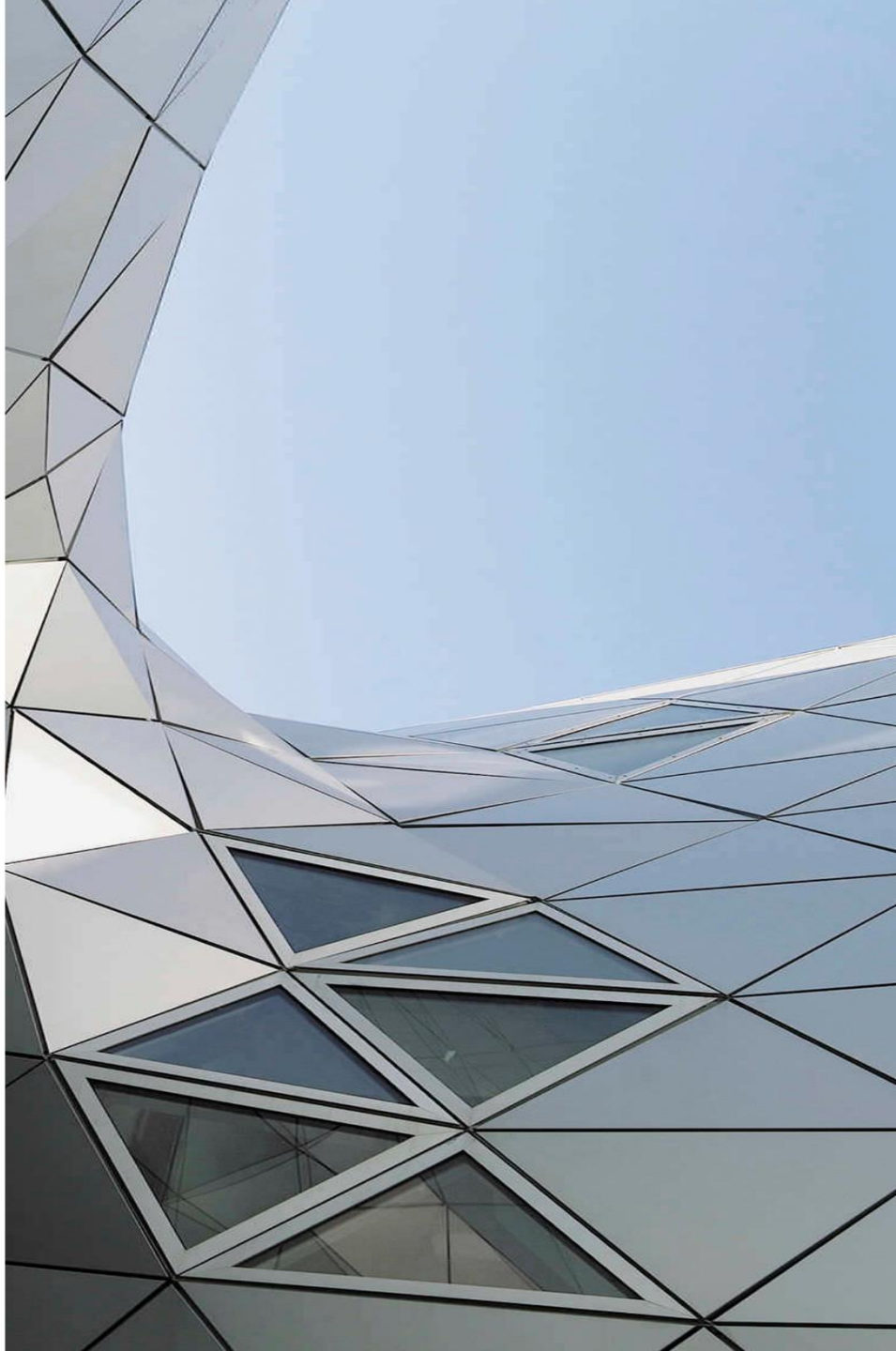
EN+ GROUP

9M 2021 Market and Business Update

October 2021



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Key Highlights

Market overview

- In 3Q 2021 the LME aluminium price reached levels above USD 3,000/tonne, and the Shanghai Futures Exchange (SHFE) aluminium price rose beyond RMB 23,510/tonne.
- In 9M 2021, global primary aluminium demand grew by 12.8% y-o-y to 51.9 million tonnes. In the Rest of the World ex-China (RoW) demand increased by 19.5% to 21.6 million tonnes, while demand in China increased by 8.5% to 30.3 million tonnes slowing down from 10.1% during 1H 2021.
- The worldwide supply of primary aluminium continued to grow in 9M 2021 increasing by 5.4% y-o-y to 50.8 million tonnes, mostly driven by growth in China of 7.6% to 29.4 million tonnes, while in RoW production edged up by 2.4% to 21.4 million tonnes.
- In 9M 2021, the average electricity spot price on the day-ahead market in the second price zone increased 2.5% y-o-y to 910 RUB/MWh. In 9M 2021, average electricity spot prices in the Irkutsk region decreased 2.0% y-o-y to 806 RUB/MWh and increased 1.2% y-o-y in Krasnoyarsk region to 824 RUB/MWh. Multidirectional price dynamics in the Irkutsk and Krasnoyarsk regions and price decreases in the Irkutsk region reflected the increase in HPP generation and ongoing transmission constraints on the transit between East and West Siberia.

