



EN  PATHWAY TO **NET ZERO**  
2024

# Disclaimer

In this Report, the terms “En+”, “En+ Group”, “EN+ GROUP”, or the “Company” in various forms mean EN+ GROUP IPJSC and its subsidiaries.

This Report may include forward-looking statements or ones that may be deemed as such. In this Report, forward-looking statements may use words such as 'believe,' 'estimate,' 'plan,' 'expect,' 'forecast,' 'foresee,' 'intend,' 'possibly,' 'probably' and 'should be' in various grammatical forms, as well as statements regarding the strategy, plans, objectives, future events and intentions of the Company.

Forward-looking statements may and often do differ materially from the Company's actual results. All forward-looking statements are to be assessed with regard to risks associated with future events or other factors, unforeseen circumstances and assumptions relating to the Company's operations, results, financial standing, liquidity and prospects for development, growth or strategy. The industry, market and market position data presented in this Report come from either official or independent sources. Sectoral publications, studies and independent source reviews largely assert that the data they contain originates from reliable sources, but there are no guarantees as to the veracity or comprehensiveness of the information provided therein.

Although the Company has a reasonable belief that all such publications, studies and reviews come from reliable sources, neither the Company nor any of its directors, officers, employees, agents, affiliates or consultants have independently verified the information they contain. Additionally, some of the industry, market and market position data in this report are based on internal analyses and research derived from the Company leadership's knowledge and experience. En+ assumes that the information obtained from such analyses and research is accurate, but its accuracy and reliability, as well as the underlying methodology and hypotheses have not been independently verified.

Following the drafting of the Company's Report, external or other factors, such as the geopolitical conflict in Ukraine and sanctions imposed by other countries against the Russian Federation, Russian citizens and Russian companies, could have an impact on the Company's operational and financial results. The Company has no control over these and other factors, which could have an adverse effect on En+'s production capacity.

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# About En+

>90,000 employees  
5 continents

## METALS SEGMENT

**N°1** aluminium producer outside China

**5.5%** of the world's aluminium production

**99%** aluminium produced using hydropower

**AlloW** low-carbon aluminium brands  
**AlloW** INERTA

## POWER SEGMENT

total installed capacity **19.5 GW**

low-carbon energy sources in the installed capacity **80%**

low-carbon hydropower production **68.8 TWh**

seller of renewable energy certificates in Russia **N°1**

Acknowledgement of the Companies' efforts to reduce its impact on climate change

**Expert**

“ESG-II(b)” or “ESG-A”

Very high level of respect for sustainability interests in key decision making

Rating outlook is stable

**RUSAL “A-”**, a leader among companies in the aluminum industry

In 2023, the reports of En+ and RUSAL were not assigned CDP ratings, but they are available on the CDP and UN Global Compact website for all stakeholders

# Promoting the climate and sustainable development agenda

First CDP questionnaire submitted by RUSAL

7 climate goals set by RUSAL

Internal carbon price enforced by RUSAL

First Sustainable Development Report issued by En+

Call to LME for GHG Emissions Disclosure

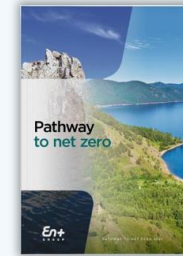
Analysis of climate risks and opportunities completed

The roadmap published

Pathway to net zero progress report (1) issued

Pathway to net zero progress report (2) issued

The Russian Climate Partnership founded



2015

2016

2017

2018

2019

2020

2021

2022

2023

**-35% BY 2030  
CARBON  
NEUTRALITY BY  
2050**

**-35% BY 2035  
CARBON  
NEUTRALITY BY  
2050**

# Challenges of climate strategy



Low electricity tariff



Delays in the modernisation of aluminum plants due to interruptions in the supply of imported equipment and components, incl. the refusal of foreign equipment suppliers to work with Russia



Postponement of the gasification of the Eastern Siberia (according to the plan, it was supposed to be completed by 2030)



The deficit of electricity and heat generation capacity in Eastern Siberia, forcing the Group to expand the CHP's capacity



Lack of access to low-cost financing

## En+ Climate Goals

# 2035

**Reduce GHG emissions by 35%**  
(vs 2018 baseline)

# 2050

**Achieve net zero  
greenhouse gas emissions balance**

# Development of low-carbon energy

## PORTFOLIO OF EN+ PROJECTS

- ▶ **+2.2 GW** total installed capacity of new HPP projects
- ▶ **+200 MW** total installed capacity of new small HPP projects
- ▶ **+1 GW** potential capacity of a wind farm in the Amur region

## HPP CERTIFICATION

- ▶ Carried out the **international verification** of the results of HPP emissions measurements
- ▶ Completed the HPP qualification in the **National Low-Carbon Electricity Certification System**

**N°1**

the only Russian company that has obtained **international HPP certification**

**1.8~7 g CO<sub>2</sub>/KWh**

emissions from reservoirs of the **Irkutsk, Bratsk and Ust-Ilimsk HPPs**

## RENEWABLE ENERGY CERTIFICATES

- ▶ International verification and national certification of HPPs allow En+ to continue the active development of the **renewable energy certificate** programme, an independent market for which has recently emerged in Russia

**N°1**

company on the Russian **renewable energy certificate** market

**46.5 mn**

renewable energy certificates sold (2023)

# 'New Energy' programme

## Maintaining focus on traditional areas of the business

- ▶ The HPP efficiency will meet the best world standards, and the level of safety, reliability and quality of energy supply to consumers in the Siberia will go up
- ▶ The project allows to significantly reduce the risks associated with cavitation, and address the HPP generator wear issue

