estimates and assumptions which are subject to risk and uncertainty; hence there is a possibility that changes in circumstances will alter these projections, which may impact the recoverable amount of the assets. In such circumstances, some or all of the carrying value of the assets may be impaired and the impairment would be charged against the profit or loss.

Property, plant and equipment – hydro assets – fair value

In accordance with the Group's accounting policy, hydro assets are carried at a revalued amount, being their fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations are made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

The valuation analysis is primarily based on the cost approach to determine depreciated replacement cost. This method considers the cost to reproduce or replace the property, plant and equipment, adjusted for physical depreciation, functional and economic obsolescence.

This policy requires management to make estimates and assumptions regarding both costs, as there is no active market for used assets of that type, and macroeconomic indicators to assess economical obsolescence which are subject to risk and uncertainty; hence there is a possibility that changes in circumstances will alter these estimates, which may impact the fair value of hydro assets. In such circumstances, the fair value of hydro assets may be lower with any consequential decrease in revaluation reserve recognised through other comprehensive income.

Inventories – net realisable value

The Group recognises write-downs of inventories based on an assessment of the net realisable value of the inventories. A write-down is applied to the inventories where events or changes in circumstances indicate that the net realisable value is less than cost. The determination of net realisable value requires the use of judgement and estimates. Where the expectation is different from the original estimates, such a difference will impact the carrying value of the inventories and the write-down of inventories charged to the profit or loss in the periods in which such estimate has been changed.

Goodwill – recoverable amount

In accordance with the Group's accounting policy, goodwill is allocated to the Group's reportable business segments as they represent the lowest level within the Group at which the goodwill is monitored for internal management purposes and is tested for impairment annually at 31 December by preparing a formal estimate of recoverable amount. Recoverable amount is estimated as the value in use of the business segment.

Similar considerations to those described above in respect of assessing the recoverable amount of property, plant and equipment apply to goodwill.

Investments in associates and joint ventures – recoverable amount

In accordance with the Group's accounting policies, each investment in an associate or joint venture is evaluated every reporting period to determine whether there are any indications of impairment after application of the equity method of accounting. If any such indication exists, a formal estimate of recoverable amount is performed and an impairment loss recognised to the extent that the carrying amount exceeds the recoverable amount. The recoverable amount of an investment in an associate or joint venture is measured at the higher of fair value less costs to sell and value in use.

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Similar considerations to those described above in respect of assessing the recoverable amount of property, plant and equipment apply to investments in associates or joint ventures. In addition to the considerations described above the Group may also assess the estimated future cash flows expected to arise from dividends to be received from the investment, if such information is available and considered reliable.

Legal proceedings

In the normal course of business the Group may be involved in legal proceedings. Where management considers that it more likely than not that proceedings will result in the Group compensating third parties a provision is recognised for the best estimate of the amount expected to be paid. Where management considers that it is more likely than not that proceedings will not result in the Group compensating third parties or where, in rare circumstances, it is not considered possible to provide a sufficiently reliable estimate of the amount expected to be paid, no provision is made for any potential liability under the litigation but the circumstances and uncertainties involved are disclosed as contingent liabilities.

The assessment of the likely outcome of legal proceedings and the amount of any potential liability involves significant judgement. As law and regulations in many of the countries in which the Group operates are continuing to evolve, particularly in the areas of taxation, sub-soil rights and protection of the environment, uncertainties regarding litigation and regulation are greater than those typically found in countries with more developed legal and regulatory frameworks.

Provision for restoration and rehabilitation

The Group's accounting policy requires the recognition of provisions for the restoration and rehabilitation of each site when a legal or constructive obligation exists to dismantle the assets and restore the site. The provision recognised represents management's best estimate of the present value of the future costs required. Significant estimates and assumptions are made in determining the amount of restoration and rehabilitation provisions. Those estimates and assumptions deal with uncertainties such as: changes to the relevant legal and regulatory framework; the magnitude of possible contamination and the timing, extent and costs of required restoration and rehabilitation activity. These uncertainties may result in future actual expenditure differing from the amounts currently provided.

The provision recognised for each site is periodically reviewed and updated based on the facts and circumstances available at the time. Changes to the estimated future costs for operating sites are recognised in the statement of financial position by adjusting both the restoration and rehabilitation asset and provision. Such changes give rise to a change in future depreciation and interest charges. For closed sites, changes to estimated costs are recognised immediately in profit or loss.