Operational Performance

- Aluminium production was broadly unchanged, totalling 2,811 kt (up 0.2% y-o-y). Aluminium sales remained stable, totalling 2,915 kt (up 0.6% y-o-y).
- The average aluminium realised price[1] increased 38.0% y-o-y to USD 2,426 per tonne. The LME QP[2] component increased by 35.8% y-o-y to USD 2,195 per tonne, while realised premiums increased 62.5% y-o-y to USD 231 per tonne.
- Sales of VAPs[3] increased 21.6% y-o-y to 1,508 kt, representing 52% of aluminium sales against 43% in 9M 2020.
- The electricity production[4] by the Group's Power segment increased 11.9% y-o-y to 65.7 TWh. Hydropower[4] output from the Group's Power segment increased 15.0% y-o-y to 57.4 TWh.

(1) The realised price includes three components: LME component, commodity premium and VAP upcharge.
(2) QP (quotation period) prices differ from the real time LME quotes due to a time lag between LME quotes and sales recognition and due to contract formula specialty.
(3) VAP includes alloyed ingots, slabs, billets, wire rod and special purity aluminium.
(4) Excluding Onda HPP (installed capacity 0.08 GW), located in the European part of the Russian Federation, leased to RUSAL since October 2014.

9M 2021 Operational Highlights

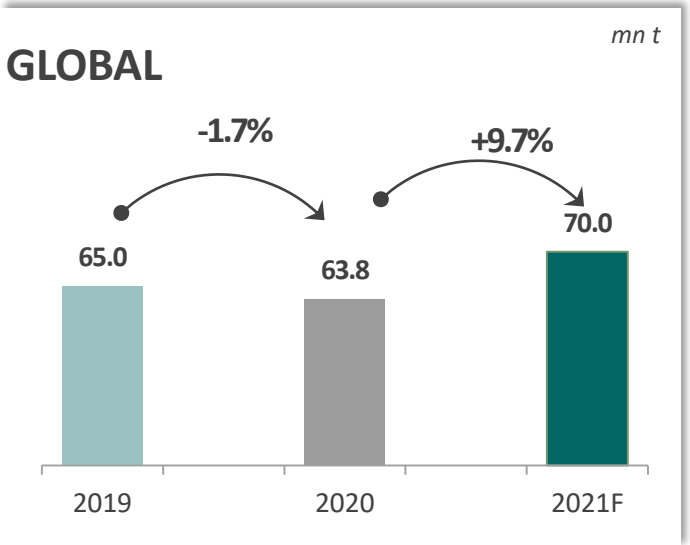
		9M 2021	9M 2020	Change
Sales and production	Total aluminium production, kt	2,811	2,805	*0.2%* ▲
	Total aluminium sales, kt	2,915	2,898	*0.6%* ▲
	VAP share	52%	43%	*9 pp* ▲
	Total electricity production[1] , TWh	65.7	58.7	*11.9%* ▲
	• *HPPs, TWh*	*57.4*	*49.9*	*15.0%* ▲
	• *CHPs, TWh*	*8.3*	*8.8*	*(5.7%)* ▼
	Heat production, mn Gcal	19.1	17.3	*10.4%* ▲
Macro	LME QP component[2], USD/t	2,195	1,616	*35.8%* ▲
	VAP upcharge over commodity (VAP products only) , USD/t	223	163	*36.9%* ▲
	Average electricity spot prices[3] in 2nd price zone, Rb/MWh	910	888	*2.5%* ▲
	• *Irkutsk region, Rb/MWh*	*806*	*822*	*(2.0%)* ▼
	• *Krasnoyarsk region, Rb/MWh*	*824*	*814*	*1.2%* ▲
	Average Exchange Rate, RUB/USD	74.01	70.78	*4.6%* ▲

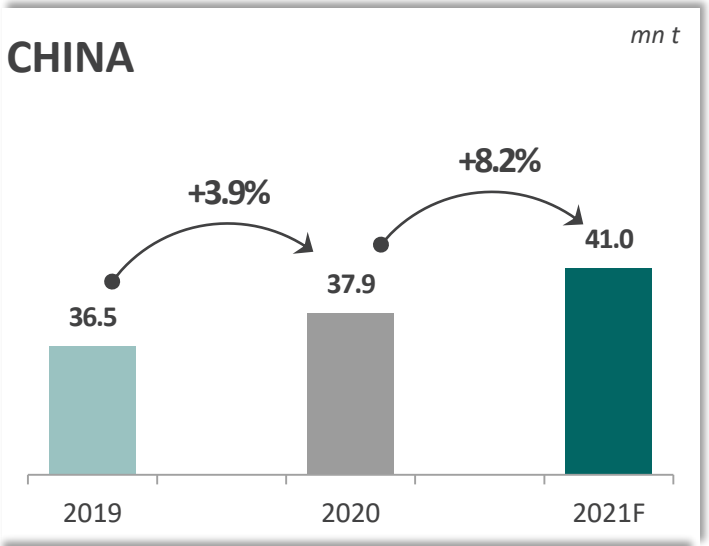
Note: Due to rounding, numbers may not add up precisely to the totals provided, percentages may not precisely reflect the absolute figures, and percent change calculations may differ.
Source: Company data, Bloomberg.

