



SUSTAINABILITY AT ALL TIMES
80 YEARS OF POHJOLAN VOIMA

ANNUAL REPORT 2023



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This is Pohjolan Voima

Pohjolan Voima is a long-lived Finnish energy company. We are one of Finland's largest energy producers – our production accounts for over 20% of the nation's total electricity production.

The electricity we produce is almost completely carbon neutral. We produce electricity and heat at cost price for the needs of our owners – Finnish industrial and energy companies – with reliable and adjustable hydroelectric, thermal and nuclear power that ensures security of supply.

We are a team of top professionals and are proven as one of Finland's most inspiring workplaces. At Pohjolan Voima, we pride ourselves on doing meaningful work in line with our values of skilfully, reliably, together.

We are committed to carbon neutrality and improving biodiversity. Our objective is to create decisive power to strengthen competitiveness and contribute to a better tomorrow.

Total assets

2,317

€ million

Shareholders by sector

Forest industry **70.89%**
Energy companies **18.76%**
Chemical industry **6.95%**
Metal industry **0.19%**
Other **3.22%**

We have

18

power plants

The electricity we produce is almost completely **carbon neutral.**

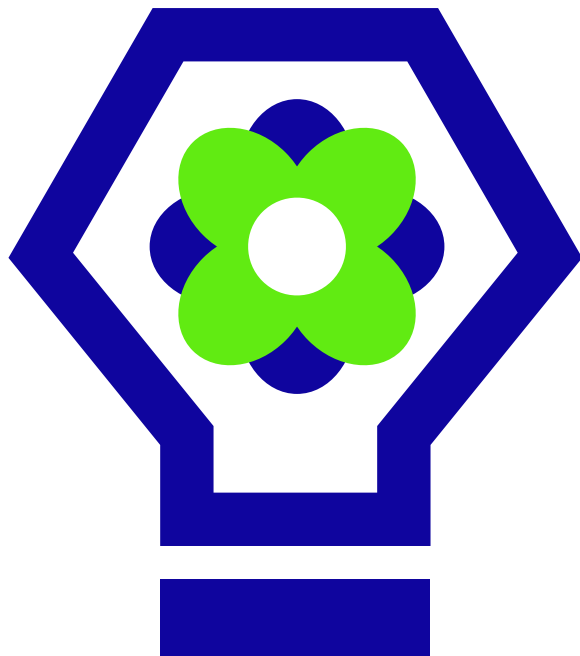


Key figures 2023

We achieved

99%

in carbon-neutral
electricity
production
in 2023



90%

of our heat production

was carbon neutral
in 2023

17.0 TWh

of electricity
produced in 2023

2.8 TWh

of heat produced
in 2023

22%

of total electricity
production in Finland

2,889 MW

our electricity
production capacity



Sustainability at all times



Russia's offensive warfare in Ukraine continues. Finland's electrical power system, which is based on a diverse production structure, emerged from the energy crisis that shook the whole of Europe faster than other countries. Consumers were occasionally plagued by high electricity prices, and the weak economic outlook slowed down investment activity. The new Government Programme includes several policies for the promotion of investments and ensuring a balanced energy system.

Despite the turbulence around the world, 2023 was a year of celebration for Pohjolan Voima: we turned 80. We used the theme Sustainability at all times to reflect on how we always act responsibly in the spirit of the times.

The concerns about the security of energy supply highlight Pohjolan Voima's basic mission: to reliably supply electricity and heat to its owners. We produce 22% of all the electricity in Finland, almost all of which is carbon neutral.

OL3's regular electricity production started

The most significant event in 2023 was the start of regular electricity production at the third nuclear power plant unit (OL3) of our joint venture Teollisuuden Voima (TVO) on 16 April 2023. The unit will markedly improve Finland's self-sufficiency in electricity production, and it is Finland's most significant contribution to the climate effort.

Development of balancing features

To ensure the security of supply, weather-dependent production needs to be supported by balancing production, storage solutions and flexible consumption. We have improved the balancing capacity of our hydropower plants with new solutions that optimise river regulation, for example. We modernised one of the units at Raasakka power plant in the Iijoki river by replacing one of the static components of the generator, the stator. We decided to invest in an ultracapacitor at the Kierikki power plant to extend the plant's service life and improve its balancing capacity. We also continued to develop the balancing capacity of our combined heat and power plants.



Systematic asset management

We are responsible for a significant portfolio of assets – 18 power plants in total. We take care of our assets by planning investments and repair measures in the long term. We decided to build a flue gas condenser plant for Porin Prosessivoima. It will produce district heat from flue gas waste heat.

Determined approach to sustainability

Corporate social responsibility is an intrinsic part of our strategy. We produce sustainable energy on market terms, taking into account climate change and biodiversity. Security of supply and resource-efficient asset management, as well as open discussion and cooperation with stakeholders, are also part of our sustainability efforts.



Reliable electricity and heat **produced in a competitive and low-emission manner must always be available.**



Sustainability requires organisational skills, and we cannot implement our strategy without them. In the autumn of 2023, everybody at Pohjolan Voima reflected on their competence requirements from a sustainability perspective as well.

Our renewed sustainability programme is based on the identification of key themes, achieved through extensive stakeholder involvement. We continued cooperation to restore the natural migration patterns of migratory fish and tested the Fishheart fishway at the Raasakka power plant. The activities of our joint venture Voimalohi Oy were extended to migratory fish restoration projects. In thermal power plants, we focused on the sustainability of fuel and the recovery of ash.

Tougher competition in attracting investments

Reliable electricity and heat produced in a competitive and low-emission manner must always be available. After the parliamentary elections of spring 2023, the new Government recognised the challenges facing our energy system in its Government Programme. The future the Government is aiming for requires significant investments in industry and energy production.

Despite the subsidy race between countries to attract investments, at Pohjolan Voima, we believe in the market-based approach. Our at-cost operating model ('Mankala') has proven its strength in energy investments. In 2022, some 50% of electricity in Finland was produced using the at-cost model, and OL3 will further increase this share. It is important for the whole of Finland to safeguard the possibilities of using the operating model.

We expect decision-makers to work determinedly to make Finland an attractive investment object. Significant barriers to investments include the length of permit and appeal processes and increasingly detailed regulation.

Pohjolan Voima is an expert organisation that is committed to continuous renewal and high performance. For the fifth year in a row, we were listed as one of Finland's most inspiring workplaces.

My thanks for a successful year go to Pohjolan Voima's employees, our customers, our partners and our stakeholders.

Relying on the power of inspiration,

Ilkka Tykkyläinen,

President and CEO, Pohjolan Voima Oyj

Highlights of the year

In 2023, we celebrated Pohjolan Voima's 80th anniversary with the theme 'Sustainability at all times'. The main highlight of the year was that Finland's most significant contribution to the climate effort, the Olkiluoto 3 nuclear power plant unit (OL3) of our joint venture Teollisuuden Voima, started regular electricity production in April.

In 2024, we will invest in the piloting of an ultracapacitor energy storage system at the Kierikki power plant on the Iijoki river. The project will strengthen our ability to produce fast balancing power and extend the service life of the power plant.

OL3's regular electricity production started on 16 April 2023. It contributes significantly to Finland's self-sufficiency in electricity production and the achievement of the carbon neutrality target. Olkiluoto produces about 30% of Finland's electricity.

We have invested in a flue gas condenser plant at the Porin Prosessivoima power plant. It will resource-efficiently produce district heat from flue gas waste heat. To be completed by the end of 2024, the plant will reduce fuel demand and emissions.

We are one of Finland's most inspiring workplaces for the fifth year in a row. We work as a responsible team, creating an energetic spirit in line with our values of skilfully, reliably, together.

At the Raasakka power plant on the Iijoki river, we introduced the Fishheart fishway to bypass the power plant and improve the transport of fish. The use of Fishheart will provide valuable additional information on migratory fish solutions in harnessed rivers.

Fishways resembling natural rapids received a construction permit on the Tengeliönjoki river. To be completed in 2024, two fishways at the power plant of our affiliated company Tornionlaakson Voima will open up a migration route to extensive breeding grounds.

We carried out a double materiality analysis on sustainability to identify and prioritise relevant topics. We updated our sustainability programme to prepare for the upcoming Corporate Sustainability Reporting Directive.

We celebrated 80 years of Pohjolan Voima under the theme Sustainability at all times. The main event of the year was held in Helsinki in September with our stakeholders. We continued our cooperation with young people and were the main sponsor of the Youth Climate Summit.



Focus on security of supply and sustainability

According to our strategy, Pohjolan Voima – Decisive Power, our purpose is ‘to create decisive power to strengthen competitiveness and contribute to a better tomorrow’. We produce electricity and heat for our customers at cost price. We thus play our part in ensuring that our customers – the industry, other energy companies and municipalities – will succeed. Indirectly, we create jobs and wellbeing in Finland.

With our carbon-neutral production, we play our part in assisting our customers to reduce their emissions and thus contribute to the creation of a more sustainable future. In 2023 in particular, the security of electricity and heat supply was discussed alongside sustainable practices.

The up-to-dateness of our strategy and the underlying strategic assumptions is reviewed annually. Although the world around us has changed dramatically, the changes have had very little impact on Pohjolan Voima’s strategy and core mission.

The Decisive Power 2022–2027 strategy is based on scenario work that took place in 2021 and 2022, involving our customers and all the employees of Pohjolan Voima. During the scenario work, we prepared four different development paths for our operating environment until 2035 and considered the opportunities and risks they would present to Pohjolan Voima.

Our strategic themes for 2023–2027 are:

Sustainable production on market terms

We make choices with the aim of promoting competitiveness, wellbeing and biodiversity, and curbing climate change. The electricity we produce is almost completely carbon neutral. Our target is for 99% of our electricity production and 85% of our heat production to be carbon neutral by 2025. Our long-term vision for the promotion of biodiversity is identifying our key effects on biodiversity, moving towards net positivity, and improving our skill set and updating our targets as we learn more.



Our strategy emphasises sustainability in all our business operations and aims to achieve the following:

- We are a responsible actor. We combine competitive and carbon-neutral production and biodiversity.
- Hydropower is an approved production form, and society recognises PVO-Vesivoima as a responsible actor.
- As an active owner, we participate in developing the competitiveness and sustainability of Teollisuuden Voima's nuclear power production.
- Wood-based fuels in our combined heat and power production are sustainably sources. We use fossil fuels and peat only as startup and backup fuels to ensure the security of supply based on the market situation.

Competitive advantage by balancing power capability and timeliness

In future, fluctuations in electricity production will be even faster and greater than now. Balancing power and timely production will become even more important. The increasing share of wind and solar power production, the volume of which fluctuate depending on weather conditions, will further speed up this development. We develop the balancing capacity of our production and our capability of utilising it. We use market information and knowledge in the development.

Top expert in asset management

We have large assets in our hands, and we care for them in the best possible way. We perform effective maintenance measures, carry out timely investments and develop lifecycle management. We use technology, digitisation and knowledge-based management in our operations. We manage our operations through the skills of our expert organisation and networks.

We create decisive power to strengthen competitiveness and contribute to a better tomorrow.



Sustainable production on market terms



Competitive advantage by balancing power capability and timeliness



Top expert in asset management

Skilfully – Reliably – Together

Expertise, efficiency and responsibility in networks

We sell the electricity and heat we produce at cost price to the shareholders of Pohjolan Voima, who are also our customers. The shareholders pay the costs of Pohjolan Voima's energy production in proportion to their holdings in the company.

We do not aim to make a profit. Our customers benefit by using our products, electricity and heat, or by selling them forward. Our operating model is specified in our articles of association.

The operating model strongly emphasises networking. Our 23 customer companies are at the heart of the network. We can pool their resources, share risks and realise energy projects with competitive production costs. Many representatives of our customer companies are members of the governing bodies of Pohjolan Voima's parent company and subsidiaries. The owners of our customer companies also belong to the network. Energy companies can have several owners, for example. This way, the benefits from our operations are enjoyed by many parties in the whole of Finland. More than 130 municipalities benefit from Pohjolan Voima's cost-price electricity and heat.

We have several partners who take care of functions that are important to us. This ensures extensive expertise and efficiency. For example, Caverion operates and maintains our hydropower plants, Power-Deriva provides us energy management services, and Azets provides us financial administration services. We work in close cooperation with equipment suppliers when developing our operations. We are also actively involved in networks of the energy sector and society.



We create decisive power to strengthen competitiveness and contribute to a better tomorrow. Indirectly, Pohjolan Voima creates jobs and wellbeing in Finland.



- Municipalities behind the shareholding
- The shareholders' industrial locations
- Pohjolan Voima's production locations



We require our partners to commit to sustainable operations.



When developing our sustainability, we engage in dialogue with our customers. It is important for us that our contractual and cooperation partners are aware of their role in Pohjolan Voima's value chain and are committed to sustainable operating principles and their development. Sustainability is included in our agreements, and we encourage our partners in their sustainability efforts. We also perform supplier audits.

As a follow-up to the Supplier Code of Conduct that was updated in 2022, we drilled more deeply into sustainability in decision-making in 2023. The aim was to take sustainability into account in all our major choices and decisions. With the Code of Conduct on sustainable decision-making, we integrated sustainability into the different stages of decision-making and set criteria for assessing the sustainability of suppliers.

Operating environment

Russia's offensive warfare in Ukraine, which started in February 2022, and the ensuing energy crisis in Europe kept electricity prices high over the winter period, but subsequently the average price of electricity has fallen. Finland's electrical power system, which is based on a diverse production structure, emerged from the crisis faster than Central Europe. Concerns about security of supply are a key energy policy issue.

Teollisuuden Voima's third nuclear power plant unit (OL3) started regular electricity production, which significantly increased Finland's self-sufficiency in electricity production. The continued rapid growth of weather-dependent production has significantly amplified electricity market price fluctuations, and the challenges of balancing the electrical power system have become even more important.

Government Programme directs policies

The EU revenue cap, introduced in response to the energy crisis, was implemented in Finland with a temporary surtax. Electricity companies must pay a surtax of 30% on the profit from their electricity business in excess of a return of 10%, calculated from the amount of equity committed to the electricity business. The tax is to be paid based on the result for 2023.



The new Government Programme after the parliamentary elections in the spring of 2023 contains several positive energy policies. The Government aims to promote industrial investments and make Finland a clean energy superpower. The Government remains committed to the climate policy, and its attitude towards all forms of energy production relevant to climate change is positive. Clean energy production is to be doubled. The Government is also calling for more weather-independent 'base load power' and the balancing power needed to balance the electrical power system. The promotion of carbon capture, storage and use is also included in the Government Programme.