Taxation

The Group's accounting policy for taxation requires management's judgement in assessing whether deferred tax assets and certain deferred tax liabilities are recognised on the statement of financial position. Deferred tax assets, including those arising from carried forward tax losses, capital losses and temporary differences, are recognised only where it is considered more likely than not that they will be recovered, which is dependent on the generation of sufficient future taxable profits. Deferred tax liabilities arising from temporary differences in investments, caused principally by retained earnings held in foreign tax jurisdictions, are recognised unless repatriation of retained earnings can be controlled and is not expected to occur in the foreseeable future.

Assumptions about the generation of future taxable profits and repatriation of retained earnings depend on management's estimates of future cash flows. These depend on estimates of future production and sales volumes, commodity prices, reserves, operating costs, restoration and rehabilitation costs, capital expenditure, dividends and other capital management transactions. Assumptions are also required about the application of income tax legislation. These estimates and assumptions are subject to risk and uncertainty, hence there is a possibility that changes in circumstances will alter expectations, which may impact the amount of deferred tax assets and deferred tax liabilities recognised on the statement of financial position and the amount of other tax losses and temporary differences not yet recognised. In such circumstances, some or all of the carrying amount of recognised deferred tax assets and liabilities may require adjustment, resulting in a corresponding credit or charge to profit or loss.

The Group generally provides for current tax based on positions taken (or expected to be taken) in its tax returns. Where it is more likely than not that upon examination by the tax authorities of the positions taken by the Group additional tax will be payable, the Group provides for its best estimate of the amount expected to be paid (including any interest and/or penalties) as part of the tax charge.

Reserve estimates

Reserves are estimates of the amount of product that can be economically and legally extracted from the Group's properties. In order to calculate reserves, estimates and assumptions are required about a range of geological, technical and economic factors, including quantities, grades, production techniques, recovery rates, production costs, transport costs, commodity demand, commodity prices and exchange rates.

The Group determines ore reserves under the Australasian Code for Reporting of Mineral Resources and Ore Reserves September 1999, known as the JORC Code. The JORC Code requires the use of reasonable investment assumptions to calculate reserves.

Estimating the quantity and/or grade of reserves requires the size, shape and depth of ore bodies or fields to be determined by analysing geological data such as drilling samples. This process may require complex and difficult geological judgements and calculations to interpret the data.

Since economic assumptions used to estimate reserves change from period to period, and since additional geological data is generated during the course of operations, estimates of reserves may change from period to period.

Changes in reported reserves may affect the Group's financial results and financial position in a number of ways, including the following:

- Asset carrying values may be affected due to changes in estimated future cash flows.
- Depletion charged in profit or loss may change where such charges are determined by the units of production basis, or where the useful economic lives of assets change.
- Decommissioning, site restoration and environmental provisions may change where changes in estimated reserves affect expectations about the timing or cost of these activities.

Exploration and evaluation expenditure

The Group's accounting policy for exploration and evaluation expenditure results in certain items of expenditure being capitalised for an area of interest where it is considered likely to be recoverable by future exploitation or sale or where the activities have not reached a stage which permits a reasonable assessment of the existence of reserves. This policy requires management to make certain estimates and assumptions as to future events and circumstances, in particular whether an economically viable extraction operation can be established. Any such estimates and assumptions may change as new information becomes available. If, after having capitalised the expenditure under the policy, a judgement is made that recovery of the expenditure is unlikely, the relevant capitalised amount will be written off to profit or loss.

Development expenditure

Development activities commence after project sanctioning by the appropriate level of management. Judgement is applied by management in determining when a project has reached a stage at which economically recoverable reserves exist such that development may be sanctioned. In exercising this judgement, management is required to make certain estimates and assumptions similar to those described above for capitalised exploration and evaluation expenditure. Any such estimates and assumptions may change as new information becomes available. If, after having commenced the development activity, a judgement is made that a development asset is impaired, the appropriate amount will be written off to profit or loss.

Defined benefit retirement and other post retirement schemes

For defined benefit pension schemes, the cost of benefits charged to the profit or loss includes current and past service costs, interest costs on defined benefit obligations and the effect of any curtailments or settlements, net of expected returns on plan assets. An asset or liability is consequently recognised in the statement of financial position based on the present value of defined obligations, less any unrecognised past service costs and the fair value of plan assets.