**82%** implementation of the Programme

Reduction of CO<sub>2</sub> emissions

**>2.52**  
mt annually  
(from 2023)

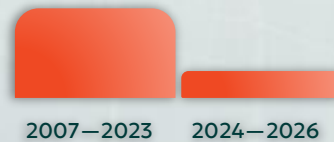
Additional HPP generation

**+2.17** (2023)  
TWh

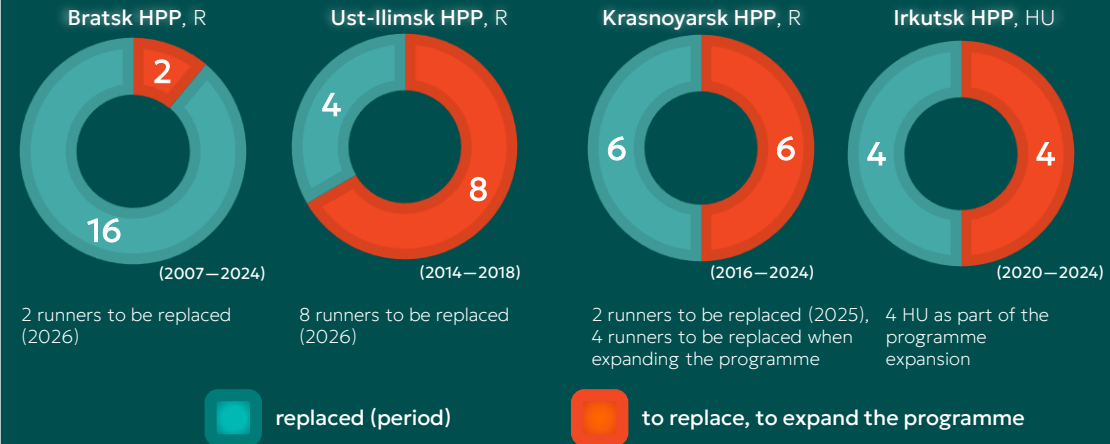
**+2.4** (from 2024)  
TWh

Investments

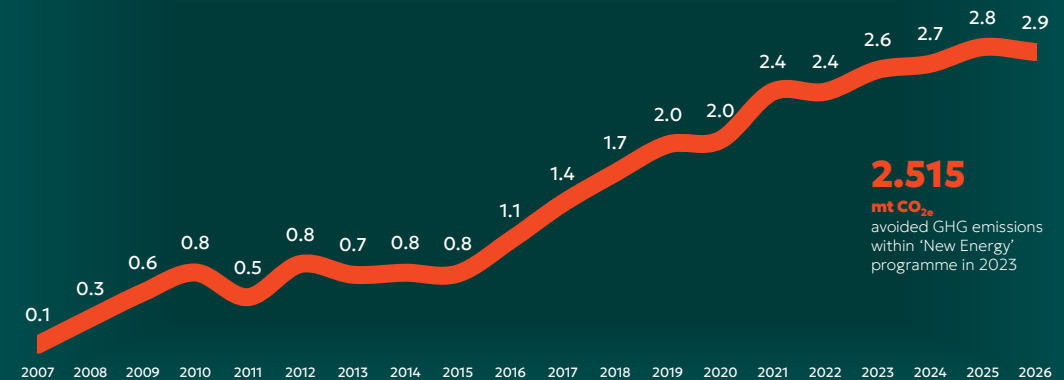
RUR 17 bn      RUR 4 bn



Current status of replacement of runners (R) и hydraulic units (HU) at November 2024



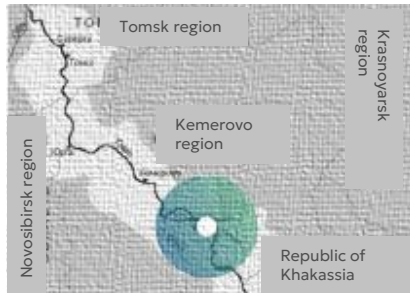
AVOIDED GHG EMISSIONS from coal-fired generation as a result of the modernisation, mt CO<sub>2</sub>e





# Hydrogeneration

## Priority HPP projects



**Krapiva HPP**  
345 MW  
1.9 TWh



**Telmamskaya HPP**  
450 MW  
1.7 TWh

## Maintaining focus on traditional areas of the business

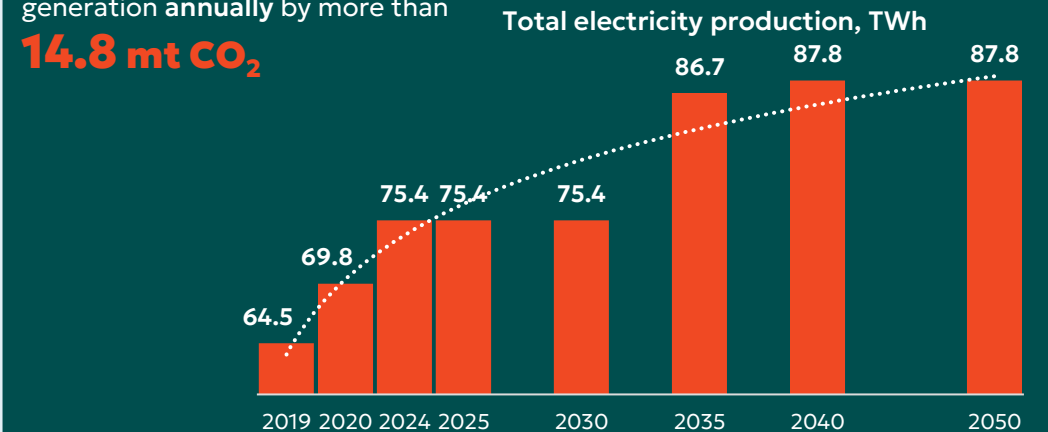
Strategic end consumers of electricity:

