

Responsible business practices

Quality management

84

number of customers' quality-related complaints



- [Quality Policy](#)

Material topics

- Economic performance



GRI 3-3

En+ Group's priority is to provide customers with products and services of appropriate quality while maintaining maximum production efficiency. The Company's main principles and approaches in this

area are set out in its [Quality Policy](#). In the reporting period, the Power segment continued to pay special attention to upgrading uninterrupted power supply equipment.

GRI 3-3

All finished products of the Metals segment undergo mandatory labelling in accordance with specifications, state standards, and product data sheets. The Company's facilities are annually assessed for compliance with quality standards by independent experts.

In the reporting year, several facilities were certified to validate their compliance with international standards ISO 9001 and IATF 16949 and national standard GOST R 58139.

Facility certification

ISO 9001 QMS principal standard	GOST R 58139 Standard for the automotive industry	IATF 16949 Standard for the automotive industry
25 facilities (Alumina Division, Aluminium Division, Downstream Division, and New Projects Directorate)	7 aluminium smelters	2 aluminium smelters

GRI 3-3

En+ Group runs focus programmes to enhance the quality of its products and services based on the analysis of customer satisfaction and external assessments of the Company as a supplier. En+ Group improves its own processes and applies the Zero Defects strategy to its procurement procedures: every shipment of raw and other materials must meet regulatory and contractual requirements.

In the reporting year, the Company received 84 consumer complaints about substandard product or service quality. These complaints were investigated, and the necessary measures were taken.



Plans for 2025 and the medium term

- To continue to develop and improve online services for individual and business clients.



Digital transformation

- The Power segment approved its unified digital transformation strategy
- An industrial artificial intelligence department was created to introduce AI technologies at production facilities



- Digital Transformation Strategy

Key goals for 2024

Goals	Status	Progress made in 2024
Create a digital project committee	Achieved	The committee became operational
Implement end-to-end automation projects as planned	On track	Measures were taken in accordance with the schedule
Launch the Digital Project Office project	Achieved	A system using modern project management technologies was implemented
Build a data platform and ensure the operation of automated data filling mechanisms	On track	Measures were taken in accordance with the schedule
Establish a consolidated digital ESG data loop within the Metals segment with subsequent integration of 100% of ESG metrics into a single information platform enabling big data-driven decision making on environmental, social, and corporate governance aspects	On track	<ul style="list-style-type: none"> • Data automation for sustainability reports based on annual overviews was completed • Monthly data collection was implemented for certain environmental metrics • The first suppliers completed ESG accreditation in the Supplier's Personal Account

Material topics

- Economic performance

GRI 2-13, 3-3

The Company actively implements digital products and services, automates business processes, uses big data, artificial intelligence, and machine learning to perform operational tasks.

The division responsible for these tasks is the Digital Transformation Directorate headed by the Deputy CEO for Information Technology and Digital Transformation. The Directorate implements the Group's digitalisation strategy, introduces innovative technologies, and manages selected digital projects.

In general, En+ Group retained its digitalisation and automation management structure in 2024 and continued to develop:

- its Artificial Intelligence and Big Data and Industry 4.0 laboratories within the Digital Transformation Directorate
- a unified automation and digitalisation management company.

Within the Metals segment, the Information Technology Directorate (ITD) oversees digitalisation aspects, and cross-functional teams are created to drive the development of new digital solutions.

The Group annually expands and strengthens its own IT competencies, which helps it maintain flexibility in developing digital products and stay independent from external influences.

The Company has updated the Power segment's digitalisation strategy.

Automation and digitalisation

Transfer of the Company's data to cloud infrastructure	Use of drones to inspect hydraulic structures	Automation of routine processes and robotic automation of production facilities
Mass training of En+ Group's employees in business analytics tools and data management	Development of AI assistants to automate business processes of the Company and its clients	Creation of a modern digital multiservice company based on En+ Telecom

En+ Group implements automation and digitalisation projects in various areas. The digital solutions being developed and implemented are designed to both improve the efficiency and reliability of production processes and to support the Company's sustainable development: reduce its environmental impact, ensure

OHS supervision, develop educational platforms, simplify dealings with suppliers, optimise supply chains, etc.