The Government Programme is positive in terms of Pohjolan Voima's business, i.e. hydropower, thermal power and nuclear power. In the case of nuclear power, the Government's measures include speeding up the reform of the Nuclear Energy Act, welcoming small modular reactors (SMRs) and promoting the acceptability of nuclear power in the EU. The importance of hydropower as balancing power is recognised, and the attitude towards increasing the volume of hydropower with pumped storage power stations, among other solutions, is positive. The Water Act 'zero obligation' project, which was not completed by the previous Government, will be continued, and the national flexibility made possible by the Water Framework Directive will be introduced. The importance of combustion-based energy production in the current challenging situation is also understood.

EU prepares for spring parliamentary elections

The work on the EU's Fit for 55 package has been completed. The measures are part of the EU's CO2 emission target, according to

which emissions will be reduced by 55% from the 1990 level by 2030. Discussion of the 2040 target has started, and the Commission is expected to publish its related proposal in the beginning of 2024. The nature restoration regulation to promote biodiversity has been completed. As the EU prepares for the 2024 parliamentary elections, the preparation of the Commission's post-election work programme has started.



The Government is also calling for more weather-independent 'base load power' and the balancing power needed to balance the electrical power system.



Business operations

Production year 2023	14
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Thermal power	18
Nuclear power	20
Development projects	22



Our production increased in 2023

In 2023, we produced 17.0 TWh of electricity. Our share of all electricity produced in Finland was approximately 22%. Our heat production totalled 2.8 TWh.

We produce electricity and heat at cost price for the needs of our owners with reliable, adjustable hydroelectric, thermal and nuclear power that ensures security of supply. Our total electricity production capacity was 2,889 MW at the end of 2023, amounting to approximately 13% of all the electricity produced in Finland. Our heat production capacity was 1,089 MW.

Our electricity production capacity includes our shares of the capacities of hydropower and nuclear power plants, and the entire electricity production capacity of our combined heat and power plants, except for the power plant of the joint venture Alholmens Kraft, of which our share is included. Our total production capacity was increased by the start of regular electricity production at Teollisuuden Voima's OL3 plant unit. The capacity was also influenced by the sales of Vaskiluodon Voima's business operations in Vaasa on 31 December 2022. We do not have any condensing power production.

Electricity consumption in Finland in 2023 amounted to 80 TWh. Finnish electricity production totalled 78 TWh, while net imports into Finland amounted to 1.8 TWh. Electricity production experienced a significant increase, 13% from the previous year, due to the increase in nuclear and wind power capacity. Net imports of electricity fell

substantially, by as much as 86% from the previous year, and only accounted for 2.2% of electricity consumption. In 2023, electricity consumption in Finland decreased by 2.3% year-on-year. Industrial electricity consumption decreased by 6%, and the electricity consumption of other sectors remained at nearly the same level as in the previous year.

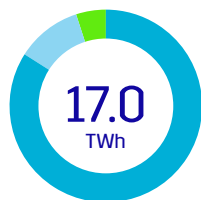
[Also see Pohjolan Voima's production capacity on 31 December](#) 



Our electricity production increased as a result of the start of regular electricity production at OL3 in 2023.

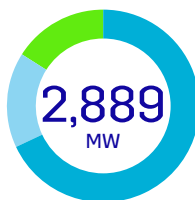


Pohjolan Voima's electricity production in 2023



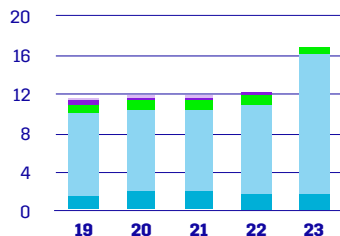
- ▶ 84% Nuclear power
- ▶ 11% Hydropower
- ▶ 5% CHP

Pohjolan Voima's electricity production capacity on 31 December 2022



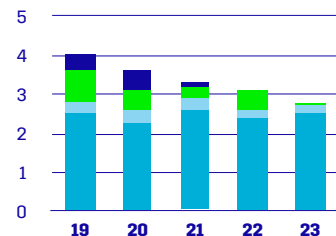
- ▶ 68% Nuclear power
- ▶ 16% Hydropower
- ▶ 16% CHP

Electricity production, by energy source 2019–2023 TWh



- ▶ Hydropower
- ▶ Nuclear power
- ▶ Wood-based fuels
- ▶ SRF
- ▶ Peat
- ▶ Coal
- ▶ Natural gas
- ▶ Oil

Heat production by energy source in 2019–2023 TWh



- ▶ Wood-based fuels
- ▶ SRF
- ▶ Peat
- ▶ Coal
- ▶ Natural gas
- ▶ Oil
- ▶ Others

See value tables on page 72

Fuels in electricity and heat production

Non-renewable fuels, mass/volume	2022	2023
Solid recovered fuels, SRF (fossile), t	31,861	27,029
Peat, t	403,352	104,923
Coal, t	46,682	3,251
Natural gas, million m ³	2	2
Fuel oil, t	4,650	2,016
Loaded nuclear fuel, t	19	21
Others, t	0	0

Renewable fuels, mass

Biomass, t	2,033,424	1,951,122
SRF (bio), t	47,792	40,544

Non-renewable fuels, GWh

SRF (fossile), GWh	142	118
Peat, GWh	1,143	295
Coal, GWh	325	21
Natural gas, GWh	22	21
Fuel oil, GWh	54	23
Spent nuclear fuel, GWh	27,118	40,365
Others, GWh	0	1

Renewable fuels, GWh

Biomass, GWh	4,533	4,349
SRF (bio), GWh	214	176



We develop the balancing capacity of hydropower

We have eight fully and four partially owned hydropower plants located along the Iijoki, Kemijoki, Kokemäenjoki and Tengeliönjoki rivers. The combined output of these plants is 543 MW, of which our share according to our shareholding is 451 MW.

In 2023, we produced 1.8 TWh of electricity using hydropower, which is close to the production volume for an average year.

We invest in the balancing capacity of our hydropower plants

Distributed and reliable hydropower is crucial for the Finnish electrical power system's security of supply. Hydropower is Finland's most significant source of balancing power to even out the difference between electricity production and consumption. We develop the balancing capacity of our hydropower plants and systematically modernise our plants in line with our long-term renovation programme. We use modern digital solutions and extensive partnerships in the development of the plants' operation and maintenance. With the development work and refurbishments, we gain more timely electricity and balancing power production, improve energy efficiency, provide environmental benefits, and add decades to the service life of our power plants.

In 2023, we replaced a stator in the second generator unit of the Raasakka power plant along the Iijoki river. The replacement investment ensured reliable electricity production and the balancing capacity of the power plant and energy efficiency of the unit.



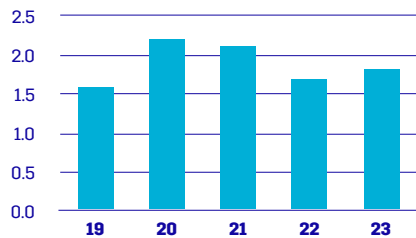
CASE: Building an ultracapacitor in Kierikki

The pilot project will strengthen the rapid balancing power needed to increase the share of renewable energy.

We have decided to invest in an energy storage facility realised with a 3 MW ultracapacitor at the Kierikki hydropower plant on the Iijoki river. This is a pilot project for a storage technology that will extend the power plant's service life by reducing the stress on the plant's mechanical machinery. The ultracapacitor will allow us to meet the growing need for fast balancing power and thus support the stability of the electric power network. The pilot project is to be completed at the end of 2024.



Hydropower production in 2019–2023 TWh



See value tables on page 72

Cooperation to benefit the aquatic environment

Hydropower plants and the regulation of waterways affect river habitats and fish stocks in particular. On the other hand, regulation can reduce flood damage and control water level fluctuation.

In 2023, we regulated water levels and operated our plants in compliance with the permit conditions. New water level regulation recommendations were prepared in cooperation with the authority and local stakeholders for the area influenced by the Jumisko power plant.

We manage the aquatic environment in our areas of operation and reduce the harm caused by regulation by protecting riverbanks, for example.

We continued our active cooperation to benefit migratory fish and the aquatic environment with a variety of stakeholders. We are committed to collaboration, based on research and proceeding stage by stage, to promote the restoration of the natural migration patterns of migratory fish.



In 2023, we introduced the Fishheart fishway at the lowermost power plant on the Iijoki river in Raasakka to promote upstream migration and the transport of fish. At the uppermost power plant on the Iijoki river, Haapakoski, we were engaged in research cooperation on the operation of Finland's first downstream migration route. We are developing and modelling the opportunity to use the old Raasakka channel as breeding grounds for migratory fish. On the Kemijoki river, we took part in ongoing cooperation on migratory fish. Our affiliated

company Tornionlaakson Voima received a permit to build two natural fishways at Portimokoski on the Tengeliönjoki river.

We expanded the scope of Voimalohi Oy, a company jointly owned by PVO-Vesivoima and Kemijoki Oy, to develop and implement activities aimed at restoring migratory fish, with the aim of making Voimalohi the key Finnish specialist on migratory fish. Voimalohi also takes care of its owners' annual fish stocking obligations.

[Read more about our measures to restore migratory fish](#)

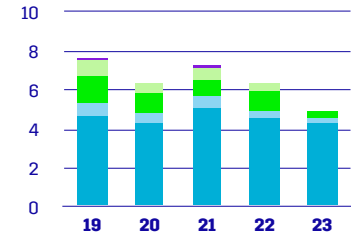
Security of supply is a key aspect of thermal power

Our total thermal power production capacity was 1,089 MW. The total combined electricity production capacity in thermal power production was 463 MW at the end of 2023. Our share of the combined heat and power plants' electricity production capacity was 396 MW.

Our combined heat and power plants produce process steam and district heat for our shareholders, local industry and communities, as well as electricity. The power plants supply district heat to Kouvola, Lappeenranta, Pietarsaari, Pori and Rauma.

In 2023, the heat output of our combined heat and power plants was 2.8 TWh, and the electricity output was 0.9 TWh. The electricity production capacity of the combined heat and power plants includes the total electricity production capacity of the power plants, except for the Alholmens Kraft power plant, of which a share corresponding to Pohjolan Voima's shareholding is included. Heat production capacity was reduced by the sale of Vaskiluodon Voima's Vaasa power plant at the end of 2022. We do not have any condensing power plants.

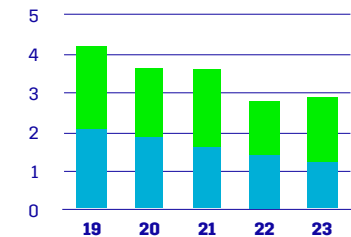
Fuels in heat and electricity production 2019–2023 TWh



- ▶ Wood-based fuels
- ▶ SRF
- ▶ Peat
- ▶ Coal
- ▶ Natural gas
- ▶ Oil
- ▶ Others

* "Others" in energy resources refers to heat obtained for a power plant from an industrial process.

Process heat and district heat production in 2019–2023 TWh



- ▶ Process heat
- ▶ District heat

See value tables on page 72



Use of fuels in the combined heat and power plants in 2023

Fuel	Volume used, TWh
Wood-based fuels	4.3
Solid recovered fuels (SRF)	0.3
Peat	0.3
Coal	0.0

Oil and natural gas are used as startup and backup fuels.

Reliable production through systematic asset management

In thermal power production, we focus on the security of supply and stable heat and electricity production for our customers. We ensure the security of supply through systematic asset management and annual outages. We carry out continuous, proactive maintenance with our network partners to improve the resource and energy efficiency of our operations and reduce emissions.

We prepare for the heating season by storing fuels and ensuring uninterrupted production during the summer maintenance cycles, and well as by means of continuous inspections and equipment monitoring.

[Read more in the section on development projects](#)

Reducing the use of peat

In accordance with our strategy, the wood-based fuels in our combined heat and power production are sustainably produced and we only use fossil fuels and peat as start-up and back-up fuels, taking the market situation into account. We are reducing the use of peat in line with our long-term plan. We were able to reduce the use of peat by 81% from the 2019 level. The biomass we use complies with the RED II sustainability criteria.

Our goal is for 99% of our electricity production and 85% of our heat production to be carbon neutral by 2025. We already reached the target level in 2023.

[Read more in the section on sustainability](#)



CASE: Rauman Biovoima had an extensive annual outage

The Rauman Biovoima power plant underwent an extensive annual outage to ensure trouble-free production and energy efficiency.

Such extensive maintenance is only carried out once every ten years. During the summer, the turbine, one of the boilers and the generator were serviced. Suitable maintenance intervals prevent faults, lengthen the service life of the machinery and ensure the efficient use of our resources. Timely maintenance help ensure that machines run reliably and energy-efficiently. Extensive annual maintenance is part of our long-term property management process aiming at boosting our delivery reliability for heat and electricity.

Located in the UPM Rauma industrial area, the plant produces process steam for the UPM Rauma mill, district heat for the Rauma Energy district heating network, and electricity. Over 90 per cent of the plant's power sources comprise carbon-neutral biofuels and recovered fuels. The power plant is certified according to the Guarantee of Origin systems for heat and electricity.



Nuclear production increased with the completion of OL3

The power plant of our joint venture Teollisuuden Voima is located at Olkiluoto in Eurajoki. The Olkiluoto 3 nuclear power plant unit (OL3), which started regular electricity production in April 2023, has a capacity of around 1,600 MW. The combined output of the plant units OL1 and OL2 is 1,780 MW.

The combined output of the Olkiluoto nuclear power plant was 24.7 TWh, of which OL1 accounted for 7.4 TWh, OL2 for 6.9 TWh and OL3 for 10.4 TWh. Pohjolan Voima's share of the total production was 14.4 TWh.

The test production phase of OL3 was concluded on 16 April 2023, and commercial operation started on 1 May 2023. The transmission system operator Fingrid Oyj has set a maximum production limit of 1,570 MW for OL3 for the time being.

Teollisuuden Voima has started the preparation of environmental impact assessments (EIA) regarding a possible extension of the operating licence and a power increase of OL1 and OL2. The current operating licence for the units is valid until 2038.

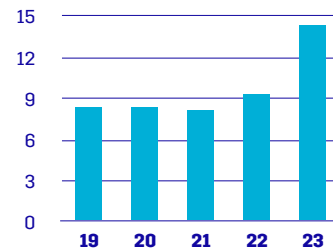
Annual outages ensure reliability

Annual outages ensure the safety and efficiency of the Olkiluoto units. With over 40 years of experience, Teollisuuden Voima carries out annual outages of the plant units in the form of alternating refuelling and maintenance outages. A wide range of competent subcontractors is involved in each annual outage.