- Russian Railways and consumers of Eastern Siberia
- TaAZ, NkAZ and consumers of renewable electricity
- Mining and processing plants

**Increase in HPP generation, taking into account the introduction of new capacities: +12.4 billion kWh**

The growth in generation (+12.4 billion kWh/year) will prevent emissions from coal generation annually by more than

**14.8 mt CO<sub>2</sub>**



## Mokskaya hydrocomplex

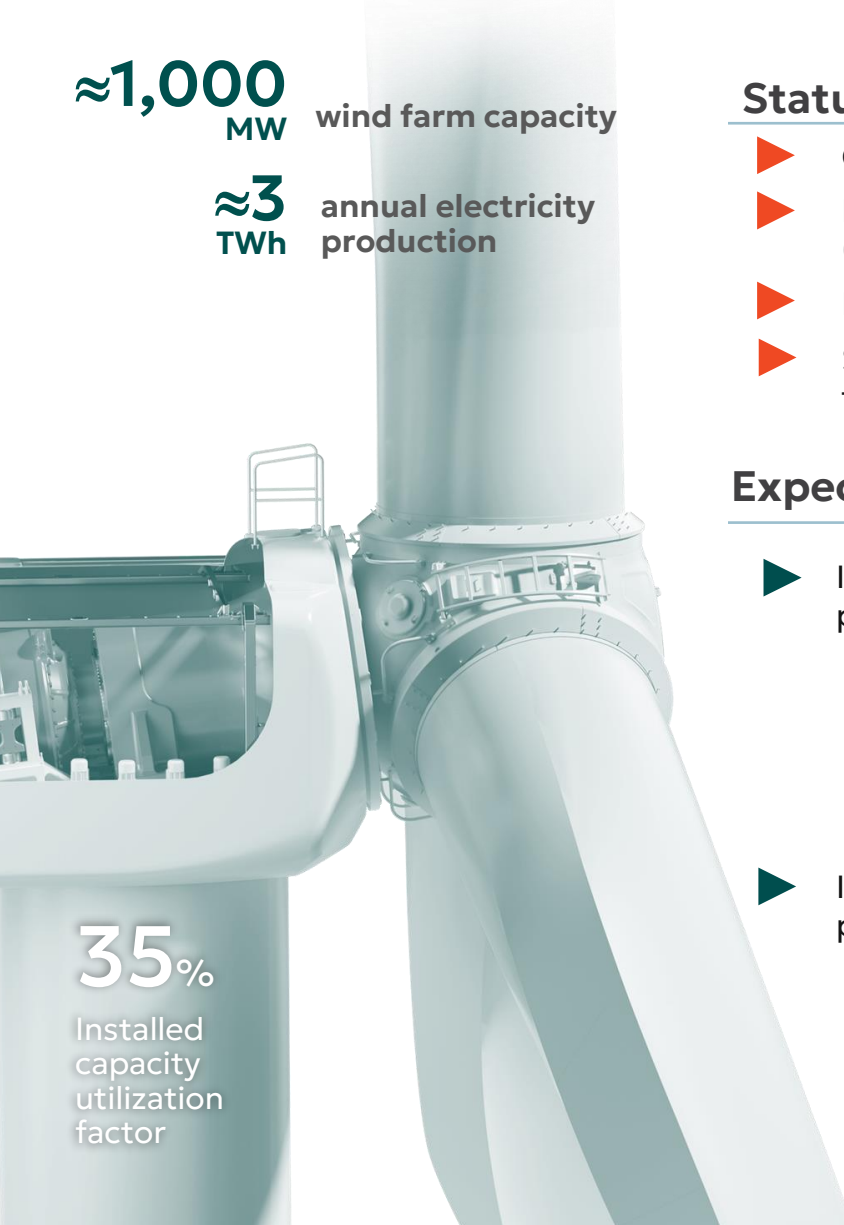


The project includes **Mokskaya HPP (1,200 MW)** and the counter-regulating **Ivanovskaya HPP (210 MW)**



# Wind power generation

≈1,000 MW wind farm capacity  
 ≈3 TWh annual electricity production



35% Installed capacity utilization factor

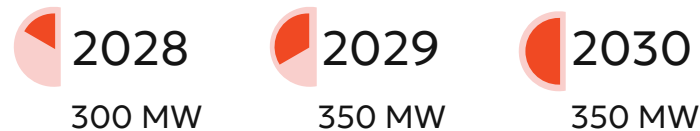
## Maintaining focus on traditional areas of the business

### Status

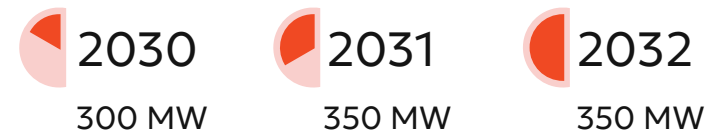
- ▶ Conducting wind measurements (2024–2025)
- ▶ Development of power distribution schemes (2024-2025)
- ▶ Land allocation and registration (2025–2026)
- ▶ Study to assess the feasibility of delivering wind turbine components (2024–2025)

### Expected construction timeframe

- ▶ If the selection of renewable energy projects takes place **in January-February 2025:**