The accounting policy requires management to make judgements as to the nature of benefits provided by each scheme and thereby determine the classification of each scheme. For defined benefit pension schemes, management is required to make annual estimates and assumptions about future returns on classes of scheme assets, future remuneration changes, employee attrition rates, administration costs, changes in benefits, inflation rates, exchange rates, life expectancy and expected remaining periods of service of employees. In making these estimates and assumptions, management considers advice provided by external advisers, such as actuaries. Where actual experience differs to these estimates, actuarial gains and losses are recognised directly in the statement of profit or loss and other comprehensive income.

Impairment of assets

The carryingamounts of the Group's non-financial assets, other than inventories and deferred tax assets, are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists then the asset's recoverable amount is estimated. For goodwill and intangible assets that are not yet available for use, the recoverable amount is estimated at each reporting date.

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. A cash-generating unit is the smallest identifiable asset group that generates cash flows that are largely independent from other asset groups. Impairment losses are recognised in profit or loss. Impairment losses recognised in respect of cash-generating units are allocated first to reduce the carrying amount of any goodwill allocated to the units and then to reduce the carrying amount of the other assets in the unit (group of units) on a pro rata basis.

The recoverable amount of an asset or cash-generating unit is the greater of its value in use and its fair value less costs to sell. 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.

An impairment loss in respect of goodwill is not reversed. In respect of other assets, impairment losses recognised in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed

Notes to the Consolidated Financial Statements for 2018 continued

only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

Goodwill that forms part of the carrying amount of an investment in an associate or a joint venture is not recognised separately and, therefore, is not tested for impairment separately. Instead, the entire amount of the investment is tested for impairment as a single asset when there is objective evidence that the investment in an associate or a joint venture may be impaired.

26. Significant subsidiaries

The significant entities of the Group, included in these consolidated financial statements, are as follows:

			Ownership and equity interest 31 December	
Name	Place of incorporation and operation	Principal activities	2018	2017
UC RUSAL				
United Company RUSAL Plc	Jersey	Holding company	48.1%	48.1%
Compagnie Des Bauxites De Kindia S.A.	Guinea	Bauxite mining	100.0%	100.0%
Friguia	Guinea	Alumina	100.0%	100.0%
JSC RUSAL Achinsk	Russian Federation	Alumina	100.0%	100.0%
RUSAL Mykolaev Ltd	Ukraine	Alumina	100.0%	100.0%
JSC RUSAL Boxitogorsk Alumina	Russian Federation	Alumina	100.0%	100.0%
Eurallumina SpA	Italy	Alumina	100.0%	100.0%
PJSC RUSAL Bratsk	Russian Federation	Smelting	100.0%	100.0%
JSC RUSAL Krasnoyarsk	Russian Federation	Smelting	100.0%	100.0%
JSC RUSAL Novokuznetsk	Russian Federation	Smelting	100.0%	100.0%
JSC RUSAL Sayanogorsk	Russian Federation	Smelting	100.0%	100.0%
RUSAL Resal LLC	Russian Federation	Processing	100.0%	100.0%
JSC RUSAL SAYANAL	Russian Federation	Foil	100.0%	100.0%
CJSC RUSAL ARMENAL	Armenia	Foil	100.0%	100.0%
RUS-Engineering Ltd	Russian Federation	Repairs and maintenance	100.0%	100.0%
JSC Russian Aluminium	Russian Federation	Holding company	100.0%	100.0%
Rusal Global Management B.V.	Netherlands	Management company	100.0%	100.0%
JSC United Company RUSAL Trading House	Russian Federation	Trading	100.0%	100.0%
Rusal America Corp.	USA	Trading	100.0%	100.0%
RS International GmbH	Switzerland	Trading	100.0%	100.0%
Rusal Marketing GmbH	Switzerland	Trading	100.0%	100.0%
RTI Limited	Jersey	Trading	100.0%	100.0%
Alumina & Bauxite Company Limited	British Virgin Islands	Trading	100.0%	100.0%
JSC Komi Aluminii	Russian Federation	Alumina	100.0%	100.0%
JSC Bauxite-Timana	Russian Federation	Bauxite mining	100.0%	100.0%
JSC Severo-Uralsky Bauxite Mine	Russian Federation	Bauxite mining	100.0%	100.0%
JSC RUSAL URAL	Russian Federation	Primary aluminium and alumina production	100.0%	100.0%
SUAL-PM LLC	Russian Federation	Aluminium powders production	100.0%	100.0%
JSC Kremniy	Russian Federation	Silicon production	100.0%	100.0%
SUAL-Kremniy-Ural LLC	Russian Federation	Silicon production	100.0%	100.0%
UC RUSAL Alumina Jamaica Limited	Jamaica	Alumina	100.0%	100.0%
Kubikenborg Aluminium AB	Sweden	Smelting	100.0%	100.0%
RFCL Sarl	Luxembourg	Finance services	100.0%	100.0%
Aktivium B.V.	Netherlands	Holding and investment company	100.0%	100.0%
Aughinish Alumina Ltd	Ireland	Alumina	100.0%	100.0%
LLC RUSAL Energo	Russian Federation	Electric power	100.0%	100.0%
ENERGY				
En+ Holding Limited (ex. Eurosibenergo Plc)	Cyprus	Holding company	100.0%	100.0%
JSC Eurosibenergo	Russian Federation	Management company	100.0%	100.0%
JSC Krasnoyarsk Hydro-Power Plant	Russian Federation	Energy generation	100.0%	100.0%
CJSC MAREM +	Russian Federation	Energy trading	99.9%	99.9%
PJSC Irkutskenergo	Russian Federation	Energy generation	92.8%	92.5%
OJSC Irkutsk Electric Grid Company	Russian Federation	Power transmission and distribution	52.3%	52.3%
LLC Eurosibenergo - Hydrogeneration	Russian Federation	Energy generation	100.0%	100.0%
LLC Avtozavodskaya TEC	Russian Federation	Energy generation	96.3%	96.2%
LLC Eurosibenergo-engineering	Russian Federation	Engineering services	100.0%	100.0%
LLC Kompaniya VostSibUgol	Russian Federation	Coal production	92.8%	92.5%
LLC KRAMZ	Russian Federation	Manufacturing of semi-finished products from primary aluminium	93.7%	93.4%
LLC Sorsk Mining and Metallurgical Complex	Russian Federation	Ore mining	100.0%	100.0%
LLC Sorsk Ferromolybdenum Plant	Russian Federation	Ore processing, ferromolybdenum production	100.0%	100.0%