OL1 had a ten-day refuelling outage in April, while OL2 had an 18-day maintenance outage in May. OL3's first annual outage will take place in the spring of 2024.

In August 2023, a faulty rotor was replaced in OL2. The outage caused by the replacement took 17 days. In November, a measurement fault was detected in the generator cooling system of OL3. It caused a production shutdown of a little over two days. Production was temporarily interrupted for just over 24 hours at the end of November as a result of a fault ride-through test. A system incident was introduced during the fault ride-through test, and OL3's protective functions automatically stopped production as a result.

Nuclear power production in 2019–2023 TWh



See value tables on page 72



OL3 – Finland’s most significant contribution to the climate effort

OL3 is Finland’s most significant contribution to the climate effort that significantly improves Finland’s self-sufficiency in electricity production and advances carbon-neutrality goals. Olkiluoto produces about 30% of Finland’s electricity. Nuclear power is an important part of the Finnish electrical power system, where the volume of weather-dependent production is increasing. Nuclear power reliably produces electricity for more than 90% of the year.

Nuclear fuel procurement is decentralised

Teollisuuden Voima has secured the supply of nuclear fuel through long-term agreements. The company procures fuel mainly through a decentralised supply chain, negotiating and signing the agreements itself at each stage of the supply chain. A significant amount of TVO:s uranium comes from the biggest producer countries that include Canada, Australia and Kazakhstan. The fuel assemblies are manufactured and assembled in Germany, Spain or Sweden. Teollisuuden Voima only procures uranium and nuclear fuel refining services from approved suppliers who have passed the company’s evaluation process.

Responsible nuclear waste management

Responsible nuclear waste management is a key part of the overall nuclear electricity production process. Low-level operational waste and intermediate-level liquid waste generated during the operation of the nuclear power plant are placed in the low- and intermediate-level waste repository in Olkiluoto. The Radiation and Nuclear Safety Authority issued a positive decision on the periodic safety review of the repository in September.

In October, the Regional State Administrative Agency for Southern Finland issued an environmental permit for the construction of a disposal facility for very low-active waste. This will reduce the need for future excavation of the repository, as well as the impact on nature and the environment. An operating licence and a construction licence from the Radiation and Nuclear Safety Authority are also required for the project. Disposal into the ground at Olkiluoto is expected to start in 2025.

Posiva’s project on final disposal of spent nuclear fuel progresses

Posiva has continued the implementation of a final repository for spent nuclear fuel. The technical equipment at the disposal facility has been completed. Work on the installation and commissioning of the encapsulation plant systems continued as planned. Studies to verify the suitability of the tunnel and determine the locations of the disposal holes for the final disposal of nuclear fuel have been completed in the first actual disposal tunnel.

Posiva is scheduled to start the disposal of spent nuclear fuel at Olkiluoto in the mid-2020s. Posiva will manage the final disposal of the spent nuclear fuel generated by the power plants of its owners, Teollisuuden Voima’s Olkiluoto nuclear power plant and Fortum Power and Heat Oy’s Loviisa nuclear power plant.

CASE: Olkiluoto 3 nuclear power plant unit completed

Regular electricity production at OL3 started on 16 April 2023, and commercial operation on 1 May 2023.

The completion of OL3 has a significant impact on the electricity self-sufficiency of Finland. With OL3, Olkiluoto produces about 30% of the electricity consumed in Finland. OL3, Finland’s most significant contribution to the climate effort, is a huge step towards carbon-neutral electricity production in Finland.

The project also revealed a huge amount of fresh expertise in the field of nuclear energy commissioning in Finland. People from more than 80 countries worked on the project. At its peak, the construction workforce was 4,500. Some 3,300 tests were carried out and more than 9,000 test reports were prepared during the test production phase.



We are engaged in versatile long-term development of our operations

We take good care of our plants throughout their lifecycle. Our aim is to combine competitive carbon-neutral production with biodiversity. We improve the balancing capacity and timeliness of our production, promote the efficient use of resources and energy storage, and further reduce emissions.

We are responsible for a significant portfolio of assets – 18 power plants in total. We take a systematic approach to the planning of power plant investments and refurbishments to ensure that they are made at the right time and guarantee reliable and secure energy production, which has become even more important in the past few years. For example, annual outages of our combined heat and power plants are carried out according to a systematic programme in different parts of the plants: fuel handling, the boiler, the turbine and the auxiliary equipment. Annual outage reports are analysed for use when planning the next steps in ensuring reliable energy production. We also monitor and develop our year-round preventive maintenance plan in accordance with the principles of continuous improvement.

We increase the value of our production assets and manage the lifecycle of our power plants through investments, maintenance, the

optimisation of production processes and the development of operating models. Efficient use of resources is at the core of our operations. We seek synergies in maintenance and share best practices.

In 2023, we shared expertise through joint hydrochemistry training for the combined heat and power plants. In 2022–2023, we arranged joint steam turbine and generator training for the operational staff of our power plants. In the hydropower business, we conducted an emergency exercise in cooperation with our operation and maintenance partners to practise continuity management and identify areas for improvement. In addition, our operation partnerships with Caverion and UPM Energy were extended to the hydropower plants of our affiliated company Tornionlaakson Voima on the Tengeliönjoki river.

Developing flexible production and balancing power

We systematically utilise data collected from production to improve the operation of our power plants. The systematic plant development also aims to increase carbon neutrality, energy efficiency, and the balancing capacity and flexibility of our plants. This is all the more necessary in the volatile electricity market for the balance of the electrical power system as the volume of renewable energy increases.



Our actions to improve the flexibility of production

- We monitor developments in the industry such as small modular reactors (SMRs) and new energy storage technologies, e.g. hydrogen.
- We have developed the flexibility of combined heat and power plants to support the flexibility of production and the opportunity to support the balance of the electrical power system.
- We completed a study of the potential of new technologies such as energy storage to increase the balancing power of our combined heat and power plants, to be used as the basis of plant-specific development.
- At the Porin Prosessivoima power plant, we implemented a modification to reduce the minimum load of the plant and improve resource efficiency.
- We decommissioned a coal-fired boiler of Porin Prosessivoima, which reduced emissions.
- At Kaukaan Voima, we introduced a new X-ray measurement system that measures fuel moisture content and improves the accuracy of energy content data.
- At Kymin Voima, we acquired boiler minimum and balancing power applications to enable more flexible production and improve energy efficiency.
- At the PVO-Vesivoima's Kierikki power plant, we decided to invest in an ultracapacitor to pilot an energy storage technology that will extend the power plant's service life and save the mechanical machinery. It will also increase the fast regulation capacity.
- We continued our collaboration with the University of Oulu on the further development of a hydropower turbine regulator.
- We installed more remote meters to measure water levels, which will provide more real-time information for the planning of hydropower production and to take the state of the aquatic environment into account.

CASE: Flue gas condenser plant in Pori

An investment to improve energy efficiency and reduce fuel consumption by 15%

We are building a flue gas condenser plant in connection with the Porin Prosessivoima biofuel plant. To be completed by the end of 2024, the plant will turn waste heat from the plant's flue gas into district heat.

Thanks to the resource-efficient plant we can reduce the power plant's fuel consumption. Carbon dioxide emissions from district heat production will decrease by about 1,000 tonnes a year.

Located in the Kaanaa industrial area in Pori, the Porin Prosessivoima biofuel plant produces district heat for Pori Energy's district heating network, process heat and electricity mainly from wood-based and recycled fuels.



Corporate sustainability

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Successes in 2023

Our strategy slogan 'We create decisive power to strengthen competitiveness and contribute to a better tomorrow' reflects our sense of responsibility, which is a key aspect of our strategy. The policies and guidelines adopted by the Board of Directors and the sustainability programme and its targets guide our operations and decision-making in our day-to-day work.

We progressed according to plan with our sustainability targets in 2023. We took a further step forward in sustainability by more precisely defining the themes that matter most to us and establishing a new sustainability programme.

In 2023, our carbon neutrality targets in electricity and heat were met according to plan, and we already reached the 2025 target level. In the previous year, Russia's aggression against Ukraine and strikes affecting forest industry company UPM reduced the availability of industrial by-product wood-based fuels, increasing the use of peat. The use of peat in the Group's subsidiaries decreased in 2023, however. The Group's total emissions were also reduced by the commissioning of the Olkiluoto 3 nuclear power plant unit of the Teollisuuden Voima joint venture. In accordance with a previous agreement, Pohjolan Voima disinvested the coal-fired Vaskiluoto power plant.

Determined path towards carbon neutrality

The key carbon neutrality achievements in 2023 were

- 99% of our electricity production was carbon neutral
- 90% of our heat production was carbon neutral
- We were able to reduce the use of peat by 81% from the level of 2019

Our carbon neutrality targets for 2025 are:

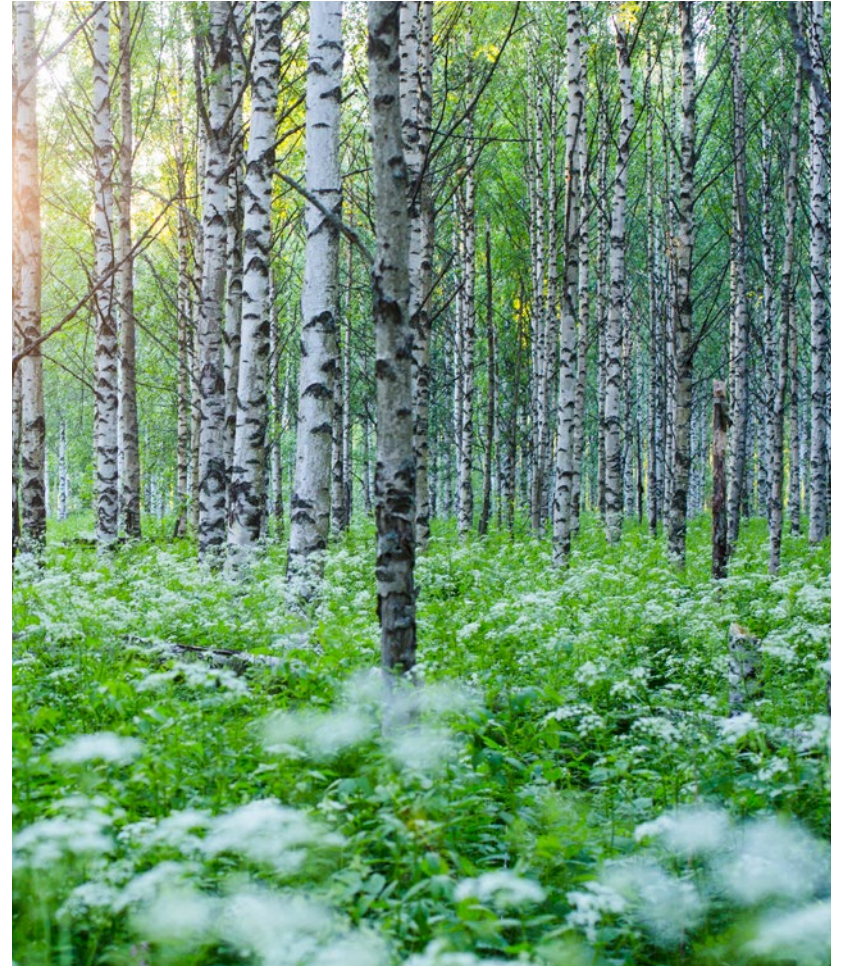
- 99% of our electricity production being carbon neutral
- 85% of our process steam and district heat production being carbon neutral
- Using fossil fuels and peat only as startup and backup fuels to ensure the security of supply based on the market situation. Our wood-based fuels are sustainably sourced.
- Reducing the use of peat by 80% from the 2019 level

Environmental responsibility targets met

Most of the targets set for 2023 in our biodiversity programme were met, and ongoing projects are progressing according to plan. The environmental responsibility targets were also met. The biomass we use meets the sustainability criteria.

[Read more on page 43](#) 

[Read more about hydropower as part of the biodiversity programme](#) 



Employee satisfaction remained high, and safety improved

According to the PeoplePower personnel survey, our employee satisfaction remains at the AAA level (according to the PeoplePower rating), in line with our target, and we are one of Finland's most inspiring workplaces for the fifth time in a row. According to the personnel survey results, our main strengths are cooperation, workplace wellbeing and good change management.

In safety, the number of accidents at work decreased to three (9 in 2022). This figure includes the zero accidents in the parent company and subsidiaries, and three accidents involving subcontractors' employees. Accidents at work in the affiliated companies and joint ventures are not included. The accident frequency was 8 per one million hours worked (24 in 2022). The target level for EHS (Environment, Health and Safety) observations was five per person, which was exceeded, as 7.1 observations were made.

[Read more about our HR work](#)

We updated our sustainability programme and developed reporting

In 2023, we prepared a new Group-wide sustainability programme based on a double materiality analysis conducted in the spring and the Pohjolan Voima strategy, which was updated in 2022. We linked the programme's indicators more closely to the rest of the Group's targets and indicators. With the introduction of the new sustainability programme at the beginning of 2024, our reporting will expand and increase the transparency of our operations.

[Read more about the sustainability programme](#)



Sustainability themes and key aspects in 2023



Carbon neutral and sustainable energy

- Reducing greenhouse gas emissions
- Promoting biodiversity
- Energy efficient production that supports the circular economy
- Use of water and status of water systems



Competitive energy

- Added value to customers
- Reliable production and lifecycle management
- Knowledge-based management



Safe working and wellbeing of employees

- Proactive safety
- Inspiring workplace for top experts



Sustainability in networks and stakeholder relations

- Sustainability in the value chain/partnerships
- Transparency
- Interaction with stakeholders
- Sustainability in exceptional situations

Corporate social responsibility is an intrinsic part of our strategy

Corporate social responsibility is an intrinsic part of our strategy and is realised in our daily work. Pohjolan Voima has been in operation for 80 years, and throughout its existence, the company has strived to operate sustainably in the spirit of the times. We are continuously working on sustainability with increasingly ambitious targets. Our values – skilfully, reliably, together – underpin everything we do.

For us, sustainability means 1) ecological sustainability or reconciling competitive carbon-neutral production, support for biodiversity and a reduction of our environmental impact, 2) social responsibility, or taking the wellbeing of our employees into account, responsible practices in stakeholder cooperation and ethically sustainable practices in all our operations, and 3) economic responsibility, or producing the most affordable energy possible for our customers in a resource-efficient way in line with our other sustainability targets. We create decisive power to strengthen competitiveness and contribute to a better tomorrow.