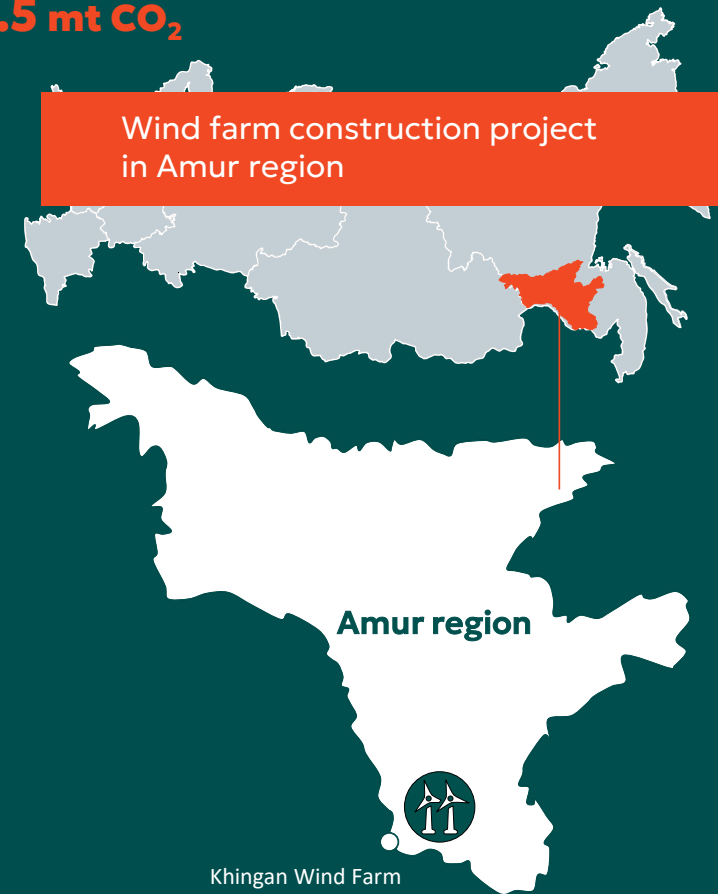


- ▶ If the selection of renewable energy projects takes place **at the end of 2025:**

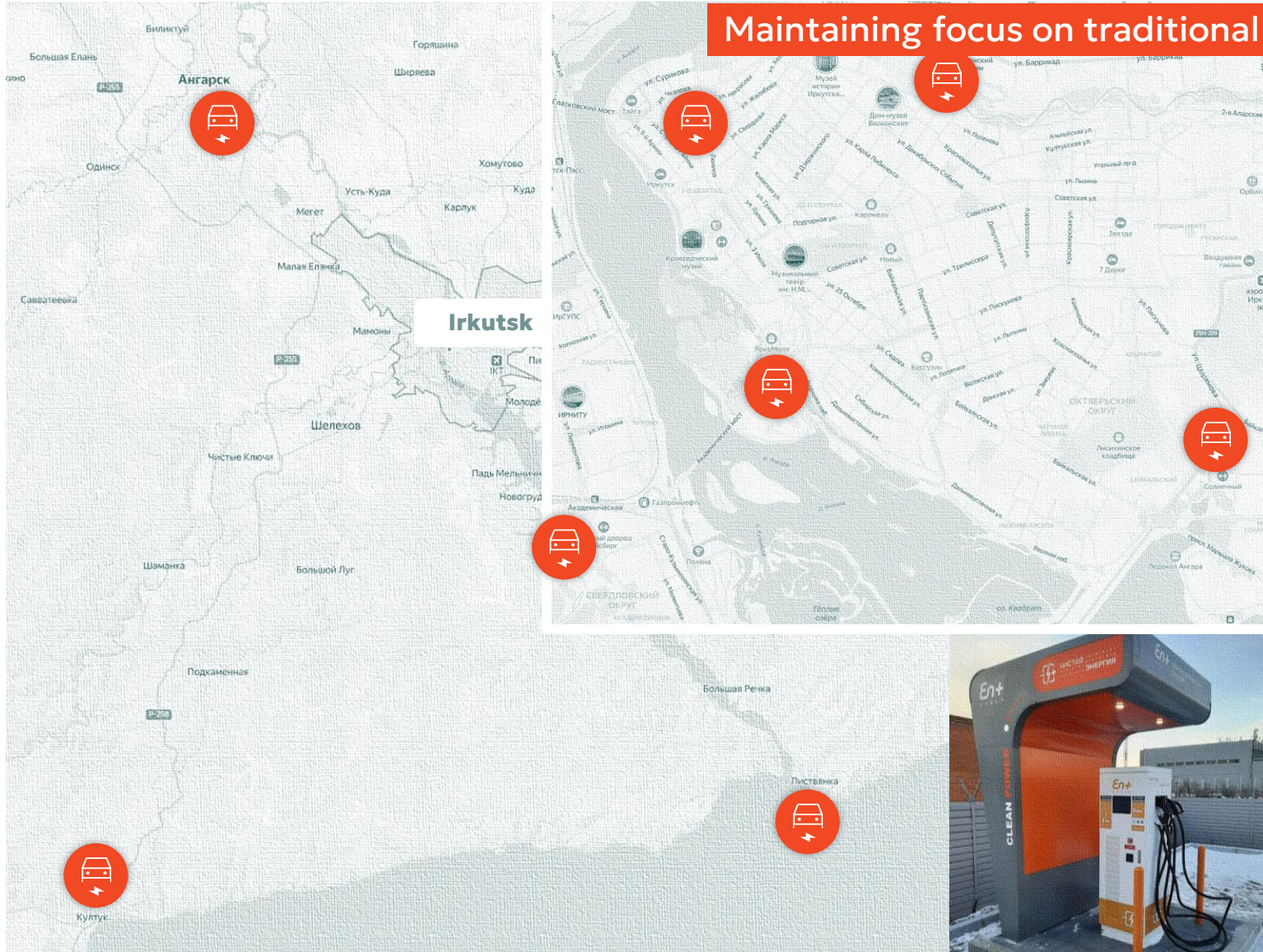


Increase in generation amounts to 24.5 billion kWh/year, which will avoid emissions from coal generation **annually** by more than