The nominal ownerships indicated in the table above are the effective holdings, except for UC RUSAL shareholdings where 48.1% is held by the Parent Company.

Glossary

Units of measurement

bn	Billion
EUR	Euro
Gcal	Gigacalorie, a unit of measurement for heating energy
Gcal/h	Gigacalorie per hour, a unit of measurement for heating power capacity
GW	Gigawatt (one million kilowatts)
GWh	Gigawatt-hour (one million kilowatt-hours)
kA	Kilo-amperes
km	Kilometre
kt	Thousand metric tonnes
ktpa	Thousand tonnes per annum
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt-hour, a unit of measurement for produced electricity
mn	Million
mt	Million metric tonnes
mtpa	Million tonnes per annum
MW	Megawatt (one thousand kilowatt), a unit of measurement for electrical power capacity
MWh	Megawatt-hour (one thousand kilowatt-hours), a unit of measurement for produced electricity
pp	Percentage point
RUB	Rouble
ths	Thousand
t, tonne	One metric tonne (one thousand kilograms)
tpa	Tonnes per annum
TW	Terawatt (one billion kilowatts)
TWh	Terawatt-hour (one billion kilowatt-hours)
USD	United States dollar

Terms and abbreviations

AAR	Achinsk Alumina Refinery, RUSAL Achinsk, or JSC RUSAL Achinsk, incorporated under the laws of the Russian Federation and is a wholly-owned subsidiary of RUSAL
AGM	Annual general meeting of shareholders
Adjusted EBITDA	For any period represents the results from operating activities adjusted for amortisation and depreciation, impairment charges and loss on disposal of property, plant and equipment for the relevant period
Adjusted net profit	For any period represents net profit for the relevant period adjusted for the net effect from the share in the results of Norilsk Nickel, the net effect of embedded derivative financial instruments and the net effect of non current assets impairment
ALSCON	Aluminium Smelter Company of Nigeria, a company incorporated in Nigeria and in which RUSAL indirectly holds an 85% interest
ARC	Audit and Risk Committee
ATS	Joint-stock company “Administrator of the trading system of the wholesale electricity market”
Aughinish	Aughinish Alumina Refinery, Aughinish Alumina, or Aughinish Alumina Limited, incorporated in Ireland and a wholly owned subsidiary of RUSAL
BAS	Bogoslovsk Aluminium Smelter, a branch of JSC RUSAL Ural
Basic Element	Basic Element Limited, incorporated in Jersey and of which Mr Oleg Deripaska is the ultimate beneficial owner
BCGI	Bauxite Company of Guyana, founded in December 2004 under an agreement between RUSAL (90%) and the Government of Guyana (10%)
BEMO, BEMO project	Boguchany Energy and Metals Complex, involving the construction of the Boguchany Hydro Power Plant (Boguchany HPP or BoHPP) and Boguchany Aluminium Smelter (BoAZ), a joint 50:50 project of RUSAL and RusHydro. The BoAZ project involves the construction of a 600 ktpa greenfield aluminium smelter on a 230 ha site, located approximately 8 km to the south-east of Tayozhny in the Krasnoyarsk region and approximately 160 km (212 km by road) from Bogychany HPP
Board	Board of Directors of the Company
BrAZ	Bratsk Aluminium Smelter or PJSC RUSAL Bratsk, incorporated under the laws of the Russian Federation and is a wholly owned subsidiary of RUSAL
BS OHSAS 18001	BS OHSAS (Occupational Health and Safety Assessment Series) 18001:2007 is a standard that sets out the criteria for health and safety management systems and can be certified to. BS OHSAS 18001 is being replaced by ISO 45001
CCO	Competitive Capacity Outtake
CBK, Kindia	Compagnie des Beauxites de Kindia, located in Guinea
CGNC	Corporate Governance and Nominations Committee
CHP	Combined heat and power plant
CIS	The Commonwealth of Independent States
CO_2	Carbon dioxide
CO_2e	CO_2 equivalent
CRU	CRU International Limited