Sustainability is part of all our business operations, and we aim to achieve the following:

- We are a responsible company. We combine competitive carbon neutral production with biodiversity.
- Hydropower is an approved production form, and society recognises PVO-Vesivoima as a responsible actor.
- As an active owner, we participate in the development of the competitiveness and sustainability of Teollisuuden Voima's nuclear power production.
- Wood-based fuels in our combined heat and power production are sustainably sourced. We use fossil fuels and peat only as start-up and back-up fuels to ensure the security of supply based on the market situation.
- We develop the balancing capacity of our production to ensure the functionality of the electrical power system and timely production.
- We are a top expert in asset management: by taking care of our plants' security of supply, we secure stable electricity and heat production and resource efficiency.



International targets and frameworks guiding our operations

- UN Sustainable Development Goals
- Human rights, labour and anti-corruption principles in line with the UN Global Compact
- UN Guiding Principles on Business and Human Rights
- ILO Declaration on Fundamental Principles and Rights at Work
- Energy efficiency agreements implementing the EU Energy Efficiency Directive

* Pohjolan Voima's affiliated companies and joint ventures follow their own sustainability principles and policies. The energy efficiency agreements cover the subsidiaries and Teollisuuden Voima and Alholmens Kraft of the affiliated companies and joint ventures.

Pohjolan Voima's strategies and policies guiding our work (at the Group level and in the subsidiaries*)

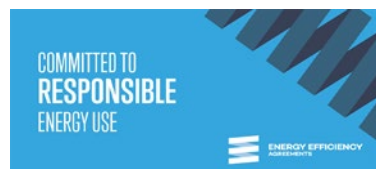
- Decisive Power 2022–2027 strategy
- Sustainability Code of Conduct (including Code of Ethics)
- Competition law policy
- Personnel policy
- Environmental and energy efficiency policy

Sustainability as part of Pohjolan Voima's strategic skills

In 2023, we defined the strategic skills that will enable us to realise the Pohjolan Voima strategy. We highlighted sustainability as one of the strategic skills embedded in everything we do. We have assessed the current state of the 'sustainability and sustainable development' skill and defined a target state, including the required competence areas, development targets and measures. The skills and competence areas have been discussed with all Pohjolan Voima employees, comparing them to the role of each employee, and personal development plans have been prepared.

Strategic skills as part of Pohjolan Voima's strategy

- Sustainability and sustainable development
- Assessing, understanding and influencing the operating environment
- Expertise on the at-cost operating model
- Asset lifecycle management and balancing capacity



Four Sustainable Development Goals

We have selected four of the UN Sustainable Development Goals (SDGs 7, 8, 15 and 17) that are directly applicable to our operations and have determined related targets and indicators. Our climate work and the related carbon neutrality targets are included in SDG 7 (Affordable and clean energy). SDG 8 is decent work and economic growth. Fish and aquatic biodiversity, e.g. the restoration of migratory fish, are included in SDG 15 (Life on land), which in the UN's breakdown includes freshwater ecosystems that are especially important to us as a company operating in a river environment. SDG 17 is partnerships for the goals.

[Read about the selected SDGs, and how they were realised in 2023](#)

We achieved gold in the Ecovadis sustainability assessment

Ecovadis has granted Pohjolan Voima a gold medal in the sustainability evaluation conducted at the turn of the year 2023–2024. We participated in the assessment for the third time. We have improved our performance significantly over the years as at the first time we achieved the bronze medal and at the second, the silver medal.

Ecovadis is the world's largest provider of business sustainability ratings, whose assessment is based on four themes: the environment, labour and human rights, ethics and sustainable procurement.

Development of sustainability in 2023

Target 2023

Actual 2023

<p>Overall reform of the sustainability programme</p>	<p>We prepared a new sustainability programme for 2024–2027, and its implementation began at the start of 2024. The extended and updated sustainability programme includes a materiality assessment covering our key stakeholders. The update takes current and known future requirements for sustainability reporting into account. Read more about our sustainability programme</p>
<p>Sustainability as a strategic skill</p>	<p>The agreed measures involving skills have been taken. We defined the skills required by the strategy and related development plans. We held appraisal discussions with all employees to define a personal development plan for everybody.</p>
<p>Sustainability in decision-making</p>	<p>We strengthened our approach to responsible decision-making. We added biodiversity to our supplier guidelines and updated the processes used to monitor the implementation of the guidelines.</p>
<p>Sustainability reporting</p>	<p>We continued the development of reporting in line with a three-year plan completed in 2022. We prepared for our commitment to the Science Based Targets initiative (SBTi) with a thesis and a dialogue with SBT on the targets. We clarified the reporting requirements of the Corporate Sustainability Reporting Directive (CSRD) and started measures to collect the required data. The improved reporting will increase transparency.</p>
<p>Biodiversity</p>	<p>We implemented 80% of the measures set for 2023 in our biodiversity programme. Read more about the measures and implementation of our biodiversity programme:</p>
<p>Communication on sustainability</p>	<p>We continued to develop our sustainability communications in the Annual Report and on our website, taking the sustainability reporting requirements into account. We realised both external and internal communications and marketing honestly and in a responsible manner. We committed to the Communication Code of Ethics devised by the Council of Ethics for Communication in Finland. We realised the actions in our communications plan with the theme "80 years of sustainable business operations". We started communicating the new sustainability programme to our personnel.</p>



The material topics of our renewed sustainability programme

In 2023, we carried out a double materiality analysis to identify and prioritise relevant topics in the operations of the Group. The goal with the materiality analysis was to assess the negative and positive effects of Pohjolan Voima's operations, as well as the business risks and opportunities related to sustainability and their financial impact on Pohjolan Voima.

As background to the analysis, a stakeholder survey was realised. A total of 139 responses was received. In addition, representatives of eight stakeholders were interviewed to find out more about the stakeholders' views and their expectations of our sustainability efforts.

We realised the analysis with an external partner in the spring of 2023, and the plan is to review it annually and update it as necessary. The sustainability effects, risks and opportunities were assessed and scored in more detail based on workshops and the partner's expert work. The stakeholders' views were taken into account and presented in a workshop to the Group's key sustainability personnel. As a result, the most relevant topics in Pohjolan Voima were summarised in a materiality matrix. The Pohjolan Voima Corporate Executive Team approved the material sustainability themes, which were presented to

the Board of Directors. In future, the Board of Directors will confirm the sustainability themes on an annual basis.

Methodology

Negative and positive effects related to sustainability were quantitatively assessed in terms of significance, scope and irreversibility. These were combined to produce scores for the assessed sustainability effects. The economic materiality of sustainability was assessed by quantitatively assessing the business risks and

opportunities arising from the sustainability themes. The assessment covered Pohjolan Voima's own operations and subcontracting chains. The effects and the economic impact combined resulted in the final double materiality assessment. Material themes were defined as ones exceeding a specific limit value.

One of the sustainability development projects for 2024 is to include the assessment of sustainability risks and opportunities as part of the annual risk assessment and strategy process.

The material themes in our sustainability programme 2024–2027

Environment

1. Clean energy production and climate
2. Biodiversity and status of water systems

Social

1. Proactive safety
2. Inspiring workplace for top experts
3. Ensuring socially responsible operations throughout the value chain and in partnerships
4. Interaction with stakeholders

Administration

1. Security of electricity and heat supply
2. Power plant and infrastructure lifecycle management
3. Reliability as a partner

Management of sustainability

Our corporate sustainability is guided by international principles and the strategy approved by Pohjolan Voima's Board of Directors, our values and [our annually updated sustainability policies](#). Sustainability is also one of the strategic skills we have defined, and related indicators are included in the Group's strategic performance indicators.

In addition to the policies, the Board of Directors annually approves the Group's sustainability programme and, as part of it, the biodiversity programme. The programme describes our targets and their implementation status. Our sustainability programme is based on the UN Sustainable Development Goals we have chosen and the results of the double materiality analysis. We also annually identify development areas in which we invest.

Key sustainability events are reported to the Board every month as part of the CEO's reviews. The Corporate Executive Team prepares proposals for decisions for the Board of Directors and oversees the development and implementation of corporate sustainability. In the Corporate Executive Team, the development of sustainability is the responsibility of the Executive Vice President, Public Affairs and Sustainability. The implementation of sustainability is coordinated by a sustainability team with representatives from different functions: finance, financing, HR, legal, environment, security, customer relations, communications and public relations, and hydropower and thermal power plant business. The Group Sustainability Manager is

responsible for the oversight of the practical implementation of sustainability coordination, as well as for monitoring and reporting at the Group level. The Sustainability Manager reports the progress and measures to the Executive Vice President, Public Affairs and Sustainability.

The managing directors of the subsidiaries are obliged to ensure that sustainable practices and planned measures are implemented in each company, and that the company handles sustainability reporting appropriately. Sustainability is the responsibility of all Pohjolan Voima employees.

The sustainability programme was prepared by the Executive Vice President, Public Affairs and Sustainability, with the Sustainability Manager acting as the project manager. The Corporate Executive Team, the managing directors of the subsidiaries and the sustainability team were involved in the work. The latter is responsible for ensuring that the programme is actively used and monitored and for appointing persons to compile quarterly indicators and measures related to the overall development of sustainability.

In February 2023, **Katja Permanto** was appointed as Pohjolan Voima Oyj's Sustainability Manager. She will also continue to be responsible for the duties of Environmental and Safety Manager. The Sustainability Manager reports on sustainability matters to **Riitta Larnimaa**, who is responsible for sustainability in the Corporate Executive Team.

RESPONSIBLE MANAGEMENT

Pohjolan Voima's Board of Directors

Ratifies the strategy
Approves policies and the sustainability programme

Corporate Executive Team Executive Vice President, Sustainability

Prepares draft decisions for the Board
Ensures the implementation of sustainability

Sustainability Manager Sustainability coordination team

Develops sustainability aspects
Coordinates sustainability work
Monitors and reports targets

Managing Directors of subsidiaries All Pohjolan Voima employees

Implement sustainability and report it in their respective companies

Implement sustainability in their everyday work



Workshops on sustainability topics such as our sustainability programme and biodiversity were arranged for management. We started the planning of more extensive management training in 2023.

An e-learning course on sustainability, which is mandatory for all our employees, specifically addresses ethical issues. We will next update the content of the course in 2024.

Sustainability in nuclear power production

Sustainability in nuclear power production is the responsibility of our joint venture Teollisuuden Voima, which operates the nuclear power plant in Olkiluoto. Teollisuuden Voima implements its own 2030 sustainability roadmap. In accordance with our strategy, we participate as an active owner in the development of the competitiveness and sustainability of the company's nuclear power production. Teollisuuden Voima prepares its own sustainability reports and reports to Pohjolan Voima the sustainability data that is also reported as part of Pohjolan Voima's sustainability reporting. The persons responsible for sustainability in Teollisuuden Voima and Pohjolan Voima regularly discuss sustainability themes. For example, in 2023 discussions were held on the sustainability of the uranium procurement process, the preparation of a thematic risk report on climate change, a biodiversity impact assessment and the development of sustainability reporting.

For more information about Teollisuuden Voima's sustainability efforts, please visit www.tvo.fi

Lawfulness, ethical business operations and our Code of Conduct

According to the rules ratified by Pohjolan Voima's Board of Directors, we always conduct our business ethically and in compliance with legislation. Our operating principles include principles of human

rights, labour rules and anti-corruption, such as the UN Global Compact. We require our partners to use corresponding principles, and we use guidelines, audits and monitoring practices to support the development of their sustainability.

Our Code of Conduct can be viewed at www.pohjolanvoima.fi

It covers the following:

- Respecting employees
- Sustainable energy
- Compliance and ethics
- Sustainability in networks and stakeholder relations

In the Code of Conduct, we commit to a duty of care, which means identifying the environmental impact and risks of our operations, monitoring progress towards our targets, and enabling confidential reporting of misconduct, among other actions. The Board of Directors of Pohjolan Voima are responsible for strategy, the key part of which is sustainability. The Board approves the target of the sustainability programme. In the spring 2024 we will realise a training for the board members of Pohjolan Voima Group companies on corporate sustainability legislation, which will further strengthen the role of our boards in managing corporate sustainability.

As a Group, we comply with the Market Abuse Regulation (MAR). In 2023, we made our internal whistleblowing channel fully electronic to make it easier to use. We process the reports confidentially by using an independent party in pre-processing that only reports to Pohjolan Voima's designated responsible persons. All reports received through the whistleblowing channel are processed in accordance with the Act on the Protection of Individuals Reporting Violations of European Union and National Law (Laki Euroopan unionin ja kansallisen oikeuden rikkomisesta ilmoittavien henkilöiden suojelusta 1171/2022),

and all the reports lead to an investigation process commensurate with their seriousness. If necessary and required by law, the investigation will be referred to the authorities. The external partner prepares proposals for measures based on the reports submitted to the whistleblowing channel for Pohjolan Voima's internal processors, who decide on the actual measures to be taken. The most significant reports are reported to the Board of Directors of Pohjolan Voima.

Externally, reports can be submitted to Pohjolan Voima by email at info@pohjolanvoima.fi. We communicated about the channels internally on the intranet and at monthly meetings. There were no reports via the channels in 2023.

We comply with all applicable laws and regulations, including applicable national and international trade sanction regulations. To ensure compliance, every Pohjolan Voima Group employee must follow Pohjolan Voima's competition law guidelines. The competition law guidelines and their efficient implementation ensure that the company's best practices and competition legislation are known and understood, and that they are followed at all levels of the Group.

We do not take advantage of our position or any information received through our work for personal gain, and we transparently announce all of our commitments. We follow the commonly used good practices of social influencing. We do not tolerate any bribery or corruption, and we do not engage in any business relations in which anti-bribery and anti-corruption laws and regulations are not followed.

We neither accept nor offer any gifts or benefits beyond what is considered reasonable and common hospitality in the ordinary course of business or employment. If accepting or offering a gift or a service appears to give rise to a conflict of interest or is open to interpretation, we always discuss the situation with management in

advance. We take care of the company's property and resources, and only use them to achieve our business goals. We protect confidential information, information systems, and tangible and intangible assets owned or managed by Pohjolan Voima from damage and misuse. We carry out our work in a responsible and professional manner. We comply with rules and regulations to prevent abuse of the financial market and the wholesale energy market.

The energy industry is a highly regulated industry, and as a major operator, we actively influence social decision-making and the work of energy industry associations. In 2023, we defined the principles and rules for our advocacy work under the leadership of the Public Relations Manager. The principles approved by the Corporate Executive Team will be published at the beginning of 2024. We also committed ourselves to the ethical guidelines for communication as defined by the Council of Ethics for Communication.