**3.5 mt CO<sub>2</sub>**



# Development of a network of electric charging stations



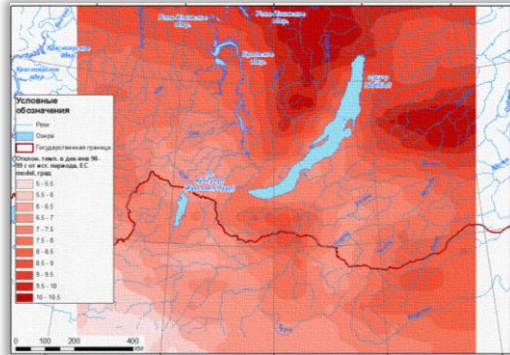
**18** En+ charging stations in the Irkutsk and Krasnoyarsk regions

**+19** new stations are being installed in 2024

**265 thousand kWh** total electricity consumption via charging stations in 2023 (+20% vs 2022)

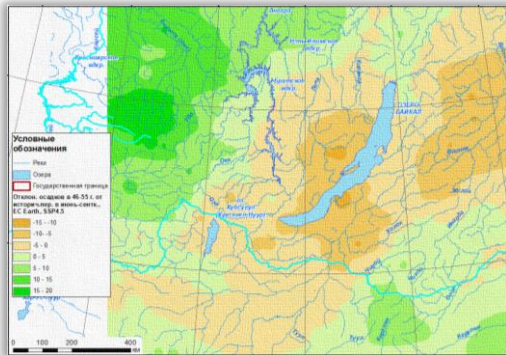
# Adaptation of HPPs to climate change

2050. Temperature – probable scenario

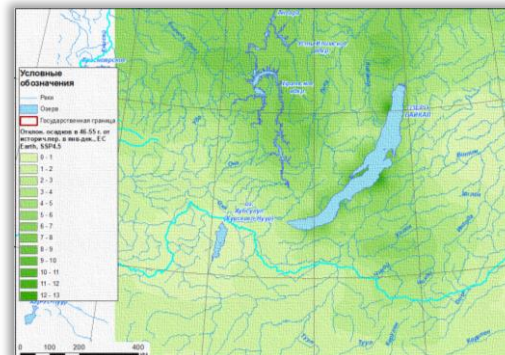


2050. Precipitation – probable scenario

summer

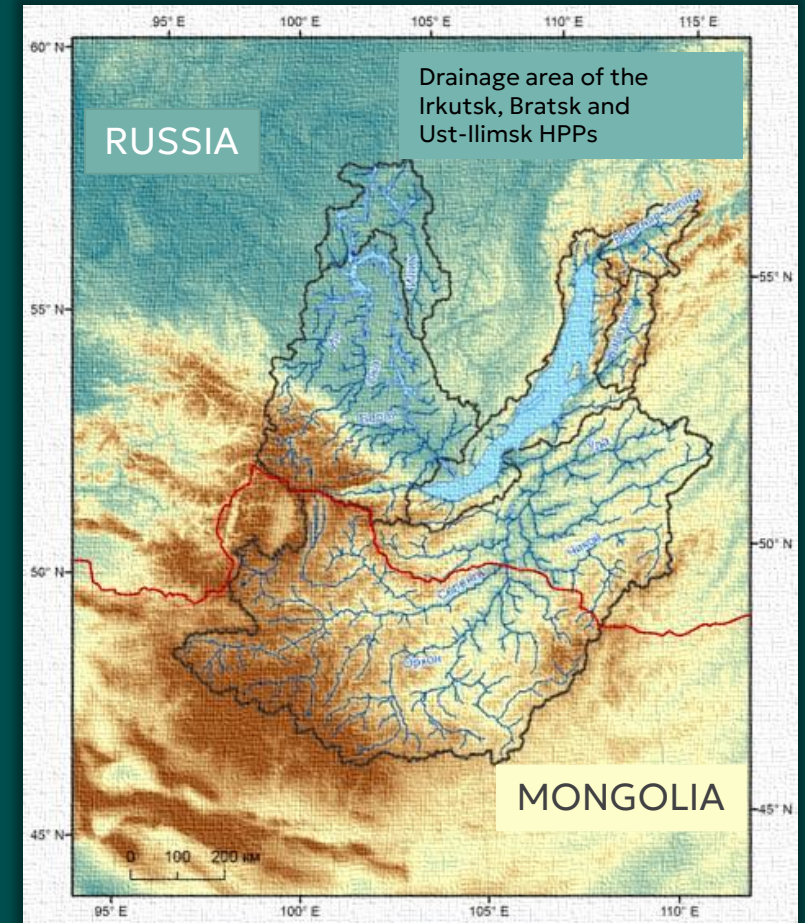


winter



- ▶ Climate risk analysis was performed and water forecasts were obtained for two climate scenarios for planning horizons up to 2030, 2050 and up to the end of the century
- ▶ Risks have been identified and adaptation measures have been developed

RISK	ADAPTATION MEASURES	PLANNING HORIZON (RELEVANCE)
Decrease in the annual volume of river flow in the Baikal and Angara basins	construction of new HPPs updating the rules for the use of water resources of reservoirs	after 2030
Increased risks of floods and droughts	reconstruction of water intakes on the Bratsk reservoir short- and medium-term forecasting of river flows	after 2030
Increased fire hazard	reforestation and forest protection in the watershed	relevant now