DAM, Day-ahead market	The competitive selection of price bids of suppliers and buyers conducted by the ATS one day prior to the delivery of purchased electricity, with prices and volumes of delivery determined for each hour of the day
DTRs	The FCA’s Disclosure Guidance and Transparency Rules
Energy segment	The Energy segment is predominantly comprised of power assets and operations owned by En+ Group. The Energy segment engages in all aspects of the power industry, including electric power generation, power trading, and supply

EN+ GROUP, En+, En+ Group, we, the Company, the Group	EN+ GROUP PLC and its subsidiaries, whose results are included in the consolidated financial statements prepared in accordance with the International Financial Reporting Standards
EuroSibEnergo	JSC EuroSibEnergo is a 100% subsidiary of En+ Group, managing its power assets
FBA	Friguia Bauxite and Alumina Complex, Friguia Alumina Refinery, or Friguia S.A., incorporated in Guinea and a wholly owned subsidiary of RUSAL
FCA	The UK's Financial Conduct Authority
GDR	Global depositary receipt
GHG	Greenhouse gas emissions
GHG emissions Scope 1	Direct greenhouse gas emissions which occur from sources that are owned or controlled by the Company, e.g., emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. Direct CO_2 emissions from the combustion of biomass are not included in Scope 1, as they are reported separately. GHG emissions not covered by the Kyoto Protocol, such as CFCs, NOx, etc., are not included in Scope 1 and may be reported separately
GHG emissions Scope 2	Indirect energy greenhouse gas emissions. Scope 2 accounts for GHG emissions resulting from the generation of purchased heat and electricity consumed by a company. Purchased heat and electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where heat and electricity are generated
HPP	Hydro power plant
HSE	Health, safety and environment
HSE Committee	The Health, Safety and Environment Committee
ICS	Internal Control System
IES	Integrated energy system – an aggregated production and other electricity property assets, connected via a unified production process (including production in the form of the combined generation of electrical and heat) and the supply of electrical energy under the conditions of a centralized operating and dispatch management
IPO	Initial public offering
Irkutskenergo	Irkutsk Public Joint Stock Company of Energetics and Electrification, a power generating company controlled by En+ by more than 30% of Irkutskenergo's issued share capital
IrkAZ	Irkutsk aluminium smelter, a branch of RUSAL Bratsk in Shelekhov, Russian Federation
ISO 9001	ISO 9001:2015 is an international standard "Quality management systems – Requirements" by the International Organisation for Standardisation that sets out the criteria for a quality management system and is the only standard in the family that can be certified to
ISO 14001	ISO 14001:2015 is an international standard "Environmental management systems — Requirements with guidance for use" by the International Organisation for Standardisation that sets out the criteria for an environmental management system and can be certified to
ISO 45001	ISO 45001:2018 is an international standard "Occupational health and safety management systems — Requirements with guidance for use" by the International Organisation for Standardisation that sets out the criteria for health and safety management systems and can be certified to
JORC	Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
KAZ	Kandalaksha Aluminium Smelter, a branch of JSC RUSAL Ural
KhAZ	Khakas Aluminium Smelter
KrAZ	Krasnoyarsk aluminium smelter or JSC RUSAL Krasnoyarsk, incorporated under the laws of the Russian Federation and is a wholly owned subsidiary of RUSAL
KUBAL	Kubikenborg Aluminium AB, incorporated in Sweden and is a wholly owned subsidiary of RUSAL