We prepared for the introduction of the Finnish Transparency Register, which entered into force from the beginning of 2024, and prepared the Group's internal guidelines. We also started to offer training to the employees of the Group on how to do advocacy work in accordance with the Transparency Register Act (Avoimuusrekisterilaki 430/2023).

Sustainability in networks and stakeholder relations

We operate in networks consisting of our owners, partners and subcontractors. We are also engaged in collaboration and dialogue with a wide range of other stakeholders.

We act with honesty and integrity in all our stakeholder relations. We also highlight any problems. Our interaction with our stakeholders is open and inclusive. Our production companies' environmental management systems require the recording of environmental



Pohjolan Voima 80 years stakeholder event on 6 September 2023. (Left) President and CEO of Pohjolan Voima Ilkka Tykkyläinen, Chairman of the Board of Directors Tapio Korpeinen and the moderator of the event Anna Ståhle.



4.3

the score for our sustainability efforts in our customer satisfaction survey in 2023

feedback and the resulting measures taken. The parent company records all the feedback received, and from 2024 onwards, the sustainability team discusses it and we take action in line with the team's decisions. The feedback and resulting measures are communicated to the Corporate Executive Team, and the most significant ones to the Board of Directors.

We regularly discuss sustainability themes with our customers. In 2023, we held a roundtable on sustainability with our principal owners, where social responsibility in networks emerged as one of the development areas. In addition, we have informed customers about current sustainability themes, and sustainability was also discussed at Pohjolan Voima keskustelee discussion events, which are targeted at both our customers and employees.

In our annual customer satisfaction survey, we received a separate score for sustainability for the first time. The average score for environmental and sustainability efforts from all persons who responded to the question was 4.3 (on a scale of 1 to 5).

We started an update of our procurement guidelines and processes to monitor the implementation of the guidelines and set criteria for the assessment of supplier sustainability. The procurement guideline update will be completed in 2024.

Pohjolan Voima is part of an audit cluster for large enterprises which collaboratively assesses the performance of suppliers in HSEQ matters. In 2023, seven of our suppliers were audited through the cluster (target 5). All suppliers of raw uranium and related processing services in the Teollisuuden Voima supply chain are audited every three to five years, depending on the supplier and the results of the previous audit. In 2023, Teollisuuden Voima carried out two supplier audits on the procurement of raw uranium and its conversion and enrichment stages. Five supplier audits on the production of fuel were completed.

We cooperate with higher education institutions and students in a variety of research projects by offering materials for researchers and partial funding for research projects, for example. The research collaboration generates innovations that are beneficial for the entire industry. People completing their theses work annually at our plants. In 2023, three people were doing their theses.

We have continued discussions with young influencers to increase our understanding of young adults' ideas on how to tackle climate change, handle the electrification of society and energy production. In 2023, we arranged two energy breakfasts for young people, one on the green transition, and the other on the global sustainability of energy supply chains. We invited a group of young people to visit one of our combined heat and power plants, which uses wood-based fuels and forest industry by-products as its fuels. The feedback we received was passed on to the company's management, and the participants were informed of the development measures taken based on their feedback. Schoolchildren have been included among the visitors to our hydropower plants. Pohjolan Voima was the main partner of the Youth Climate Summit, participating in the event's workshops and communicating young people's goals through its channels.

In 2023, we arranged an event called Veden voimaa ("The power of water") for our stakeholders, covering the importance of water from multiple perspectives, an open-door event at the Jumisko hydropower plant and an 80th anniversary stakeholder event under the 'Sustainability at all times' theme. We also continued with our Sähkö tulee töpselistä (Electricity comes from the plug) podcast with the aim of discussing interesting themes involving energy and sustainability with representatives of our stakeholders.

Pohjolan Voima's memberships and roles in sustainability, energy industry and national communities:

- Confederation of Finnish Industries EK (member)
- Finnish Energy (member)
- Environmental Research Pool of Finnish Energy (financier)
- Finnish Business & Society FIBS (member)
- HSEQ supplier assessment cluster (member)
- National Emergency Supply Agency (participant in the work of electricity and heat pools)
- ICC Finland's corporate sustainability working group (member)

[Read more about our stakeholder cooperation](#)



Pohjolan Voima 80 years stakeholder event on 6 September 2023. (Left) President and CEO of Pohjolan Voima Ilkka Tykkyläinen, Chairman of the Board of Directors Tapio Korpeinen and the moderator of the event Anna Ståhle. Live visualisation: Linda Saukko-Rauta, Redanredan.

Personnel – an energetic attitude

Pohjolan Voima's energetic attitude enables the implementation of the strategy and the measures it contains. As part of our strategy, sustainability also guides our HR work. Energetic and motivated employees drive everything we do.

Our shareholders are our customers. High customer satisfaction and the added value we deliver to our shareholder-customers are our common goals. We take responsibility, both as individuals and together. Working in networks is an important way for us at Pohjolan Voima to complement our own expertise and resources.

In line with our strategy, sustainability is part of everything we do, including our HR efforts. We invest in sustainable practices in terms of ethics, the corporate culture and communications, wellbeing at work, safety, and the goal-oriented development of personnel skills and personnel management. We comply with national and international laws, applicable collective agreements and industrial safety regulations, and the UN Global Compact principles on labour.

Our skilled, thriving and motivated employees are responsible for producing decisive power for our customers in line with our strategy. We believe our investments in people and the corporate culture help us achieve our targets as a company. Involving the staff is an established practice for us. Employees have been heavily involved in the strategy work and in determining the values through which we want to act in our daily lives and on which our HR policy is based: skilfully, reliably, together.



One of the focus areas for 2023 in the energetic attitude action plan, which covers the whole of the Pohjolan Voima Group, was a healthy and thriving work community. We surveyed the wellbeing of our staff with a personnel survey and developed a wellbeing programme based on the results. Our goals included increasing the quality and productivity of our work, as well as keeping Pohjolan Voima employees energetic.

Employee satisfaction well above benchmark companies

We were deemed the best among small companies in the Finland's most inspiring workplaces ranking in March 2023, based on the results of the 2022 personnel survey. According to the 2023 EezyFlow personnel survey, our employee satisfaction yet again reached the best PeoplePower rating of AAA, which was our target level. The results for 2023 were excellent in all surveyed areas compared to the Finnish expert standard. Our index was 88.3, compared to the benchmark of 72.3.

According to the results of the personnel survey, Pohjolan Voima's employees feel that they work well together. Wellbeing at work, the implementation of changes and the consultation of employees on decisions affecting them all received excellent ratings. In addition, employees feel that their work is meaningful: 84% of them strongly agreed and 16% somewhat agreed with this statement, which was also well above the benchmark for Finnish experts.

In 2024, we will conduct a survey on employees' experiences of sustainability from the environmental, social and governance perspective (ESG). We will measure aspects such as employees' awareness of our sustainability targets and principles, the implementation of the principles and targets in their daily lives, and the success of responsible leadership.

We respect our employees

We respect human rights and diversity. We use fair employment practices and promote equal treatment for everyone throughout the employment relationship. We do not discriminate against anyone based on age, gender, ethnic background, beliefs, trade union membership, sexual orientation, political opinions or any other personal attributes. We do not tolerate the use of forced or child labour in any part of our value chain. We respect the freedom of association of our staff and comply with collective agreements. We do not tolerate sexual harassment or any other form of harassment, bullying or inappropriate treatment.

Based on our strategy, HR policy and skills definition, we develop an annual action plan in the areas of employee wellbeing, safety, equality, skills and work community development. The development plans are discussed with staff representatives through an ongoing dialogue. They are accepted by employee and employer representatives. As part of the Corporate Executive Team, HR administration and the HR director are responsible for the preparation and monitoring of the plans.

We develop competence

Pohjolan Voima's strategy and key strategic skills guide our training and competence development goals. In terms of sustainability skills, our objectives are a shared vision of sustainability, considering sustainability in all operations, decision-making, the selection of partners, audits and recruitment, and responsible procurement competence.

While the development of competence is based on continuous on-the-job learning, it is supported by a variety of formal and social learning tools such as online training, workshops and the sharing





of knowledge within the work community. The training objectives include both individual professional competence development needs and more general business- and group-level development needs for all.

Quarterly briefings for the staff are arranged to review the progress of key aspects of employee wellbeing and safety, as well as skill and work community development plans. Employees' sustainability awareness and competence are promoted through voluntary and mandatory training, weekly Group-level briefings on topical issues (31 in 2023), and themed discussions and workshops. To improve our understanding of our customers, Pohjolan Voima's customers introduce themselves to the staff at morning customer sessions. The average number of training hours per employee with an employment contract in 2023 was 19: 29 for female and 12 for male employees.

Every Pohjolan Voima employee must recognise the environmental and energy efficiency themes related to their work, as well as the associated development opportunities.

The compliance with and development of the sustainability approach include EHS (Environment, Health, Safety) observations, compliance with the sustainability guideline in procurement, and taking sustainability into account in all decision-making.

All employees are obliged to complete an online sustainability course every year. Pohjolan Voima is a pro-level member of the sustainability network FIBS, which means that all employees have the opportunity to participate in the network's training courses. Information about available courses is communicated to the staff through the sustainability team.

In 2023, we reformed our online competition law course, which is mandatory for all. The same applies to data protection training. These ensure responsible and legal working practices and the use of

appropriate tools at all levels of the Group. In 2023, we also redefined our ethical principles, including a revised hospitality guideline. In addition to regular employees, competition law training is mandatory for Board members and the CEOs of the parent company and the Group's production companies.

The abilities and skills needed by each employee in their work, as well as their development needs and related targets, are discussed in person during a personal performance review arranged at least once a year. The review takes place with the supervisor, who also monitors the achievement of the targets. 100% of employees with an employment contract took part in the regular personal performance reviews, which also include a discussion of the achievement of the goals and their personal development plan.

Energy for daily life through wellbeing at work

Following appropriate occupational health and safety practices and continuously improving them is part of our sustainability efforts. We aim to offer our employees a healthy and safe working environment so that they can work and fulfil themselves professionally.

We promote the physical, mental and social wellbeing of our staff. By investing in wellbeing at work, we aim to ensure there is a proper balance between work and leisure, the work progresses smoothly, the employees recognise the relevance of their work and everyone maintains their working capacity. We support working capacity and prevent occupational illnesses and injuries by using an early intervention model and taking preventive measures regarding wellbeing at work.

In 2023, we realised an extensive Virtaa arkeen ('Power for daily life') wellbeing project in the Group with our occupational healthcare partner Terveystalo. All employees had the opportunity to take

part in a three-month Firstbeat Life survey measuring their health and wellbeing. They could review the measurement results with occupational healthcare services and get concrete tips on how to promote wellbeing in their daily lives. We also arranged discussions on ways to promote wellbeing, sharing tools and experiences on topics such as breaks and sleep quality. We introduced the Cuckoo break exercise app to help employees take breaks from work.

Comprehensive occupational healthcare services for our staff are an important part of our social responsibility, which is genuinely valued by the employees. We carry out regular workplace surveys in cooperation with the occupational healthcare service provider. We organise activities such as wellbeing lectures and occupational ergonomics advice from an occupational physiotherapist to ensure a safe and healthy work community and work environment. Advice from an occupational physiotherapist is also available for working from home.

Since October 2023, our employees have been able to donate blood during working hours, for which we received a certificate from the Finnish Red Cross.

We welcome and encourage flexible working hours such as working from home and flexitime, which contribute to a better work-life balance. Our time- and place-independent work allows hybrid working to reconcile work and family life in the way that best suits each employee. Tools to work from home are available.

Communality is one of the key parts of wellbeing and corporate social responsibility, and we promote it through monthly staff meetings. We also encourage our employees to visit different sites by working from another city for a few days, for example.

Internal communication supports communal information sharing. In 2023, we celebrated our 80th anniversary with a year-round theme

of Sustainability at all times in both internal and external communications. We had a birthday party together.

Equality contributes to the meaningfulness of one's work, and we treat all our employees equally and equitably in line with our HR policy. We also respect non-discrimination in the determination of pay: one's pay depends on how demanding the job is and their personal performance.

Every Pohjolan Voima employee has an opportunity to improve their performance, and through their performance, the profitability of their actions and their own competence directly influence their earnings.

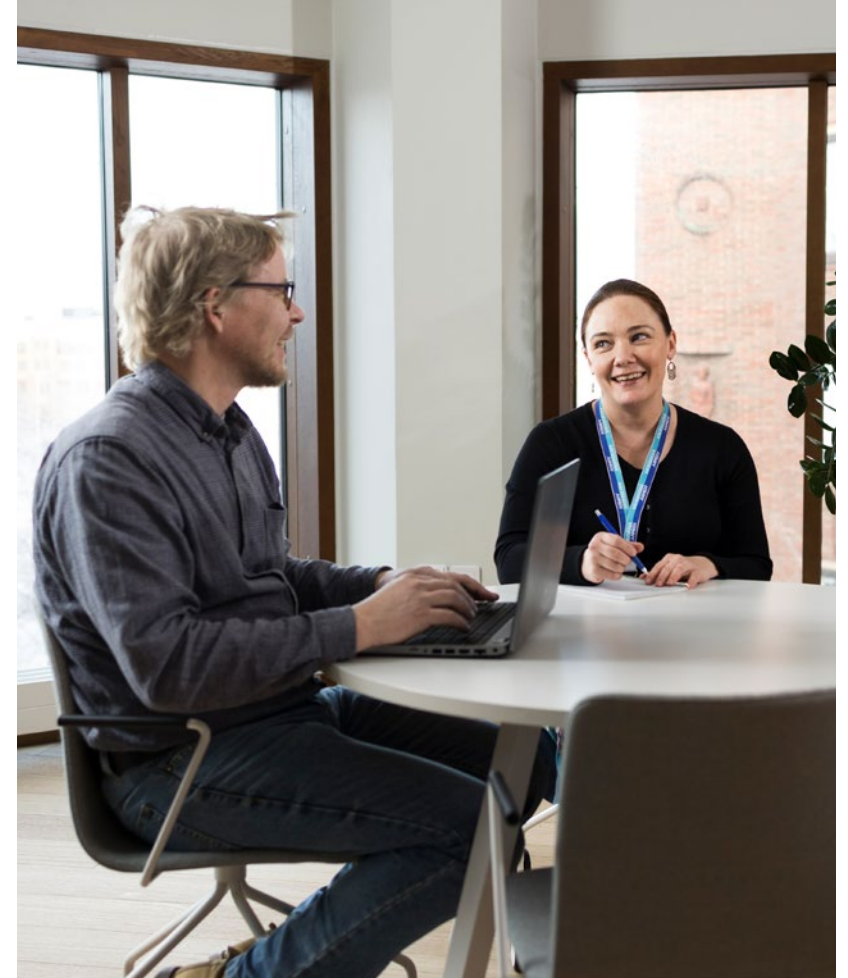
Key personnel figures in 2023

At the end of 2023, the number of personnel in the company was 40 (2022: 41), of whom 97.5%, or 39 persons, had an employment contract valid until further notice. The total turnover of permanent employees was 3.9% (19). There were no part-time employees.