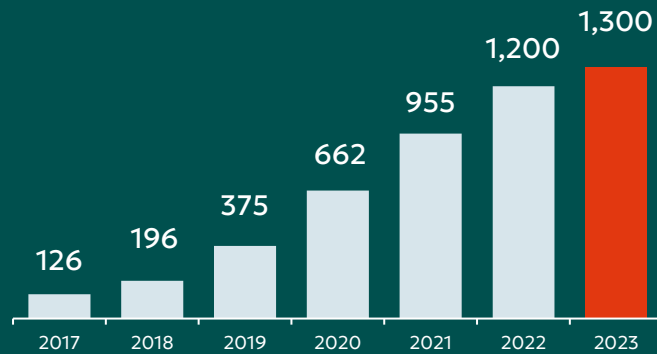


For most of the drainage area the climate becomes more arid with prolonged periods of drought and rain

# Developing a low-carbon product line

## Low-carbon aluminium brand **ALLOW**

ALLOW sales volume, kt



**>2.3**  
tCO<sub>2</sub>e/t Al

ALLOW aluminium carbon footprint (Scope 1 and 2)

**31%**

share of ALLOW low-carbon aluminium in total sales volume of aluminium (2023)

## Low-carbon aluminium brand **ALLOW INERTA**

- ▶ International verification of carbon footprint in accordance with ISO 14067:2018
- ▶ Green Power Aluminium certification



**5,000**  
tonnes

of aluminium produced using **inert anode** technology since the launch

**0.01**  
tCO<sub>2</sub>e/t Al

carbon footprint of **ALLOW INERTA** brand (Scope 1 and 2)

## Development of a product line using secondary aluminum

- ▶ Pilot project for scrap processing and its involvement in the production of cylindrical ingots at **VgAZ**
- ▶ Use of aluminum scrap in the production of casting alloys for the automotive industry, as well as recycling of aluminum scrap cans at **KrAZ**
- ▶ Launch of production of alloy for the automotive industry **PEFA** (Primary Equivalent Foundry Alloys, equivalent of primary casting alloy) for the production of aluminum wheels

**1,150**  
tonnes

scrap processed by **VgAZ** in 2023

# Decarbonisation of alumina division

## Energy efficiency measures

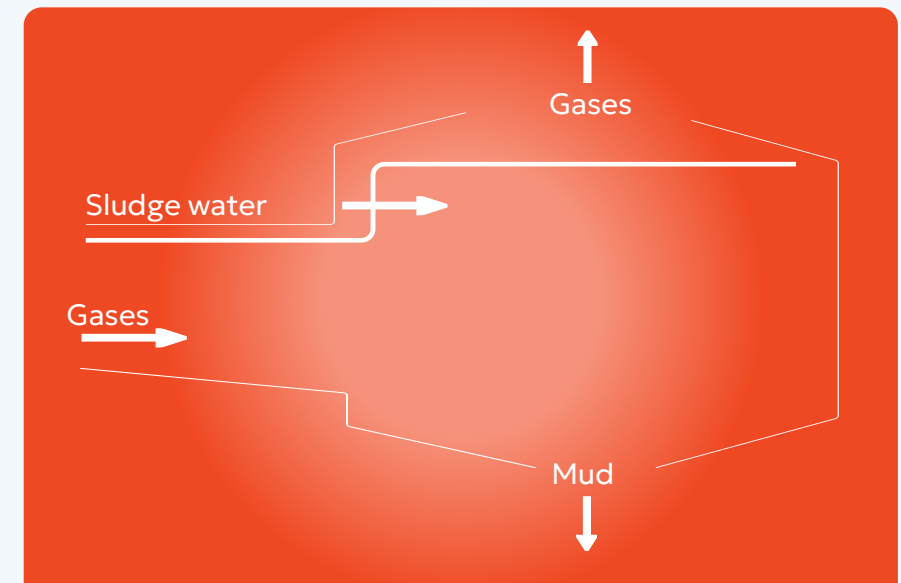
- ▶ Energy efficiency measures are currently being implemented in business units of the division
- ▶ Two climate projects have been registered to improve the energy efficiency of the Krasnogorsk CHP of the UAZ in the production of thermal energy and in the preparation of raw water
- ▶ Project to improve the energy efficiency of the equipment at the filtration and calcination shop of the Bogoslovsky aluminum plant has been registered

**1.8** mt CO<sub>2</sub>e

expected effect of emission reduction for the entire period of implementation of registered projects, designed for 10, 14 and 25 years

## CO<sub>2</sub> capture

- ▶ At Achinsk alumina refinery experimental developments are underway to **capture and mineralize CO<sub>2</sub>** using alkaline bottom-sludge water, with different options for wet scrubbing of gases