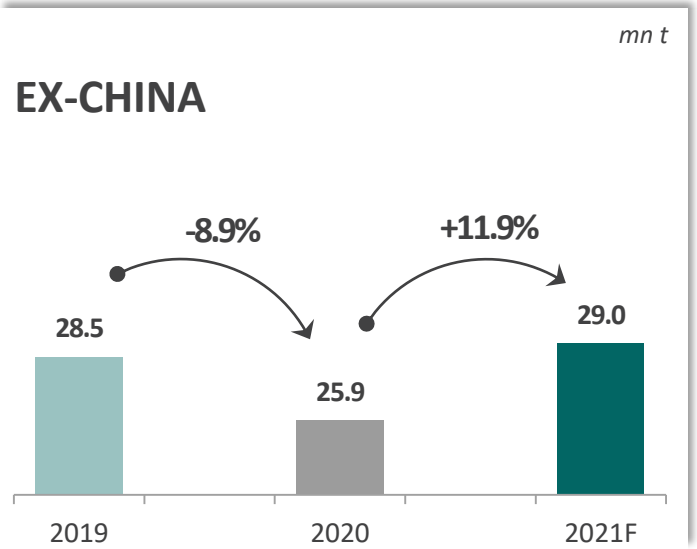
(1) Excluding Onda HPP (installed capacity 0.08 GW), located in the European part of the Russian Federation, leased to RUSAL since October 2014.
(2) QP (quotation period) prices differs from the real time LME quotes due to a time lag between LME quotes and sales recognition and due to contract formula speciality.
(3) Day ahead market prices, data from ATS and Association "NP Market Council". The prices average electricity spot prices are calculated as an average of the prices reported in the Monthly Day Ahead Prices Overview by Association "NP Market Council".

Global Aluminium Demand is on the Way to Full Recovery in 2021 with Transportation Segment in Lead

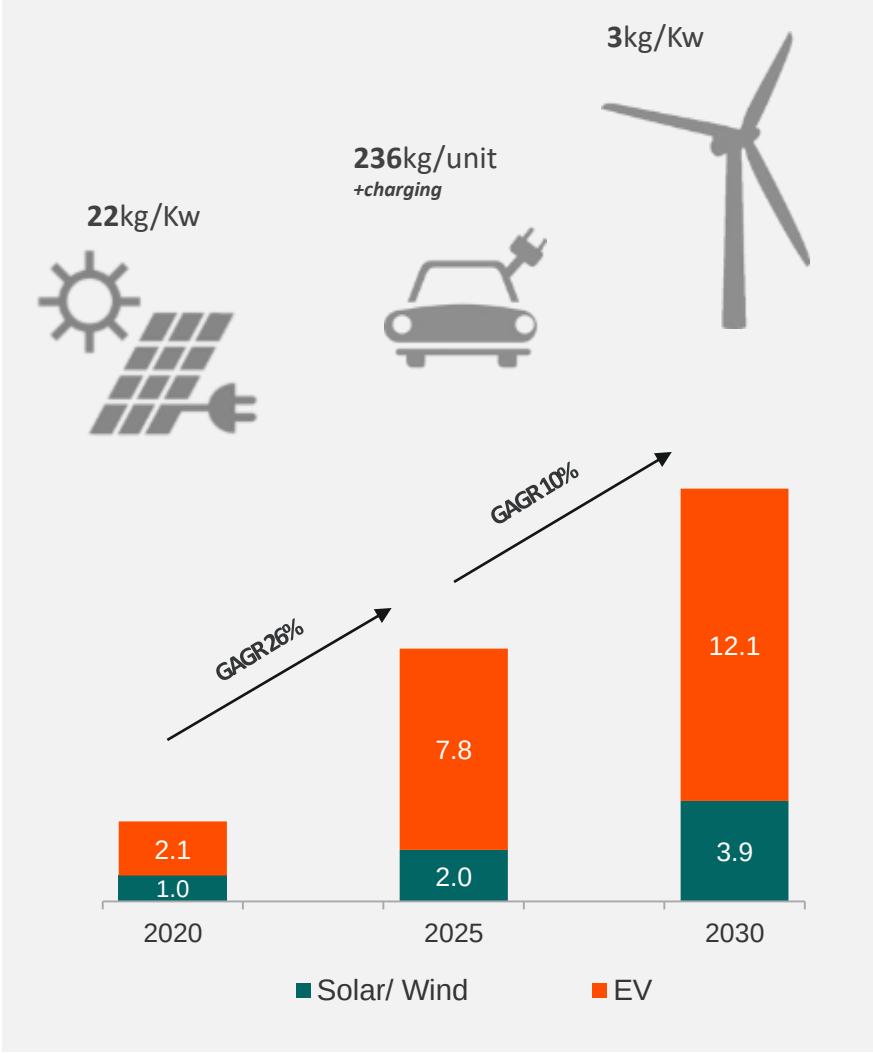
Primary aluminium demand dynamics[1]







2030 global demand path attributed to energy transition, mn t

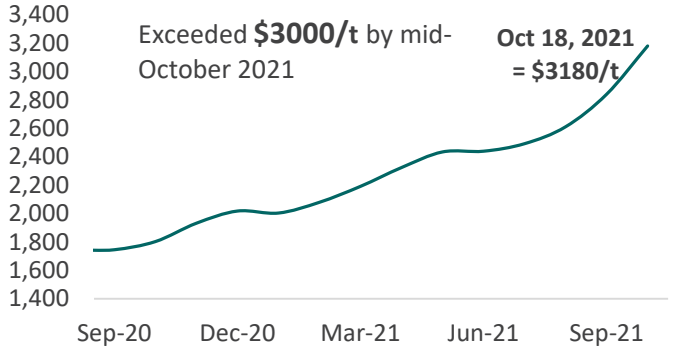


(1) 2021 forecast is based on RUSAL own calculations.