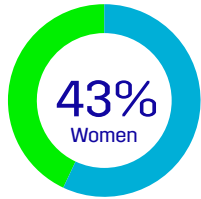
During the year, four (five) persons had a fixed-term employment contract, and two (five) agency contract workers were used.

At the end of 2023, the average age of permanent employees was 48 (47), and 41.0% (42.1) of them were female. The average length of the permanent employees' employment relationships was approximately 11.7 years. The staff health rate, i.e. the proportion of employees with no sick leave during the year, was 63% (60).

All 33 employees of Pohjolan Voima Group, excluding management, are covered by collective agreements. Employees who are not covered by a collective agreement are subject to the same terms and conditions as those who are covered.

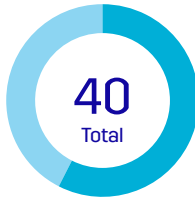


Gender breakdown of Corporate Executive Team



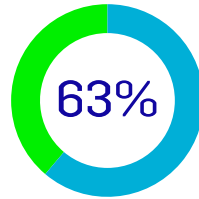
- ▶ 57% Men
- ▶ 43% Women

Gender breakdown of personnel in 2023, in permanent employment and on fixed-term contracts



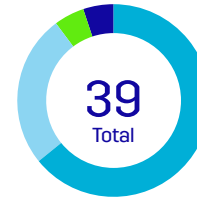
- ▶ 23 Men
- ▶ 17 Women

Health percentage in 2023



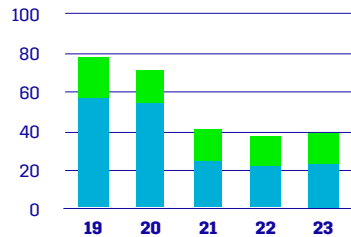
- ▶ 63% Proportion of employees with no sick leave
- ▶ 37% Proportion of personnel with sick leave

Number of personnel by Group companies on 31 Dec 2023 in permanent employment



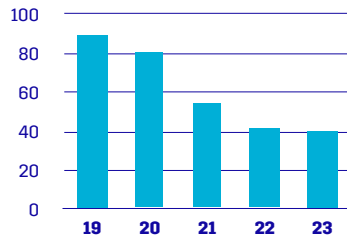
- ▶ 64.1% Pohjolan Voima Oyj
- ▶ 25.6% PVO-Vesivoima Oy
- ▶ 5.1% Kymin Voima Oy
- ▶ 5.1% Kaukaan Voima Oy

Number of personnel on 31 Dec in 2019–2023, in permanent employment

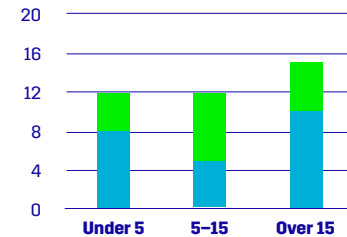


- ▶ Men
- ▶ Women

Average number of personnel in 2019–2023, in permanent employment and on fixed-term contracts

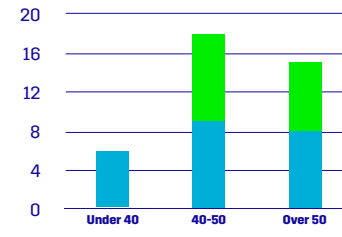


Years of employment on 31 Dec 2023, in permanent employment



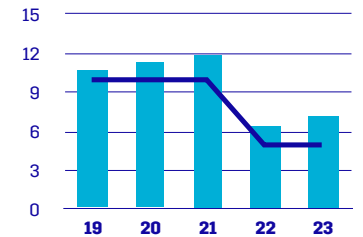
- ▶ Men
- ▶ Women

Breakdown of personnel by age on 31 Dec 2023 in permanent employment



- ▶ Men
- ▶ Women

Safety, environmental and energy efficiency observations per person



- ▶ Observations per person
- ▶ Objective

See value tables on page 73



Our goal is zero accidents

We promote a proactive safety culture. Our goal is zero accidents, but we were unable to achieve it in 2023: there were three subcontractor accidents resulting in less than one month of sick leave. However, the number of accidents significantly decreased from 2022 (five subcontractor accidents and four accidents involving our production companies' staff). The accident frequency was 8. The accident statistics include the parent company of Pohjolan Voima Group, Pohjolan Voima Oyj, and all the production companies except for Alholmens Kraft and Teollisuuden Voima. All accidents were investigated, and corrective measures were taken to prevent reoccurrence.

Pohjolan Voima does not have a certified occupational health and safety system, but our work is guided by the sustainability principles, and we invest in the improvement of occupational safety by reacting to observations and raising safety awareness among the staff, for example. Every Pohjolan Voima employee is responsible for the maintenance of occupational health and safety. In addition, we pay special attention to the safety cultures of our subcontractors.

We continued to measure EHS observations made by the employees in 2023. The target was collecting five observations per person, which was exceeded by the Group's staff with 7.1 observations.

EHS observations include safety observations and minor environmental and energy efficiency observations. Making observations maintains the safety culture and is part of the raising of safety awareness, which we also promoted by sharing information with the employees of the Group and the subsidiaries, and by including safety as part of regular meetings (in the form of a 'safety moment').

Occupational health and safety figures in 2023

Pohjolan Voima Oyj	Employees	Non-employees
The percentage of people in own workforce covered by the occupational health and safety management system based on legal requirements and/or recognised standards or guidelines, %	0	0
Number of fatalities as a result of work-related injuries and work-related ill health	0	0
The number of recordable work-related accidents	0	0
The number of recordable work-related ill health subject to legal restrictions on the collection of data	0	0
The number of days lost to work-related injuries and fatalities from work-related accidents, work-related ill health and fatalities from ill health	0	0
Total man-years, employees	39.7	

Pohjolan Voima Oyj and subsidiaries

Number and ratio of work-related accidents occurred to own employees and to subcontractors' employees*	3 pcs, 8 pcs per million work-hours
Most common accidents at work	Accidents occurred to subcontractors in the power plant environment

*Includes Pohjolan Voima Oyj, PVO-Vesivoima, Kaukaan Voima, Kymin Voima, Porin Prosessivoima and Rauman Biovoima.

Meetings start with a discussion of safety based on a different theme each month. The Safety Manager defines the monthly themes. In 2023, they included slipperiness, safety when working at the office and at home, as well as commuting and business travel. The production companies also share safety information.

The Safety Manager holds regular meetings with representatives of the production companies to review accidents and significant near misses. In addition, all accidents are processed by the process steering group and the production management team chaired by the CEO. Both groups include representatives of both the Group and all the production companies. Furthermore, we shared best safety practices between power plants. Accidents were reported to the Board of Directors of the Pohjolan Voima Group parent company.

In 2023, we offered all Group employees the opportunity to attend first aid training free of charge.

In the event of an accident involving a subcontractor, we follow the CEO's 'morning call' policy: the morning after an accident, the CEOs of Pohjolan Voima and the production company have a discussion with the subcontractor company to ensure that an accident investigation is properly launched, and that there is a shared understanding of the importance of safety practices.

We are part of an HSEQ cluster which conducts joint subcontractor audits. In 2023, there were seven joint audits of Pohjolan Voima's subcontractors.

[Read more about our HR policy on our website at HR policy – Pohjolan Voima](#) 



Environmentally responsible energy

Our environmental and energy efficiency policy focuses on reducing our environmental impact, safeguarding biodiversity and promoting energy efficiency. As a responsible company, we reconcile competitive carbon neutral production with biodiversity. Most of the measures in the 2023 biodiversity programme were realised according to plan.

We recognise and determine the environmental impact and risks resulting from our operations, the natural values related to our operations, and the opportunities to make our production and energy use more efficient. We are committed to reducing greenhouse gas emissions and other emissions and to safeguarding biodiversity. We monitor and measure the impact of our operations on the air, climate, water, soil and biodiversity. Our aim is to increase the efficiency of energy production and reduce energy consumption.

We comply with legislation, permits and other binding requirements in energy production and the management of environmental matters. We produce energy and use raw materials such as fuels, chemicals and water in a holistically efficient and environmentally friendly manner. We operate and manage all power plants and other

sites for which we are responsible in a careful and appropriate manner.

The Group's environmental and energy efficiency policy guides our operations and management. In the Pohjolan Voima Corporate Executive Team, environmental matters are the responsibility of the Group President and CEO, who is also responsible for updating the environmental and energy efficiency policy. The environmental and energy efficiency policy is approved by Pohjolan Voima Oyj's Board of Directors.

In the subsidiaries, responsibility lies with the managing directors of the companies, and decisions on environmental matters are made as part of other management processes. If necessary, the Group management and production companies complement the policies with more detailed guidelines.

Discussion of environmental matters between the production companies takes place at environmental and safety meetings regularly arranged by the parent company.

[Read more about our environmental and energy efficiency policy](#) 

Of Pohjolan Voima's production companies, Kaukaan Voima, Kymin Voima, Porin Prosessivoima, PVO-Vesivoima, Rauman Biovoima, Alholmens Kraft and Teollisuuden Voima have ISO 14001-compliant



environmental management systems. The systems are used to ensure that environmental targets are met and to verify continuous improvement. Some of the systems are certified.

There were no significant environmental deviations in our production in 2023.

The results of Teollisuuden Voima's nuclear production and environmental programme for 2023 are reported in Teollisuuden Voima's sustainability and environmental report.

[Read more at www.tvo.fi](http://www.tvo.fi) 

99%
or our electricity
production was carbon
neutral in 2023

Towards carbon neutrality

Our target is that by 2025, 99% of the electricity and 85% of the heat produced by Pohjolan Voima's production companies will be generated from carbon-neutral energy sources, i.e. hydropower, wood-based fuels, recycled biofuels and nuclear power.

We achieved our target in 2023: 99% (97) of our electricity production and 90% (80) of our heat production was carbon neutral. Carbon dioxide emissions from our electricity and heat production amounted to 0.2 (0.6) million tonnes. In 2023, characteristic CO₂ emissions from our electricity production were 5 g CO₂/kWh (31). Characteristic CO₂ emissions from heat production were 34 g CO₂/kWh. Combined CO₂ emissions from heat and electricity production were 9 g CO₂/kWh.

Our carbon-neutral electricity production capacity is growing, as the shares of nuclear and hydropower in our energy mix have increased. Regular electricity production at the Olkiluoto 3 nuclear power plant unit of Pohjolan Voima's joint venture Teollisuuden Voima

started on 16 April 2023, increasing our carbon-neutral capacity. The plant is estimated to produce around 30% of Finland's electricity annually, and as a producer of carbon-neutral energy, it will have a major impact on Finland's efforts to combat climate change and meet its emissions reduction targets.

The divestment of Vaskiluodon Voima from the Group also reduced the total emissions. In heat production, less peat was used, and the use of sustainable wood-based fuels increased in 2023, contributing to our carbon neutrality target.

The goal for the 2022–2027 strategy period is to use fossil fuels and peat only as start-up and back-up fuels to ensure the security of supply based on the market situation. However, emissions will vary from year to year, and the share of carbon-neutral production is not expected to increase linearly due to variation in weather conditions and price changes in the fuel market. In 2023, fossil fuels and peat accounted for 1% of our electricity production and 10% of our heat production. After the exceptional year of 2022, the use of peat decreased in line with our target, being 81% less than in the reference year 2019.

The monitoring and reduction of emissions have long been one of our targets. With the renewed sustainability programme, established in 2023 and implemented from the beginning of 2024, we have also started to monitor and report greenhouse gas emissions from operations other than the combustion of fuels.

In 2024, we will continue with our action plan, which includes exploring opportunities to carbon capture and the reduction of combustion through waste heat recovery.

Our current carbon neutrality target extends until 2025. In 2023, we explored the setting of climate targets in accordance with the Science Based Targets initiative (SBTi) from 2026 onwards.

CASE: Towards Science Based Targets

Venla Vilhonen's thesis was an important step in Pohjolan Voima's sustainability efforts.

In her master's thesis, Venla Vilhonen, who graduated as a Master of Science in Engineering from the Tampere University in the spring of 2023, studied how Pohjolan Voima could apply the Science Based Targets initiative. She calculated emissions reduction targets for Pohjolan Voima using two different methods. For this purpose, Vilhonen created a comprehensive greenhouse gas inventory of the company's direct emissions and emissions related to energy consumption.

With the aid of the thesis, Pohjolan Voima has been able to assess how a target according to the SBTi could be achieved. The thesis also provided plenty of insight into the development of greenhouse gas emissions reporting and excellent data to help make better sustainability decisions.

[Read more on our website](#)

[Also see Appendix – Climate risk reporting based on the recommendations of the Task Force on Climate-Related Financial Disclosures \(TCFD\)](#)

We continuously improve our energy efficiency

We monitor changes in our operating environment, and we take environmental and energy-related themes into account when developing our operations. We ensure continuous improvement through appropriate management and monitoring methods and by participating in collaboration projects in the energy industry. We regularly assess the actions we have taken to decrease our environmental impact and improve our energy efficiency.

We monitor technological developments and carry out studies on new solutions for energy efficiency and energy economy. Through investments in its current and future power plants, we strive to decrease the environmental impact and improve energy efficiency and to play our part in the achievement of a carbon-neutral future in Finland by 2035.

Porin Prosessivoima started the construction of a flue gas condenser plant in 2023. The plan is to turn waste heat from the plant's flue gas into district heat.

[Read more about the flue gas condenser plant](#)

All the Pohjolan Voima Group subsidiaries that produce energy have signed energy efficiency agreements. Energy efficiency agreements are a central part of the Finnish energy and climate policy. Valid until 2025, the current agreement period is the third. We and the other companies who have signed the agreement are committed to investigating and continuously improving our energy efficiency as part of the planning and management of our operations. We are improving our energy efficiency, both at our production facilities and our offices. We publish annual reports about our measures to reduce energy consumption or save energy, and the savings and improvements achieved. PVO-Vesivoima, Porin Prosessivoima, Teollisuuden

Voima and Alholmens Kraft have joined the action plan for energy production. The Pohjolan Voima Group companies involved in the action plan for energy-intensive industry are Kaukaan Voima, Kymin Voima and Rauman Biovoima via UPM-Kymmene Corporation. In 2023, we implemented energy efficiency measures that saved a total of 63 gigawatt hours per year (GWh/a) of electricity, heat and fuels.