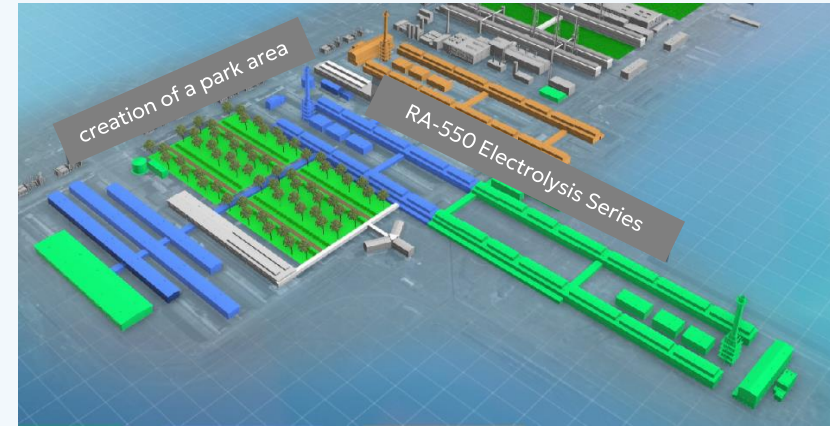
# Decarbonisation of aluminium division

## Switching to pre-baked anode technology

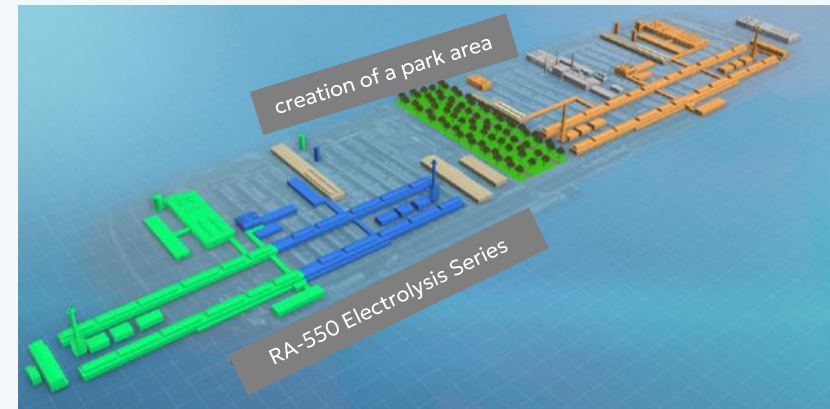
- ▶ The Metals segment continues modernisation of aluminum plants with a transfer to pre-baked anode technology (RA-550)
- ▶ Positive conclusions from the Main State Expertise Review and the State Ecological Expert Review were obtained for the project documentation of KrAZ and BrAZ
- ▶ Preparatory work has been completed at the KrAZ and BrAZ sites, contracting, construction and installation work is underway for the main production facilities of the project

**1,070**  
thousand tonnes  
per year

aluminum is planned to be converted to pre-baked anode technology as part of the modernisation



KrAZ



BrAZ

# Nature-based climate projects

## Aerial forest protection to prevent fires in Krasnoyarsk region

- ▶ The project includes personnel training (hiring, training, medical support), monitoring, prevention from forest fires **by small aircraft**
- ▶ A public discussion of the methodology for the forest climate project implementation took place on the platform of the **Russian Climate Partnership**
- ▶ In 2023, the project was validated and registered in the **Russian Register of Carbon Units**
- ▶ In 2024, the results of the first reporting period of the project (2019-2023) were verified, the operator of the Russian Register of Carbon Units issued **1,351,054 carbon units** to the Company's balance sheet

> **4** mt CO<sub>2</sub>e

expected effect of GHG emissions reduction as a result of the forest climate project implementation to have forests protected from fires for the period up to 2033

## Irrigation of previously drained peatlands in Leningrad region

- ▶ In 2023, Metals segment together with partners announced the launch of a pilot climate project to irrigate previously drained peatlands, which will allow:
  - ▶ reduce emissions and increase absorption of GHG,
  - ▶ ensure fire safety, and
  - ▶ preserve biodiversity
- ▶ A public discussion of the methodology for the climate project implementation took place on the website of the **Russian Registry of Carbon Units**

> **600** ths ha

area of peat deposits in the Leningrad region (potential for the climate project implementation)



# We are calling for:



A need to look at the **goals of energy transition** strategically in order to drive technological independence from other markets



Further development of renewable energy sources, including the implementation of Russia's **hydro potential**



**Acceleration of the gasification process** in Eastern Siberia



Supporting **responsible financing**



Strengthening control over **illegal mining**



Building **partnership and cooperation** with markets that have developed their carbon regulations

**20%**

share of Russian hydro potential realized

**-80%**

potential reduction of pollutant emissions will result from gasification of the Irkutsk region

**>1 RUR bn**

the total value of lawsuits against illegal miners since 2019

# Further information

**Purpose of the Report** Share En+'s progress towards net zero

**Report frequency** Yearly

## Feedback, comments, or inquiries!

**for investors, analysts and rating agencies**

Investor Relations and ESG  
ir@enplus.ru

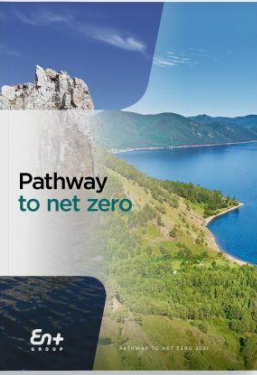
**for sustainability-related cooperation and partnerships**