Aluminium Market Update

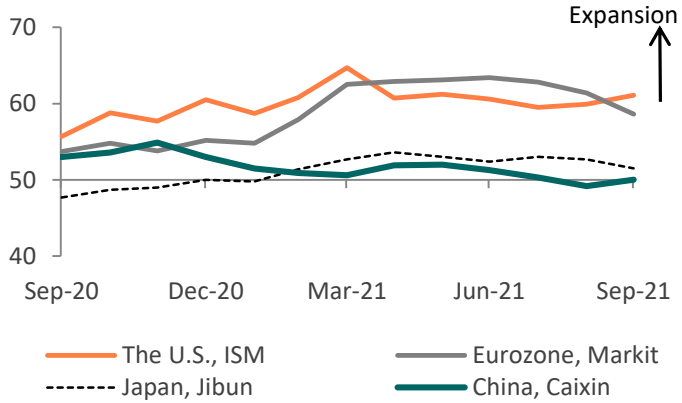
Price is on a solid upward trajectory

LME cash settlement monthly avr, $/t



Industry proves great recovery

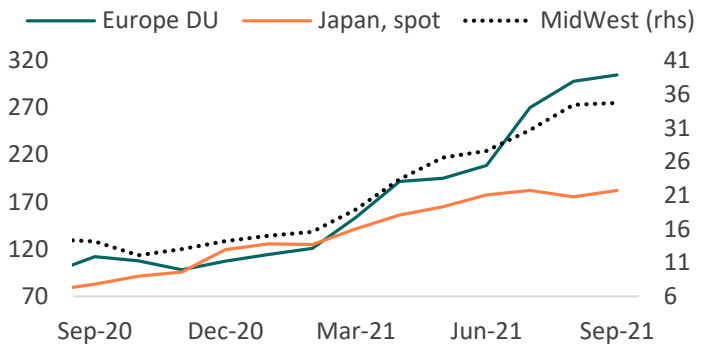
Manufacturing PMI, months of expansion in row as per Sep 2021



Regional premiums turned to growth

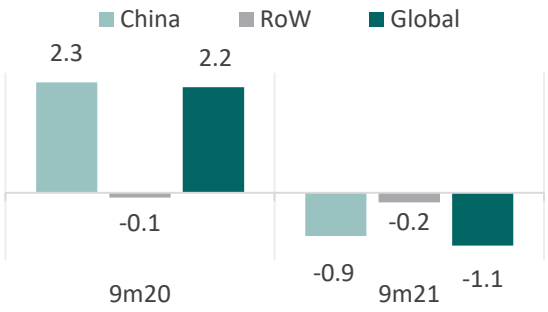
Monthly avr, $/t

Monthly avr, US cent/lbs



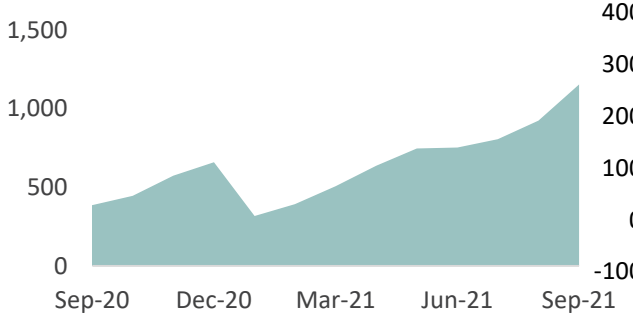
Global market switched into a deficit in 9M 2021

Primary aluminium market balance, mn t

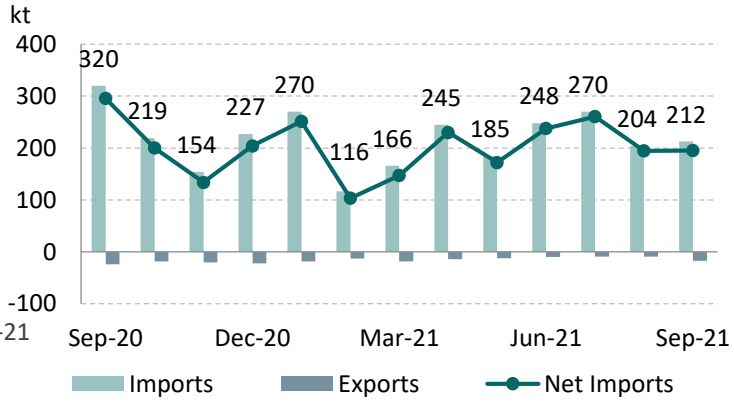


Aluminium producers' margin remains comparatively high

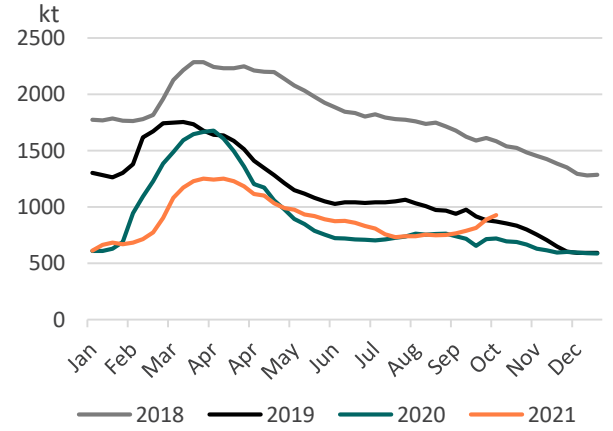
Profit margin = LME – smelters' liquid cost, monthly avr, $/t



China unwrought primary aluminum net import



China aluminum ingot social inventories, kt



~2mn t **GLOBAL PRIMARY ALUMINIUM DEFICIT IS EXPECTED IN 2021 ON CHINA SUPPLY CUTS**

Decarbanisation in China will Lead to Global Aluminum Supply Deficit over the next 5 Years

At the 75th UN General Assembly, President Xi Jinping stated China will strive to reach an emissions peak by 2030 and to achieve carbon neutrality by 2060. This important announcement has provided a direction for China's response to climate change and green/ low-carbon development.