All our production companies use the energy efficiency system EES+ or the energy management system ISO 50001. Rauman Biovoima and PVO-Vesivoima have certified EES+ systems, and Teollisuuden Voima, Kaukaan Voima, Kymin Voima and Alholmens Kraft have uncertified systems. Porin Prosessivoima has a certified ISO 50001 system.

We require our personnel to carry out their work responsibly and professionally. We train, guide and encourage our staff to be aware of the principles of our environmental and energy efficiency policy. They can identify the themes and activities where their actions can contribute to the implementation and development of our policy.

During the year, we promoted energy efficiency in accordance with energy efficiency agreements. Power plant lifecycle management also influences energy efficiency. We continued with the development of the plants' balancing capacity. The optimisation of the operation of the combined heat and power plants improves fuel economy.

[Read more about our development projects](#)

[Read more about our energy efficiency efforts: Energy efficiency: continuous work – Pohjolan Voima](#)



CASE: Energy saved with more precise control of discharge

More precise control of the discharged volume at the Raasakka hydropower plant on the Iijoki river saves energy.

Environmental flow is discharged into the old Raasakka riverbed between June and October. There was an idea to use siphon pipes on top of the flood gates to determine exactly how much water is being discharged into the old riverbed. Previously, accurate control through the large floodgates was difficult, and the discharging of small volumes caused vibration and noise issues.

[Read more on our website](#)

Low-emission energy

The most significant environmental impact of thermal power production concerns the atmosphere. The greatest flue gas emissions include carbon dioxide, nitrogen oxide, sulphur dioxide and particle emissions. Thermal power plant emissions in metric tons (t) are affected by the production volume of the plants, but the emissions can be reduced through fuel choices, the optimisation of the combustion process and flue gas cleaning technology. We have developed all of them over the years. Emissions into the air decreased from the previous year in 2023.

In 2023, emissions from heat and electricity production were as follows:

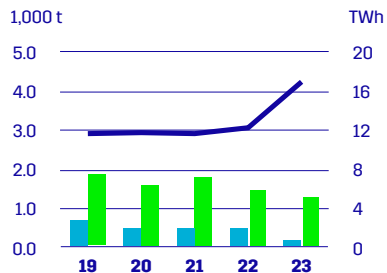
- Carbon dioxide 0.2 million tonnes
- Sulphur dioxide 0.2 thousand tonnes
- Nitrogen oxides 1.3 thousand tonnes
- Particle emissions 0.05 thousand tonnes

From a legal perspective, all our thermal power plants are large combustion plants, and their emissions are regulated by the best available techniques (BAT) conclusions for large combustion plants (LCP) published in 2017. Some of our power plants have been obliged to comply with the BAT conclusions starting from 2021, but the transition period is longer for other industrial power plants. However, all our power plants are ready for operations in accordance with the LCP BAT and have either renewed their environmental permits or will do so. The emission limits for new environmental permits will be stricter.

Our CO₂ emissions have previously been calculated from emissions from combustion. For the first time in the Annual report of 2023, the emissions calculated according to the greenhouse gas protocol (GHGP) Scope 1 and Scope 2 are reported in addition to CO₂ emissions.

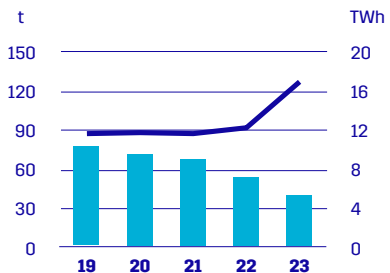


Acidifying emissions from heat and electricity production in 2019–2023



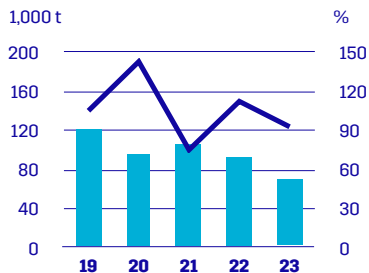
- ◆ Sulphur dioxide emissions [1,000 t]
- ◆ Nitrogen oxide emissions [1,000 t]
- ◆ Electricity production, TWh

Particle emissions from heat and electricity production in 2019–2023



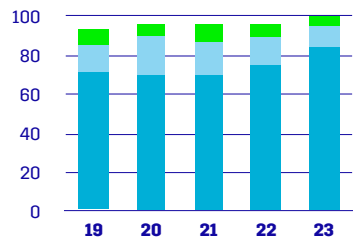
- ◆ Particle emissions [t]
- ◆ Electricity production, TWh

Usage of by-products and reutilisation levels in 2019–2023



- ◆ By-products
- ◆ Reutilisation level

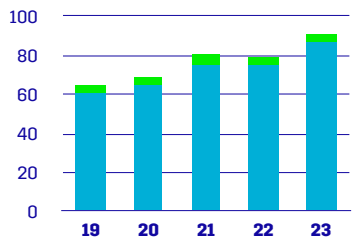
Carbon-neutral sources of Pohjolan Voima's electricity production in 2019–2023 %



- ◆ Nuclear
- ◆ Water
- ◆ Wood-based fuels*
- ◆ SRF, 60% bio-share

* Wood-based fuels are carbon-neutral

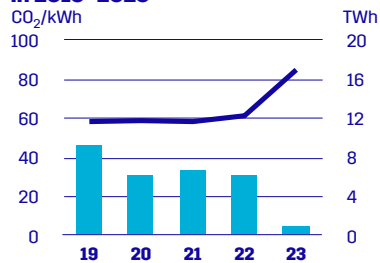
Carbon-neutral sources of heat production in 2019–2023 %



- ◆ Wood-based fuels*
- ◆ SRF, 60% bio-share

* Wood-based fuels are carbon-neutral

Specific carbon dioxide emissions from electricity production in 2019–2023

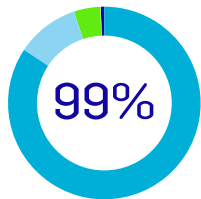


- ◆ Specific CO₂-emissions [g CO₂/kWh]
- ◆ Electricity production, TWh

See value tables on page 75

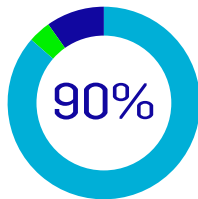


Carbon-neutral electricity production in 2023



- ▶ 84.3% Nuclear power
- ▶ 10.6% Hydropower
- ▶ 4.4% Wood-based fuels
- ▶ 0.1% SRF, 60% share
- ▶ 0.6% Fossile fuels incl. peat

Carbon-neutral heat production in 2023



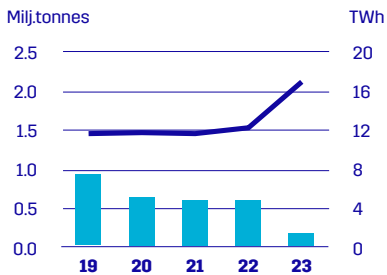
- ▶ 86.4% Wood-based fuels
- ▶ 3.8% SRF, 60% share
- ▶ 9.8% Fossile fuels incl. peat

Greenhouse gas emissions



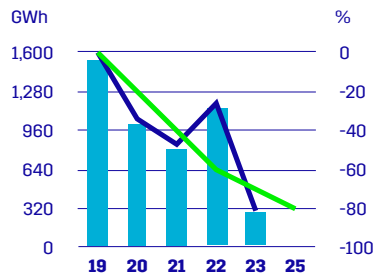
- ▶ 85% Direct greenhouse gas emissions (Scope 1)
- ▶ 15% Indirect greenhouse gas emissions from energy (Scope 2) market-based emissions

Carbon dioxide emissions from heat and electricity production in 2019–2023



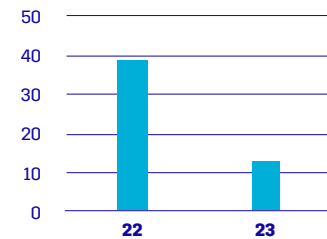
- ▶ CO₂ emission [mil. tonnes]
- ▶ Electricity production, TWh

Reducing the use of peat



- ▶ Use of peat, GWh
- ▶ Target, %
- ▶ Actual, %

Greenhouse gas intensity in relation to production, kgCO₂e/MWh



Scope 1 and Scope 2, market-based emissions in relation to production



See value tables on pages 74-75



Security of supply through balancing

By improving our balancing capacity, we will bring stability and contribute to safeguarding the functionality of the electrical power system. In future, fluctuations in electricity production will be even faster and greater than now. The volume of weather-dependent wind and solar power will increase, requiring more balancing power to balance the varied production and consumption levels. Balancing power and timely production will become even more important.

Hydropower is the most important source of balancing power. By using hydropower as balancing power, we can ensure the functionality of the electrical power system. We are also developing the flexibility of combined heat and power plants. Combined heat and power plants play an important role in electricity production, especially during the winter months. They also play a key role in adjusting heat production based on demand in the winter months.

[Read more in the section on development projects:](#)

Resource efficiency through asset management

Well-managed assets and asset lifecycle management are resource efficient in terms of the use of materials, energy efficiency and environmental impact.

Continuous maintenance and regular servicing of our power plants ensure security of supply. Maintenance also enables high plant utilisation rates and minimises the need for new spare parts or equipment. As we are responsible for over 20% of Finland's electricity production, ensuring reliability is also included in our sustainability efforts as part of the country's security of supply infrastructure. Contract and supply chain management play a major role in lifecycle management. The Group's energy-producing companies have maintenance service contracts with established partners. Lifecycle

and asset management risks in 2023 included longer lead times for critical components, which meant more foresight in the management of critical spare parts. The availability and reliability of our plants were at a high level.

Risk management is systematic, comprehensive and proactive. Risk assessments and systematic management measures contribute to ensuring the reliability and high availability of our plants. For example, the availability of fuel for the combined heat and power plants in the changing geopolitical situation was ensured through good foresight and cooperation with a large network. In 2023, the availability indicators of all our combined heat and power plants were at the target level.

We also arranged regular exercises on a variety of emergency situations at our power plants. In 2023, we arranged a large-scale hydropower emergency exercise with partners.

The power plants are regularly inspected by our own staff and the authorities. In 2023, inspections according to the Dam Safety Act, held regularly every five years, took place at the Haapakoski and Pahkakoski dams.

Our Teollisuuden Voima joint venture develops its operations in line with the principles of continuous improvement. Teollisuuden Voima's operating system supports proactive measures.

[Read more about the company's policies at www.tvo.fi](http://www.tvo.fi)

Exploiting the potential of the circular economy

We effectively utilise the by-products of our power plants. For us, the circular economy means the utilisation of by-products, the use of recycled fuels and the reuse of materials. The circular economy is also promoted by energy efficiency, as described under

[We continuously improve our energy efficiency.](#)

The most significant by-products of our production are fly ash and bottom ash from our combined heat and power plants. Our goal is to reuse 100% of the by-products of our thermal power production as raw materials to replace non-renewable natural resources such as rock and stone.

We are currently in the process of exploring matters such as how ash recovered from the combined heat and power plant processes could be utilised beyond the current level, as the recovery of ash saves virgin natural materials. We already recover 100% of the ash generated by our power plants, but are continuously looking for new circular economy opportunities. For example, we have been involved in the UUMA4 cooperation forum, which promotes renewable civil construction in Finland. We also intend to participate in the next three-year UUMA5 cooperation forum. In 2023, our subsidiary Kaukaan Voima received a by-product statement from the Centre for Economic Development, Transport and the Environment, which will significantly streamline the use of the ash from the plant, as no separate environmental permit is required for its use in deep stabilisation.

In 2023, our power plants generated a total of 71,300 (94,000) tonnes of fly ash from the combustion gas cleaning processes and bottom ash from boilers. A total of 93% (112) of the by-products was reused in civil construction and as forest fertilisers. The ash can be temporarily stored and used later, which means that the recovery rate can be somewhat below or above 100%. The five-year average for the recovery of by-products was 106%.

Waste from the demolishing of the Laanilan Voima power plant was also reused. In the management and collection of other types of waste, we use systematic site practices with the help of partners. The majority of other waste is demolishing waste or waste produced in

power plant operation. The total amount of waste was 19,018 tonnes, and the recovery was 99%.

We use water for cooling and processes

Pohjolan Voima's production companies use water mostly for industrial cooling. In addition, small amounts of process and domestic water are used. Our responsibility for the use of water is related not only to the volume and availability of water but also its quality and the aquatic environment. We are committed to long-term efforts to improve the aquatic environment and are committed to using water responsibly and more efficiently.

We monitor our water consumption and make the processes more efficient by measures such as reducing water consumption and recycling water where possible.

The total volume of water used was 2,300 million cubic metres. Most of the water was used for cooling: cooling water accounted for 99% of the total water consumption. Teollisuuden Voima has the largest cooling needs, and therefore the largest water consumption levels, as it uses water to cool its nuclear power plant units. The water consumption of the combined heat and power plants is based on a closed water cycle, which is why it is low. Our joint venture Voimalohi uses water on its fish farms.

As our operations are limited to Finland, we do not operate in any areas under water stress.

Making progress with our biodiversity work

Climate change and biodiversity loss also affect the energy industry's operating environment. Biodiversity is included in our strategy, and in 2023, we implemented our biodiversity programme for 2023–2027, focusing on hydropower and thermal power. In terms of nuclear



CASE: Rauman Biovoima Oy is advancing the reuse of ash

Ash from the Rauman Biovoima power plant replaces cement in earthworks in a circular economy project.

In a ten-year circular economy project, the Sampaanalantahti bay port basin has been filled using pulp as a binder mass that contains ash generated at the Rauman Biovoima power plant. The ash is used to strengthen the soil instead of cement, resulting in considerably lower emissions. In the project, the old port basin located in the UPM Rauma mill area will be turned into a storage area.

[Read more on our website pohjolanvoima.fi](https://www.pohjolanvoima.fi)

power, the work on biodiversity is carried out by our joint venture Teollisuuden Voima.

Our long-term biodiversity vision is to identify our key impact on biodiversity and move towards net positivity. We will promote our skill set and update our targets as knowledge increases. We have set long-term goals to achieve our vision.

In addition to the vision, we have defined longer-term targets and annual targets for hydropower, thermal power and the parent company in our biodiversity programme. In 2023, the programme was integrated into the sustainability programme. We estimate that we were able to complete around 80% of the biodiversity measures planned for 2023. We will continue with the remaining measures in 2024.