Predictive analytics

The automated predictive analytics system (APAS) has helped prevent

24 emergency shutdowns of equipment since its launch: thanks to the system, specialists detected problems early and promptly carried out repairs.

In 2024, the APAS was deployed at 12 out of 18 hydraulic units of Bratsk HPP. The APAS analyses data on the parameters and operational conditions of hydraulic units through machine learning algorithms. Based on this data, the system predicts equipment malfunctions in advance and promptly alerts plant staff. The technology helps determine the most suitable timing for maintenance, thereby enhancing operational safety and efficiency.

Artificial intelligence

Machine vision-based monitoring will be implemented at electrolysis facilities of Krasnoyarsk, Bratsk, Novokuznetsk, Irkutsk, and Volgograd Aluminium Smelters before 2027. The investments will amount to RUB 1.6 billion (USD 17 million).

Thanks to the Company's proprietary technology, sealing failures at electrolyzers may be detected 24/7, which further improves the environmental performance and safety of the process.

Substitution of imported automation systems

In the reporting year, En+ Group decided to phase out the imports of automated process control systems (APCS) for aluminium smelters and alumina refineries.

This programme estimated at RUB 20 billion (USD 216 million) is expected to be completed by 2031. New Russian controllers and software were successfully tested at a pilot site of Krasnoyarsk Aluminium Smelter.

The replacement process is already underway

at **26**
process sections

Electronic document management

The trend towards paperless document management continued in 2024: En+ Group's companies introduced HR electronic document management systems, electronic

signing of contracts and source accounting documents, and significantly expanded the number of users using electronic signatures.

In 2024, the Group continued to implement information technology-related educational projects to attract young specialists to the team of professionals engaged in the software development, information security, data analytics, and machine learning, development of server infrastructure.

The Company has been conducting an extensive outreach programme among school and university students interested in digital technologies. Under this programme, the Company:

- Holds competitions and festivals devoted to robotics and information technology
- Opens and maintains the operation of En+ Group Multilab competency building centres
- Implements the IT Academy educational project in partnership with Russia's leading universities
- Participates in the Professionalitet federal project for IT students
- Annually runs the Energy Lab acceleration programme and implements the scholarship project.

Training programmes for young specialists are based on real business cases and research tasks, which allows participants to gain not only specialised competencies and skills, but also knowledge about the specifics of operation of electric power facilities.

Plans for 2025 and the medium term

- To equip generating facilities with IoT¹ components.
- To launch an AI-based tool for personnel recruitment and assessment.
- To implement an industrial safety ecosystem.
- To develop such new competencies as video analytics and Industrial IoT.
- To effect the transition from standard system management to service management.
- To complete the unification of automated business processes for capital projects.
- To assess the effectiveness of the End-to-End Automation programme.
- To continue the implementation of Industry 4.0, 3D² projects, augmented reality technologies.

¹ Internet of Things, a system of interconnected devices that can collect and transmit data over a wireless network without human input.

² Dust, Dull, Dangerous, a term for dirty, dangerous, and heavy work at operating facilities.

Cybersecurity

GRI 418-1, 3.18.

0 instances

of confidentiality breaches, unauthorised transfer of personal data, or complaints from customers and partners regarding data leakage or breaches of confidentiality and privacy

0 incidents

leading to a malfunction or disruption of the Company's critical information infrastructure facilities



- Information Security Policy
- Privacy Policy

Key goals for 2024

Goals	Status	Progress made in 2024
Deploy and operationalise a number of additional cybersecurity systems	On track	Measures were taken in accordance with the schedule
Implement a pilot project to test a master data management system	On track	Measures were taken in accordance with the schedule
Finalise employee training courses to align them with the current cybersecurity standards and requirements	On track	Measures were taken in accordance with the schedule

Material topics

- Business ethics

GRI 2-13, 3-3

Cybersecurity is critical for maintaining the seamless operation of all the Company's business processes, so En+ Group devotes significant resources and efforts to protecting its IT infrastructure and ensuring prompt detection and elimination of threats and incidents. The Company's efforts in this area are aligned with its Information Security Policy. The main document governing personal data protection is the Privacy Policy.