Context: the primary aluminum industry discharged 420 mn t carbon dioxide, accounting for 4.2% of the nation's total emission.[1]

IMPORTANT STEPS → 2030

Carbon intensity per GDP unit should decrease by over 65% vs 2005 level

Power intensity of GDP unit should decrease by over 68% vs 2008 level

Share of **non-fossil** energy should reach 25% vs 16% in 2020

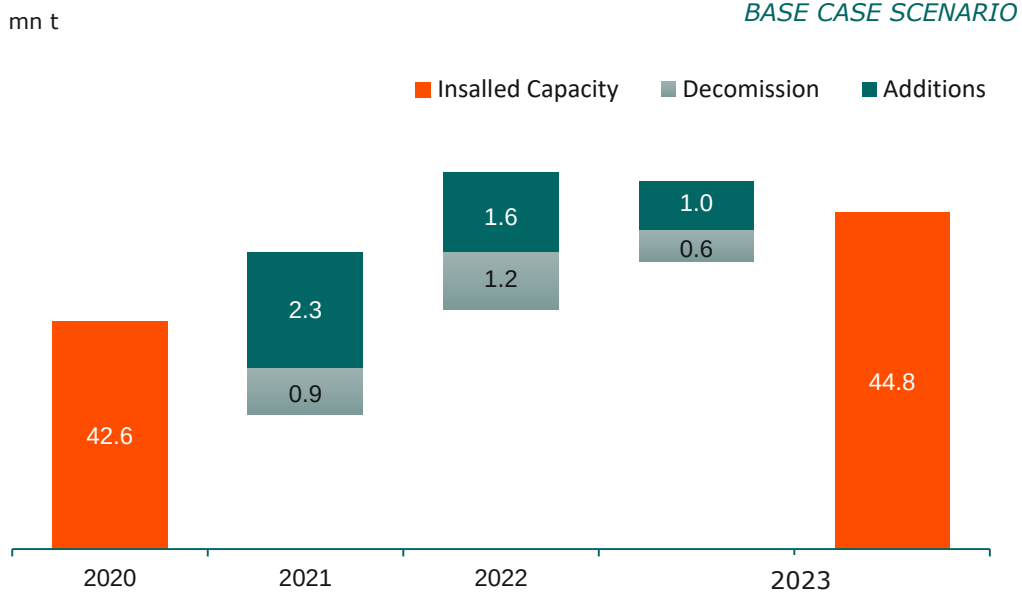
Share of **coal** in total energy consumption to drop to 45% vs 57% in 2020

CHALLENGES FOR AL INDUSTRY[2]

Capacity Retention	Energy Optimization	Secondary recycling	Optimized domestic consumption	Green tech progress
To retain Al capacity peak at 45mn t	↓ energy consumption/ ↑ non-fossil sources	~16% of total Al produced vs DM average at 40-50%)	Develop and promote "green metal" advantage/ use	Intensify C capture, storage, GHG management

CAPACITIES FORECAST[3]

BASE CASE SCENARIO



Forecast Comments

Yunnan

Whilst attractive for capacity migration, the ability of **Yunnan** to provide additional stable power supply is questionable amid increasing non-fossil power demand.

Ecological Issues

Environmental concerns are growing in key aluminium production provinces – **Yunnan**, **Xinjian**, **Inner Mongolia**

Sources: Aladdiny, UC RUSAL research, Tsinghua University Climate Change and Sustainable Development Institute

(1) China's nonferrous metals industry emitted a total of 650 million mt carbon dioxide in 2020, accounting for 6.5% of the nation's total emission, the People's Daily quoted Ge as saying. The primary aluminum industry took up 64.6% of the nonferrous metals sector's total emission. (2) Based on official statement from two largest Chinese aluminum companies. (3) 2950 kt of illegal capacity is excluded from installed capacity, replacement projects are not added to the total number.

Power Market Update

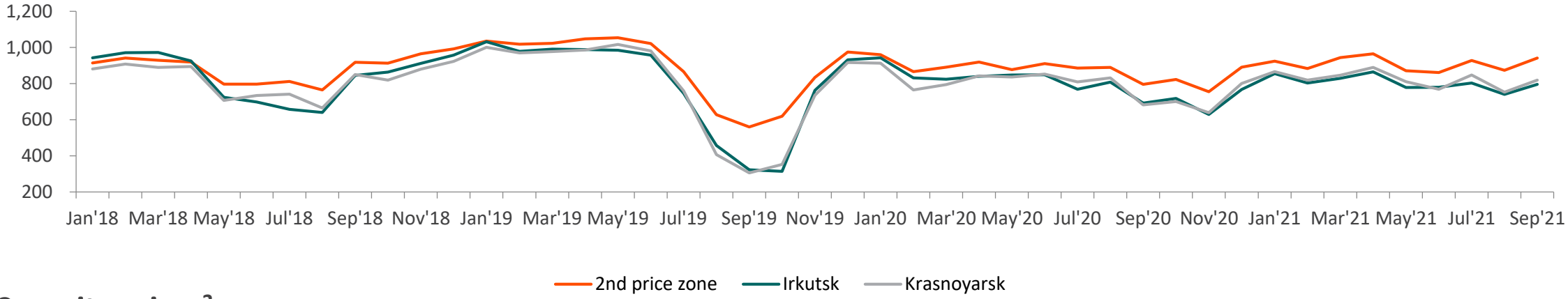
Power supply and demand in Siberia[1]

TWh	9M'21	9M'20	*Change*
Production in Siberia	157.8	150.5	*4.9%*
HPPs production	96.3	86.2	*11.8%*
Consumption	158.4	152.3	*4.0%*

Average electricity spot prices[2]

Average market price, RUB/MWh	9M'21	9M'20	*Change*
2nd price zone	910	888	*2.5%*
Irkutsk region	806	822	*(2.0%)*
Krasnoyarsk region	824	814	*1.2%*

Electricity spot prices[2], Rb/MWh



Capacity prices[3]

th. RUB/MW/month	2018	2019	2020	2021	2022	2023	2024	2025	2026
2nd price zone	186	190	191	225	264	267	279	303	299

Note: Due to rounding, numbers may not add up precisely to the totals provided, percentages may not precisely reflect the absolute figures, and percent change calculations may differ.