LIBOR	In relation to any loan: (a) the applicable screen rate (the British Bankers' Association Interest Settlement Rate for dollars for the relevant period, displayed on the appropriate page of the Reuters screen) (b) the arithmetic mean of the rates (if no screen rate for dollars is available for the interest period of a particular loan, is rounded upwards to four decimal places) as supplied to the agent upon request and quoted by reference banks to leading banks in the London interbank market as of the specified time (usually at 11:00 a.m.) on the quotation day (generally two business days before the first day of the specified period unless market practice differs in the Relevant Interbank Market, in which case the quotation day will be determined by the agent in accordance with market practice in the Relevant Interbank Market) for the offering of deposits in dollars and for a period comparable to the interest period for the loan
LME	The London Metal Exchange
LME aluminium price	Represents the official average daily closing LME spot prices for each period
LR	The Listing Rules published by the UK's Financial Conduct Authority in its capacity as a competent authority under the Financial Services and Markets Act 2000 (as amended) and the FCA's Disclosure Guidance and Transparency Rules
LSE	The London Stock Exchange
LTIFR	The Lost Time Injury Frequency Rate, calculated by the Group as the sum of fatalities and lost time injuries per million man-hours
Market Council	A non-commercial organisation formed as a result of a non-commercial partnership, intended to unite energy market participants and major consumers of electrical energy through membership of that body. The council is intended to ensure proper functioning of commercial market infrastructure and effective exchanges between the wholesale and retail electrical energy markets. The Market Council is intended to promote investment in the electrical energy industry by creating a healthy market and level playing field for participants of both the wholesale and retail electrical energy markets when drafting new rules and regulations concerning the electrical energy industry, and facilitate self-regulation of the wholesale and retail trade in electrical energy, power, and other products and services permissible in the wholesale and retail electrical energy markets. The council's aim is to ensure the security of energy supply in the Russian Federation and unity within the economic space, economic freedom, and competition in the wholesale and retail electrical energy markets by striking a general balance between the interests of suppliers, buyers, and the needs of society in terms of having a reliable and stable source of electrical energy
Metals segment	Comprised of UC RUSAL (50.12% owned by En+ Group). The power assets of RUSAL are included into the Metals segment
Mineral Resource	A concentration or occurrence of material of intrinsic economic interest in or on the earth's crust in such form, quality, and quantity, that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. **Inferred Mineral Resource** A Mineral Resource for which tonnage, grade, and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes which may be limited or of uncertain quality and reliability. **Indicated Mineral Resource** The part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity, but are spaced closely enough for continuity to be assumed **Measured Mineral Resource** A Mineral Resource for which tonnage, densities, shape, physical characteristics, grade, and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling, and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes. The locations are spaced closely enough to confirm geological and grade continuity
The Moscow Exchange	Public Joint-Stock Company Moscow Exchange MICEX-RTS (the "Moscow Exchange")

Nadvoitsy aluminium smelter — A branch of JSC RUSAL Ural

Net debt — The sum of loans, borrowings, and bonds outstanding as well as deferred liability for the acquisition of PJSC Irkutskenergo (the Group's subsidiary) shares less total cash and cash equivalents as at the end of the relevant period

Nikolaev Alumina Refinery — Nikolaev Alumina Refinery Company Limited, incorporated under the laws of Ukraine and is a wholly owned subsidiary of RUSAL

Norilsk Nickel — PJSC MMC NORILSK NICKEL, incorporated under the laws of the Russian Federation