The Company's cybersecurity management system ensures the confidentiality, safety, and availability of data. The incident response team is responsible for the system's operation. This team is tasked with detecting and addressing threats, including external attack attempts and implementation of malicious software, and unauthorised user activities. They also oversee the prompt elimination of vulnerabilities in the Company's infrastructure.

The incident response team compiles monthly reports for the Company's management detailing the current cybersecurity status and the trends in identified and resolved threats and incidents. In addition, annual audits assess the effectiveness of cybersecurity processes. In 2024, scheduled audits were performed at several Group entities, and tests were conducted on various information systems and services within the Company.

SASB IF-EU-550a.1

The Group promptly addresses and mitigates the effect of employee breaches of cybersecurity standards. En+ Group investigates all detected violations in accordance with the procedure for planning and implementing appropriate measures. During these investigations, designated individuals document the facts and causes of the violations and enforce technical and disciplinary measures.

To prevent incidents, En+ Group conducts regular internal training sessions for employees using the Corporate University internet portal to educate them on the rules of operating computers. Additionally, throughout the year, all employees receive training materials via corporate email, which contain informative fact sheets and examples of phishing emails. In 2024, 18 cybersecurity training events were held for managers of the Metals segment.

Plans for 2025 and the medium term

- To improve vulnerability management processes.
- To improve the information and analytical support for cybersecurity management, in particular update and develop the Company's internal regulatory framework in this area.
- To increase the involvement of contractors in ensuring the security of the Company's information assets.



Innovation management

RUB **2.3** bn

(USD 24.8 mn) allocated to R&D projects in 2024



- Patent Policy
- R&D Policy
- Energy Science and Technology Policy
- Regulation on the Department of Energy Science and Technology
- Regulation on the Scientific and Technical Council
- R&D Management Regulation

Key goals for 2024

Goals	Status	Progress made in 2024
Broaden the scope of partnerships and engage new scientific collaborators in R&D projects	Achieved	<ul style="list-style-type: none"> • Collaboration with more than 40 scientific and research organisations was established • A pool of 49 external experts was formed
Continue to explore new areas for the Company, including CO ₂ capture and storage (CCS), energy storage, and the development and production of cathode materials for batteries	On track	<ul style="list-style-type: none"> • In 2024, the Company's scientific and technical activities focused on solar power and energy storage facilities
Create a system for setting scientific and technical tasks in the Power segment	Achieved	<ul style="list-style-type: none"> • Priority areas of scientific and technical activities were determined, relevant business needs were identified, and a pool of projects was formed
Approve the Company's updated science and technology policy aligned with the emerging trends in strategic development	Achieved	<ul style="list-style-type: none"> • The Energy Science and Technology Policy was approved

Material topics

- Innovation management
- Economic performance

GRI 3-3

R&D management is focused on the development of renewable energy and other strategically important areas.

GRI 3-3, 2-13

In the Power segment, the Scientific and Technical Council oversees the management of R&D and related processes. The Department of Energy Science and Technology helps implement R&D projects. This Department has been created to carry out the single scientific and technical policy of the segment, monitor and coordinate its R&D activities.

The Technical Directorate is responsible for overseeing innovative projects within the Metals segment. The segment's operations in this area are governed by the Technical Policy that is annually revised by the Scientific and Technical Council, a collective body that is also responsible for decisions around innovation development and deployment. Main developments are handled by the following research centres and institutes of the segment: Institute of Light Materials and Technologies (ILM&T), Russian Aluminium and Magnesium Institute (VAMI), Siberian Scientific

Research and Design Institute of Aluminium and Electrode Industry (SibVAMI), and the Engineering and Technology Centre (RUSAL ETC).

GRI 3-3

In research and development, En+ Group leverages its internal expertise while also partnering with leading scientific and educational organisations and major manufacturers. In 2024, En+ Group finalised and approved the single R&D Management Regulation to optimise processes and accelerate the implementation of scientific projects.