(1) System Operator of the Unified Power System, incl. February 29, 2020.

(2) Day ahead market prices, data from ATS and Association "NP Market Council".

(3) According to Russian regulations in the power industry, capacity price is defined by supply-demand balances, set in real terms and linked to CPI-0.1%.

Water Inflows as a Driver to Increase HPP Generation

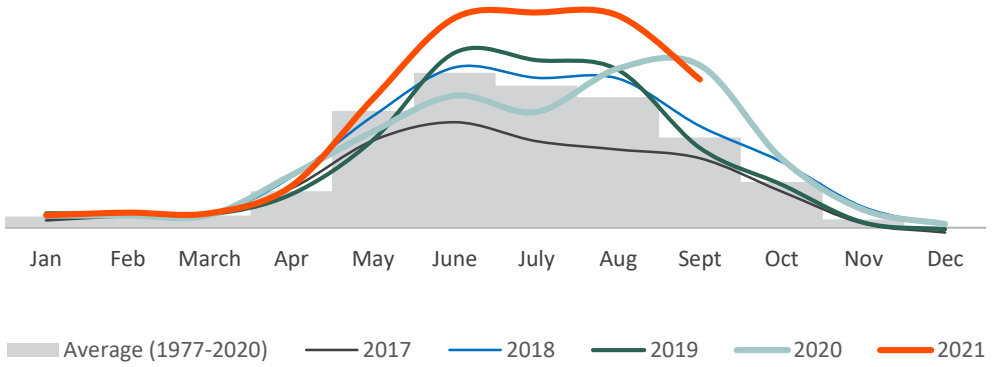
Overview

- The Group's Angara cascade HPPs (Irkutsk, Bratsk and Ust-Ilimsk HPPs) increased power generation to 39.2 TWh (up 14.6% y-o-y) in 9M 2021 and to 13.6 TWh (up 14.3% y-o-y) in 3Q 2021. This was due to increased water reserves in Lake Baikal and the Bratsk reservoir. Water levels in Lake Baikal reached 457.22 metres as at 1 October 2021 vs. 457.12 metres at 1 October 2020. Water levels in the Bratsk reservoir reached 401.76 metres as at 1 October 2021 vs. 400.04 metres at 1 October 2020.
- The Group's Krasnoyarsk HPP's total power generation increased to 18.2 TWh (up 15.9% y- o-y) in 9M 2021. In 3Q 2021, power generation at the Krasnoyarsk HPP was 6.8 TWh (up 13.3% y-o-y). This increase was a result of a more intensive state regulated drawdown in the Krasnoyarsk reservoir due to high water reserves which resulted from abnormally high water inflows in 2Q 2021. The maximum mark of the headwater level of the Krasnoyarsk reservoir was 1.5 meters higher than last year.

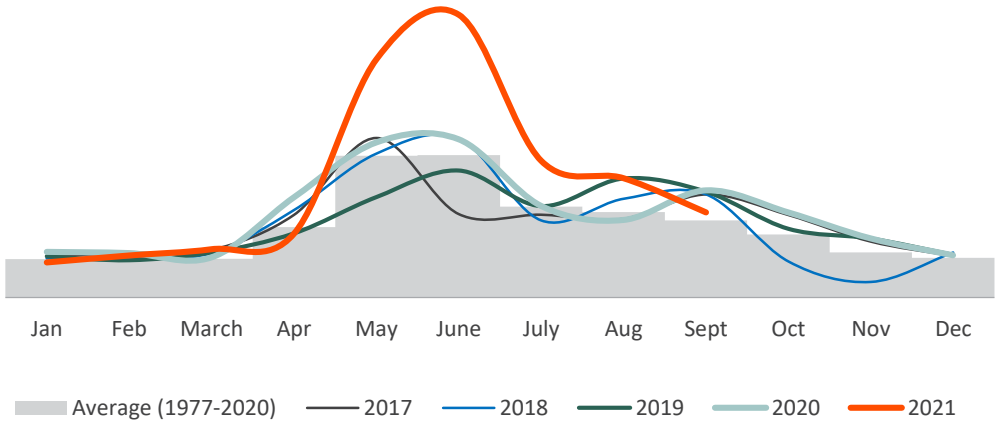
Water level (m)

	Normal	Minimum	30.09.2021	30.09.2020
Irkutsk HPP	457.00	455.54	457,22	457.12
Bratsk HPP	402.08	392.08	401,76	400.00
Ust-Ilimsk HPP	296.00	294.50	295,63	295.69
Krasnoyarsk HPP	243.00	225.00	241,67	241.06

Water inflows, Angara cascade[1] (m^3 per sec.)



Water inflows, Yenisey cascade / KHPP (m^3 per sec.)

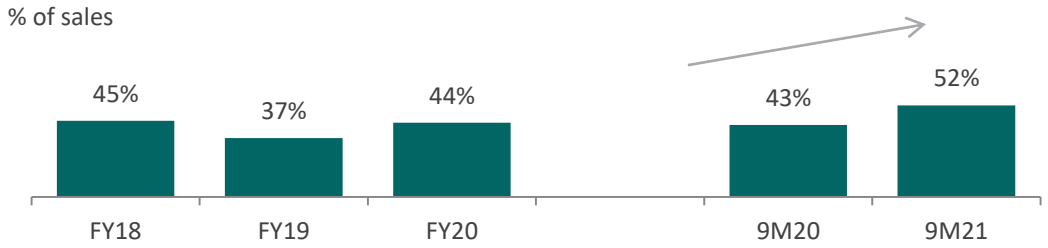


(1) Hydro production and water inflows data for Angara cascade include Irkutsk, Bratsk and Ust-Ilimsk HPPs.