Chief Sustainability Officer's team  
csr@enplus.ru

**for media inquiries**

Public Relations team  
press-center@enplus.ru

Pathway to net zero strategy, 2021



Progress towards Net Zero, 2022

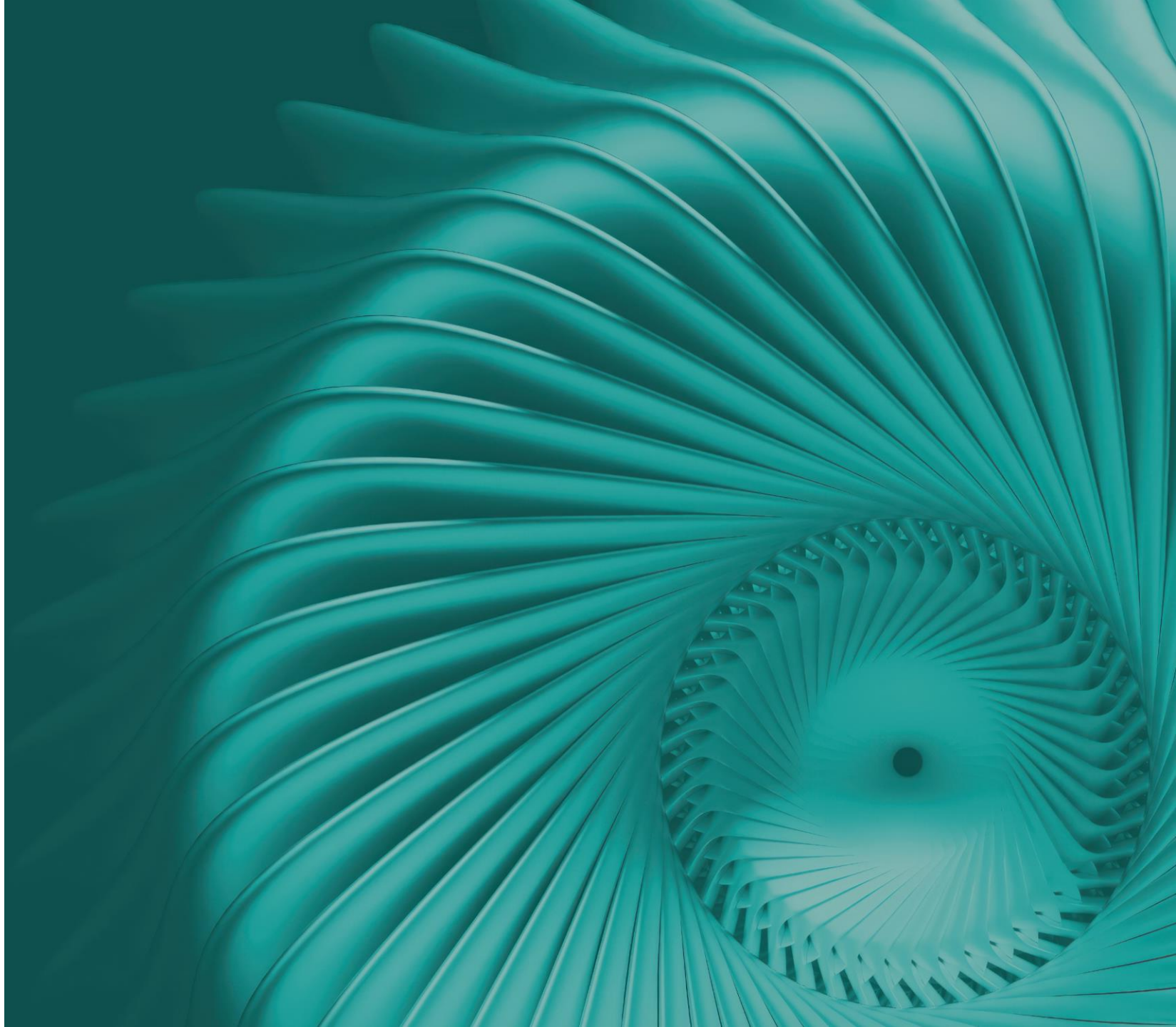


Progress towards Net Zero, 2023



Visit our website for climate-related reports:  
<https://enplusgroup.com/ru/sustainability/downloads/>

APPENDIX



# En+ carbon footprint

## Consolidation perimeter

The Company and its subsidiaries covered with the En+ consolidated financial statements, compiled in accordance with IFRS, that have a significant impact on sustainable development indicators.

## Verification

During the audit of sustainability-related information from Consolidated report, the quantitative data on GHG emissions underwent independent verification by B1 and TÜV Austria.

## Data collection and calculation methods

The calculation was done based on the GHG Protocol. In accordance with the Greenhouse Gas Protocol's Corporate Value Chain accounting standard (Scope 3), the Company accounts for GHG emissions under Scope 3 caused by the production and transportation of fossil fuels.

## Dynamics explanation

2021 vs 2020: + 0.6%

Increase in GHG emissions in Metals segment was due to perimeter expansion. Increase in GHG emissions in Power segment was due to extension of heating season, requiring more heat supply.

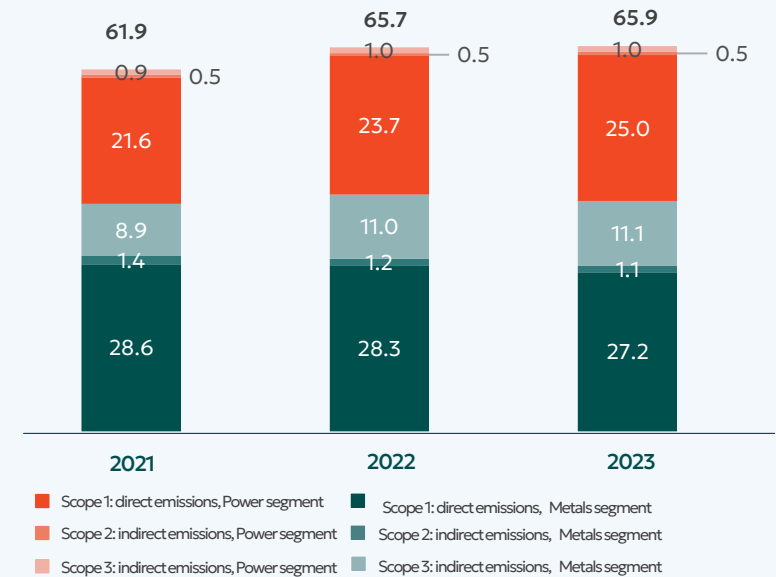
2022 vs 2021: + 6%

Increase in GHG emissions in Power segment was due to reduction of HPP generation, which was compensated by an increase in electricity generation at CHPs.

2023 vs 2022: +0.3%

GHG emissions increased due to the low water supply by the Yenisei river, the increase in energy consumption in Irkutsk region and the associated increase in condensation generation from CHPs.

En+ direct (Scope 1) and indirect (Scope 2 and 3) GHG emissions, mt CO<sub>2</sub>e



En+ carbon footprint (Scope 1, 2, and 3), 2023, %