NkAZ — Novokuznetsk Aluminium Smelter or JSC RUSAL Novokuznetsk, a company incorporated under the laws of the Russian Federation and is a wholly owned subsidiary of RUSAL

OFAC — The Office of Foreign Assets Control (OFAC) of the US Department of the Treasury

OFAC Sanctions — The designation by OFAC of certain persons and certain companies which are controlled or deemed to be controlled by some of these persons into the Specially Designated Nationals List

OHSAS 18001 — Occupational Health and Safety Specification (OHSAS) 18001

Ore Reserves — The economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social, and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

Probable Ore Reserve

The economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified

Proved Ore Reserve

The economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified

pcs. — pieces

PM Krasnoturyinsk — SUAL-PM-Krasnoturyinsk, a branch of LLC SUAL-PM

QAL — Queensland Alumina Limited, incorporated in Queensland, Australia, and in which RUSAL indirectly holds a 20% equity interest

R&D — Research and Development

RCC — Regulation and Compliance Committee

RemCom — Remuneration Committee

RUSAL, the Metals segment — United Company RUSAL Plc, incorporated under the laws of Jersey with limited liability (50.12% owned by En+ Group)

Rusal Silicon Urals — LLC RUSAL Silicon Ural (formerly LLC SU-Silicon), an indirect non-wholly-owned subsidiary of RUSAL

JSC RUSAL Ural — Joint Stock Company United Company RUSAL Ural Aluminium, formerly JSC Siberian–Urals Aluminium Company (JSC SUAL), incorporated under the laws of the Russian Federation and is an indirect wholly owned subsidiary of RUSAL

RusHydro — PJSC RusHydro (Public Joint-Stock Company Federal Hydro-Generating Company – RusHydro), organised under the laws of the Russian Federation and is an independent third party

Samruk-Energo — Incorporated in Kazakhstan and an independent third party

Samruk-Kazyna — The Kazakhstan state-controlled national welfare fund

SDN List, Specially Designated Nationals List — The List of Specially Designated Nationals and Blocked Persons, published by OFAC. U.S. persons are generally prohibited from dealing with the assets of persons designated in the SDN List which are subject to the U.S. jurisdiction, subject to certain exemptions and exclusions set out in licenses issued by OFAC

SAYANAL — Joint-Stock Company RUSAL SAYANAL, an indirect wholly owned subsidiary of RUSAL

SAZ — Sayanogorsk aluminium smelter, RUSAL Sayanogorsk, Sayanogorsk smelter, or JSC RUSAL Sayanogorsk, incorporated under the laws of the Russian Federation and is a wholly owned subsidiary of RUSAL

SKAD, Casting and mechanical plant SKAD — Limited Liability Company Casting and Mechanical Plant SKAD, Casting and Mechanical Plant SKAD Ltd., incorporated under the laws of the Russian Federation

SPP — Solar power plant

SUAL PM — LLC SUAL-PM, an indirect wholly owned subsidiary of RUSAL

SUBR — North Urals Bauxite Mine or JSC Sevuralboksitruda, incorporated in the Russian Federation and is a wholly-owned subsidiary of RUSAL

TAZ — Taishet Aluminium Smelter, Taishet Smelter, Taishet, or Limited Liability Company RUSAL Taishet Aluminium Smelter, a wholly owned subsidiary of RUSAL

Timan Bauxite — Joint Stock Company "Boksit Timana", incorporated under the laws of the Russian Federation and is a non-wholly owned subsidiary of RUSAL

TPP — Thermal power plant

UAZ — Urals Aluminium Smelter, a branch of JSC RUSAL Ural

UES — Unified Energy System – aggregated production and other electricity assets connected via a unified production process (including combined electricity and heat generation) and the supply of electrical energy under centralised operating and dispatch management

VAP — Value-added products. Includes wire rod, foundry alloys, billets, slabs, high purity, and others

VgAZ — Volgograd Aluminium Smelter, a branch of JSC RUSAL Ural

Wholesale electricity and capacity market — Market for the turnover of electric energy and capacity within Russia's Unified Energy System and unified economic space, with the participation of large electricity producers and consumers that have the status of wholesale market objects, confirmed in full accordance with the Russian Federal Law, On the Electric Power Industry. The criteria for determining large electricity producers and consumers are also established by the Russian Government

WINDALCO — West Indies Alumina Company, incorporated in Jamaica, in which RUSAL indirectly holds a 100% interest

y-o-y — Year-on-year

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