Aluminium Price and Sales Structure in 9M 2021

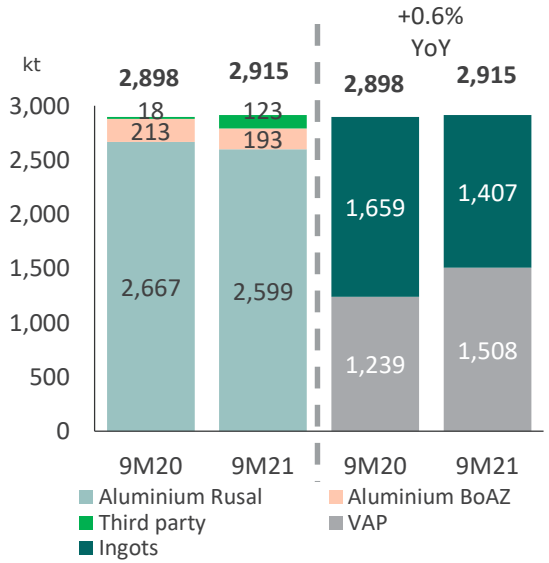
- In 9M 2021, aluminium sales remained stable at 2,915 thousand tonnes (up 0.6% y-o-y).
- In 9M 2021, European destinations continued to dominate the sales mix at 40%, but were down 6 pp y-o-y, while sales to Asia remained stable at 25% of total sales. The main shift during the period was towards the Russian & CIS regions and America with the former growing to a share of 26% (up 4 pp y-o-y) and the latter up to 9% (up 2 pp y-o-y) respectively.
- In 9M 2021, the average aluminium realised price increased 38.0% y-o-y to USD 2,426 per tonne. The LME QP component increased by 35.8% y-o-y to USD 2,195 per tonne in 9M 2021. The realised premium grew by 62.5% to USD 231 per tonne in 9M 2021, supported by a higher share of VAP in the total sales mix (52% in 9M 2021 vs 43% in 9M 2020).

VAP share in sales

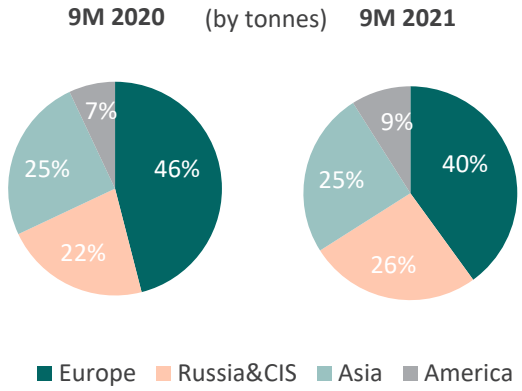


- In line with its strategy, the Group continued to grow the share of VAPs in total sales. In 9M 2021, VAP sales amounted to 1,508 thousand tonnes (up 21.6% y-o-y), and the share of VAP sales in total sales was 52% (up by 9 pp y-o-y).