In the reporting year, En+ Group spent RUB 2.3 billion (USD 24.8 million) on R&D projects. The Metals segment accounted for 86% of these expenditures. R&D expenses within the Power segment increased by 238% year-on-year in 2024, from RUB 90 mn to RUB 304 mn (to USD 3 mn), due to the launch of a number of new projects.

Plans for 2025 and the medium term

- To continue to advance research projects in clean energy, including hydrogen and solar energy, energy storage and other.

Development of sodium-ion battery cell prototypes

The Company intends to develop and scale up technologies for obtaining active materials and creating prototypes of sodium-ion battery cells on the basis of these materials.

Sodium-ion batteries are easier to produce and are more cost-effective than lithium-ion batteries, which warrants their large-scale application, including as a power source for electric vehicles or for storing power for power grids.

Business system

RUB **11.9** bn

(USD 128.5 mn) – Total economic benefit from the implementation of the business system projects and suggestions



- Methodology for Assessing the Level of the Business System Development
- Regulation on Operational Development Project Management
- Regulation on Kaizen of the Year and Project of the Year Competitions
- Regulation on Kaizen Suggestion Submission and Implementation

Over **12,000**

employees signed in to the Breakthrough+Kaizen application since its launch

Key goals for 2024

Goals	Status	Progress made in 2024
Improve the Breakthrough+Kaizen mobile application	Achieved	<ul style="list-style-type: none"> • The functionality of the application was improved. The following functions were added: approval history, option of changing the implementer and notifying authors, search by number and keyword
Prepare and hold the Kaizen of the Year 2024 and Project of the Year 2024 competitions	Achieved	Both competitions were held, and the best projects were selected
Continue with the business system training programme for new employees with the aim of achieving 100% of trained workforce	Achieved	<ul style="list-style-type: none"> • 100% of employees were trained • A distance learning course for new employees was developed
Introduce a mandatory business system training programme at the operational site tailored for engineers and technical staff of various proficiency levels	Achieved	The programme was introduced, and 204 people were trained under the programme

Material topics

- Innovation management
- Economic performance
- Employee management and engagement

GRI 3-3

The Group welcomes employees' ideas about process improvements, then refines the most useful and effective initiatives and introduces them into production.

In 2024, the Regulation on the Business System 250 Talent Pool Assessment and Development Programme was developed and approved. In addition,

the Company updated the documents that govern project management and implementation of Kaizen suggestions.

In 2024, the overall economic impact from business system projects reached RUB 11.9 billion (USD 128.5 million), and the Power segment accounted for 4.7% of this amount.

Breakthrough+Kaizen mobile application

The application allows each employee of the Company to submit not only Kaizen suggestions, but also initiatives for operational development, development of the business system, theory of inventive problem solving, technological advancement, or improvement of product quality.

In 2024, 6,673 Kaizen suggestions were submitted through the mobile application and the portal, which is 161% more than in 2023. 79% of all the suggestions were implemented in the reporting period

In 2024, En+ Group held the Project of the Year and Kaizen of the Year competitions covering 55 projects from 191 participants. The total economic benefit from the projects participating in the competition reached almost RUB 180 million (USD 2 million).

In the reporting period, the Business System Development Directorate developed a new distance learning course on the business system. It is assigned to all new hires as part of their onboarding programme. Mandatory practical training for engineers and technical specialists was also introduced. In total, 204 people were trained under this programme over the year.

Winning projects

A comprehensive optimisation project helped reduce the time of retrofitting hydraulic unit No. 8 at Irkutsk HPP from 350 to 330 days

A project to standardise pumping equipment operation and maintenance processes at the turbine shop of CHP-9 helped increase the mean time before failure by 50% and decrease the number of emergency repairs by 63%

The economic benefit from a project to increase the yield of coarse concentrate of export coal during processing amounted to RUB 37.4 million

Plans for 2025 and the medium term

- To implement business system development projects with the economic benefit of at least RUB 1,050 million
- To ensure that all employees participating in the annual bonus scheme launch personal business system development projects
- To develop a course programme and provide business system training for senior management