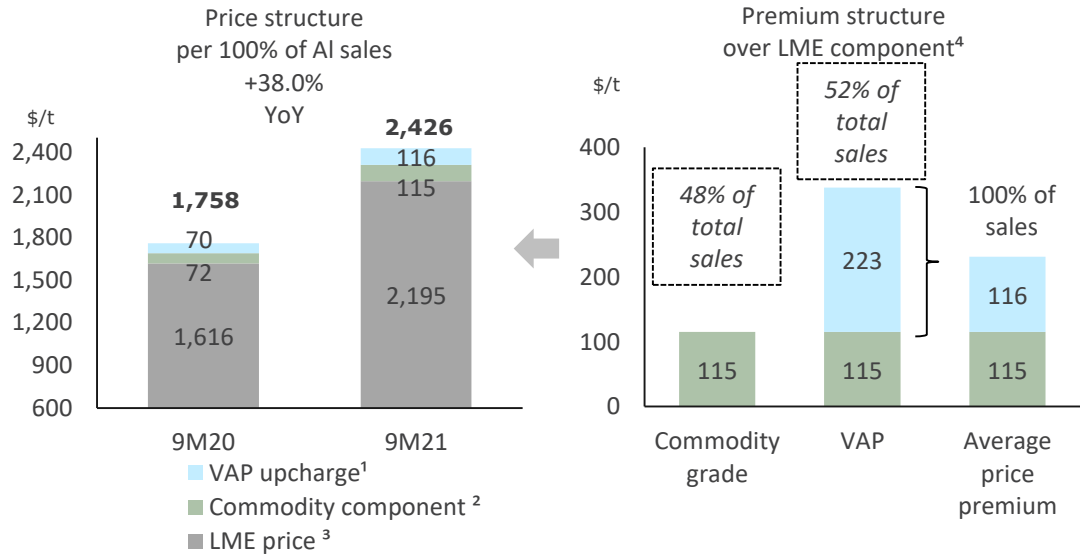
Aluminium sales



Sales geography



9M 2021 realised price structure

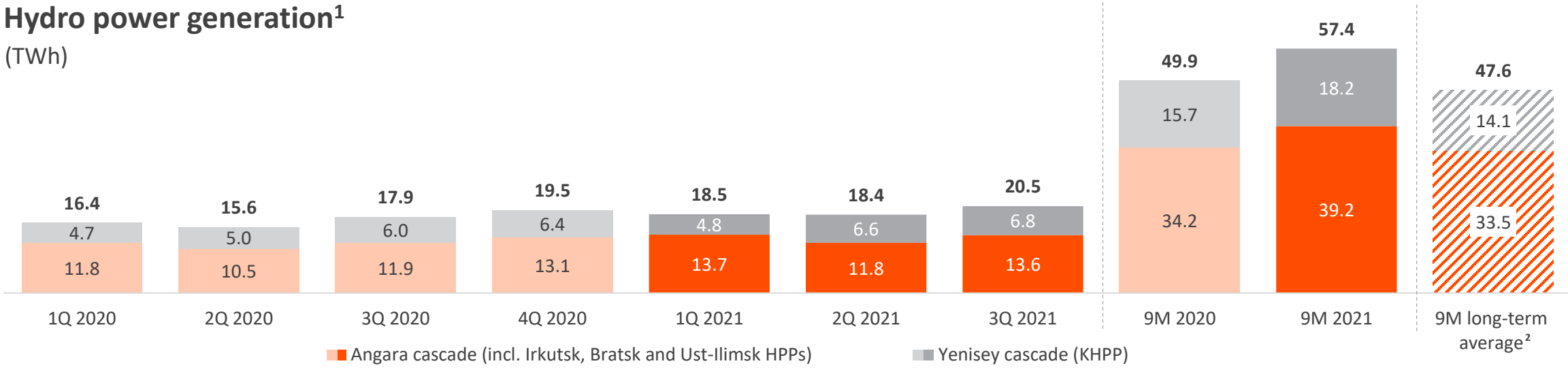


(1) VAP component is applicable only to VAP products and represents an upcharge over LME price and commodity premium. (2) Estimated average commodity premium over LME component. (3) LME cash price adjusted by quotation period. (4) Excluding sales of secondary alloy.

Power Generation Volumes

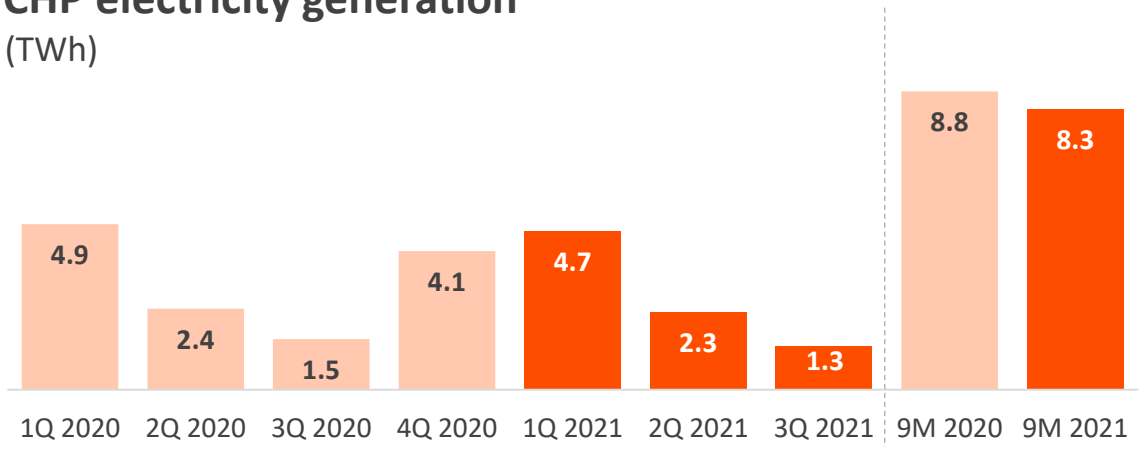
Hydro power generation[1]

(TWh)



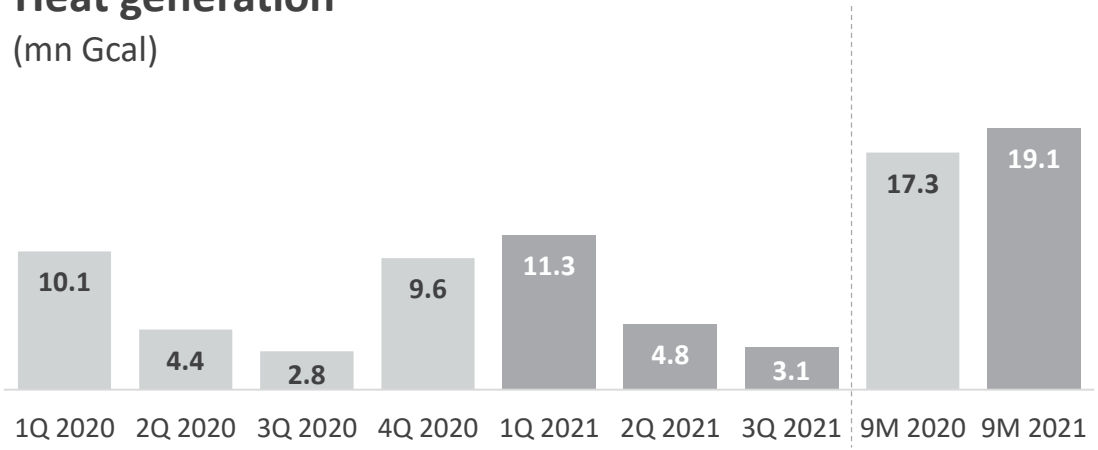
CHP electricity generation

(TWh)



Heat generation

(mn Gcal)



Note: Due to rounding, total may not correspond with the sum of the separate figures.

(1) Excluding Onda HPP

(2) 9M average since 1970 for Krasnoyarsk HPP and since 1977 for Angara cascade.