The operation of Pohjolan Voima and its production companies has a direct impact on biodiversity through land use and bodies of water on sites or in project areas. Our most significant biodiversity impact is related to the construction of power plants, the procurement of fuels, the generation of greenhouse gas emissions, and our impact on the aquatic environment and migratory fish. In addition, there is an indirect impact through our supply chains and the operations of our partners. We have explored the importance of the indirect impact on our operations in a thematic risk report on climate change, for example.

In hydropower, the key negative impact of our operations is related to the obstruction of the passage of migratory fish due to the construction of dams and ecosystem effects from the regulation of water upstream and downstream of power plants. The regulation of water causes a variation in water levels and flows, as the flowing water is converted into energy by channelling it from a higher level to a lower level through the plant's turbine. However, these activities do not reduce the water volume or pollute the water.

In thermal power, the key negative impact is related to the use of forest energy and fuel transport. In nuclear power, the extraction and production of nuclear fuel causes a biodiversity impact in the country of production, and the cooling water from the nuclear power plant affects aquatic ecosystems through the heat load. Teollisuuden Voima reports on these in more detail in its sustainability and environmental reports – see www.tvo.fi

The positive impact of hydropower production includes reduced flood damage and the control of water level fluctuations through regulation. Developments are being made in thermal power production to promote biodiversity. Our combined heat and power plants use by-products from the forest industry and reduce the need to use peat.

[Read more about the measures to promote our biodiversity targets in 2024 on our website](#)

Our biodiversity actions in 2023

We successfully promoted several projects on matters such as the restoration of the natural migration patterns of migratory fish.

To maintain fish stocks, we stock fry every year in accordance with the fish stock management obligations imposed on us. In 2023, we stocked around 2.7 million fry in the Kemijoki and Iijoki river basins and marine areas. [Read more on our actions](#)

Our affiliated company Tornionlaakson Voima received a permit to build two natural fishways at Portimokoski on the Tengeliönjoki river in November 2023. The plan is to realise the fishways in cooperation in 2024.

We applied for a permit for the Raasakka fishways in 2017. Appeals regarding the fishways were still pending at the Administrative Court of Vaasa at the end of 2023. In March 2017, the Centre for

Biodiversity programme

Targets of Pohjolan Voima Group:

Considering biodiversity in everything we do
Indicators for the effectiveness of the work on biodiversity

Long-term targets for hydropower:

Developing the natural migration patterns of migratory fish through extensive cooperation
Strengthening stakeholder cooperation
Promoting biodiversity on land owned by PVO-Vesivoima

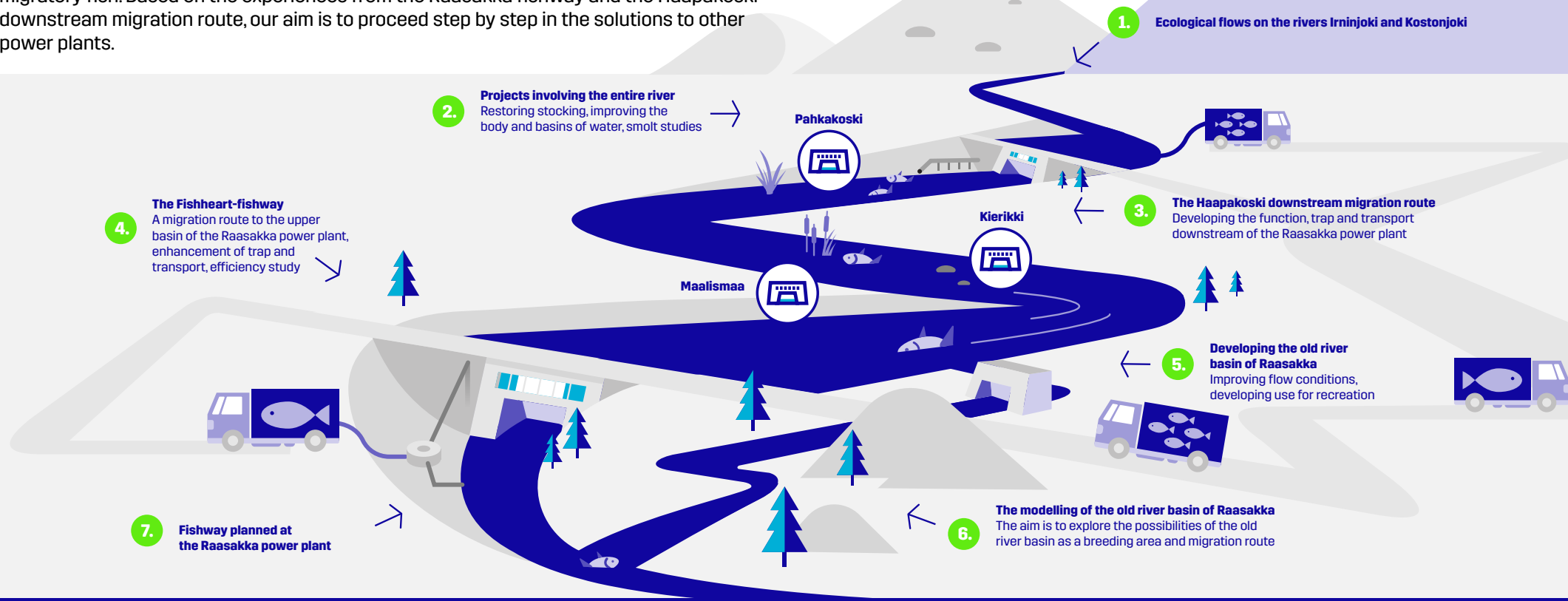
Long-term targets for thermal power:

Our wood-based fuels are sustainable
By-products and the circular economy are utilised

Economic Development, Transport and the Environment (ELY Centre) for Lapland filed a petition of appeal with the Regional State Administrative Agency for Northern Finland concerning stocking and fish stock management obligations regarding the Kemijoki river. In October 2017, the ELY Centre filed a similar petition concerning the Iijoki river. The Regional State Administrative Agency for Northern Finland did not issue a decision on either matter during 2023.

Our migratory fish cooperation projects on the river Iijoki


We participate in extensive cooperation to restore the natural migration patterns of migratory fish. Based on the experiences from the Raasakka fishway and the Haapakoski downstream migration route, our aim is to proceed step by step in the solutions to other power plants.



CASE: Cooperation and international learning on migratory fish solutions

Research knowledge and experience of different options help us to develop models tailored to our local conditions.

In the early summer of 2023, ten Finnish experts travelled to the east coast of North America to learn about migratory fish solutions in the harnessed rivers of New Brunswick, Canada, and Maine, USA. It was an interdisciplinary group: there were three fish experts from Voimalohi plus power company executives and experts on the environment, technology and law.

Migratory fish restoration work is relatively new in Finland, and we do not have many fishway options for large rivers. We wanted to see upstream migration solutions for adult migratory fish, and downstream migration routes for smolts that are starting their migration to the sea. This information is crucial to us as we consider our own opportunities and solutions in Finland. [Read more on our website](#) 



Our biodiversity measures in 2023

Group targets



Long-term objectives	Targeted actions in 2023	Actual 2023
Considering biodiversity in everything we do	Incorporation of biodiversity into our guidelines and agreements.	Biodiversity is included in the supplier guidelines which are used as an annex to agreements.
	Reviewing our Group policies	Taking biodiversity into account in our operations has been included in the Group policies.
	Advancing energy efficiency according to Energy Efficiency Agreements (in force until 2025).	The production companies have realised energy efficiency measures in line with their energy efficiency agreements. In 2023, our measures saved a total of 63 GWh/a of electricity, heat and fuels.
Indicators for the effectiveness of the work on biodiversity	Surveying the possibilities to adopt the Science Based Targets for Nature -initiative (SBTN)	We reviewed the progress of the Science Based Targets for Nature (SBTN) initiative and concluded that we cannot set biodiversity targets under it as of yet. We will continue to monitor the progress of the SBTN with the intention of commissioning a thesis on this topic in 2024.
	Developing other meters	We are involved in a project of the Environmental Research Pool of Finnish Energy launched in the autumn of 2023 to explore methods for assessing the biodiversity impact of hydropower. The project will be completed in early 2024. The report will help us assess the impact of our production on biodiversity.

Hydropower targets



Long-terms objectives	Targeted actions in 2023	Actual 2023
Developing the natural migration patterns of migratory fish through extensive cooperation	Specifying our strategy for migrating fish	We further specified our migratory fish strategy to cover all our power plants and regulated lakes. We decided to extend the duties of our joint venture Voimalohi to the development and implementation of migratory fish restoration activities.
	Participating in research programmes	At the Raasakka power plant, we collaborated to study the number of migratory fish rising downstream the power plant. At the Haapakoski power plant, we collaborated to study the functionality of Finland's first downstream migration route in both the Lohi Iijokeen and Sateenvarjo III projects. The development of the old Raasakka riverbed continued, and we are using a modelling project to explore the possibilities of developing the riverbed as a natural breeding area for migratory fish in collaboration with the contracting parties to an agreement on the Iijoki river. We participated in whitefish surveys of the Sateenvarjo III project. We participated in migratory fish studies in the Kemijoki-Ounasjoki river area (Kemijoki-Ounasjoki migratory fish working group)
	Participating in the Kalasydän (Fishheart) project	With this project, we aim to obtain more information about the suitability of the Fishheart fishway as part of fishway solutions. Fishheart will be in use at the Raasakka power plant during the migratory fish upstream migration seasons between 2023 and 2025. We will study the functionality of Fishheart in the coming years.
Strengthening stakeholder cooperation	Engaging in active dialogue in cooperation forums and stakeholder meetings	Active dialogue is an ongoing activity for us, which we realised according to plan in 2023.
	Involving local cooperation partners and nature preservation organisations into the projects	We continued collaboration with local partners and discussions with nature conservation organisations.
	Taking part in a benchmark of hydropower operators	Biodiversity was not part of the benchmark.
Promoting biodiversity on land owned by PVO-Vesivoima	We prepare a survey of the biodiversity of our land areas	We prepared a nature inventory to be realised in 2024 of land owned by PVO-Vesivoima along the constructed part of the Iijoki river. The Pirkanmaa Centre for Economic Development, Transport and the Environment has realised a habitat inventory based on which a valuable habitat, a hardwood stand, on land owned by PVO-Vesivoima in the upper basin of the Melo power plant will be protected. A wetland will be constructed in 2024 in a meadow owned by PVO-Vesivoima in Nokia to improve a freshwater pearl mussel habitat. The project was planned in 2023. In a decommissioned peat production area owned by PVO-Vesivoima in Pudasjärvi, we will realise a joint project on wetland and a willow ptarmigan mating display area in 2025. The preparation of the projects started in 2023, and the projects will be realised in 2024.

Thermal power targets



Long-term objectives

Targeted actions in 2023

Actual 2023

Our wood-based fuels are sustainable

Surveying the current sustainability status of our fuels

We carried out a study on the sustainability of wood-based fuels. Our wood-based fuels meet the RED II sustainability criteria, but our aim is to survey aspects such as the certification volumes of wood-based fuels in more detail. We collected information about our wood-based fuels. We will start refining our reporting from the beginning of 2024.

Evaluating the sustainability criteria and, if necessary, review the criteria

We completed a review, but our criteria have yet to be updated.

Studying the significance of certificates in relation to biodiversity

The certification volumes of wood-based fuels were discussed with our key fuel supplier. Training on what the different forest certifications mean for biodiversity was arranged for the CEOs of our production companies and persons responsible for fuel procurement.

Surveying the share of certified biomass

We concluded that the collection of certification data required more accurate reporting, which is why we will start to refine our reporting from the beginning of 2024.

Setting targets to biomass acquired from certified sources

To set a target for biomass from certified sources, we must refine our reporting. We therefore still have not set a target for biomass from certified sources.

By-products and the circular economy are utilised

Advancing the utilisation of ash (continuing): Studying the possibilities for additional use of ash for fertilisation and the costs for granulation, studying the utilisation of ash for ground stabilisation, advancing ash utilisation in ground works by participating in the UUMA4 joint project

In 2023, more ash than before could be delivered for forest fertiliser use. The delivery volume was 11,000 tonnes, compared to 1,000–8,000 tonnes in 2018–2022. Our subsidiary Kaukaan Voima obtained a by-product status for fly ash, which facilitates the use of ash in deep stabilisation and as a forest fertiliser. In addition, Pohjolan Voima participated in the UUMA4 project as planned.



Appendices

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Reporting principles

Data related to Pohjolan Voima's environmental responsibility is reported as consolidated figures. 100% of the figures for the subsidiaries is included in the calculations. Most figures for the affiliated companies and joint ventures are pro-rata figures. Flue gas emissions from combined heat and power production have been allocated to heat and electricity production using the benefit distribution method. The emissions data of the affiliated company Alholmens Kraft has been consolidated in proportion to the energy supplied to Pohjolan Voima because the amount of electricity and heat supplied differs from the capital share.

Pohjolan Voima's carbon dioxide emissions have previously been calculated from emissions from combustion. For the first time in the annual report of 2023, the emissions calculated according to the greenhouse gas protocol (GHGP) scope 1 and scope 2 are reported in addition to carbon dioxide emissions.

Indicators and targets

In the thematic risk report on climate change realised in 2023, risks were assessed on a qualitative basis, based on studies and articles by the Finnish Government, ministries and other experts, and interviews with Pohjolan Voima's experts.

One of Pohjolan Voima's most important targets is that 99% of our electricity and 85% of our heat will be produced from carbon-neutral sources in 2025. For more information about these targets and other emissions data, see page [44](#) 

GRI-content index

GRI Standard	Content	Location	Comments
GRI 2: General disclosures (2021)			
Organizational profile			
2-1	Organizational details	This is Pohjolan Voima, p. 3 ; Annual Report, p. 88 ; Financial statements, Notes to the consolidated financial statements, p. 20	
2-2	Entities included in the organization's sustainability reporting	Financial statements, Notes to the consolidated financial statements, p. 21	
2-3	Reporting period, frequency and contact point	Annual Report, p. 88	The report will be published on 19th March 2023. For matters related to the report, you can contact info@pvo.fi
2-4	Restatements of information		No corrections.
2-5	External assurance		The sustainability information in the report has not been verified.
Activities and workers			
2-7	Employees	An energetic attitude, pp. 39-40 ; Appendices, p. 71	The personnel has been reported only categorized by gender.
Governance			
2-9	Governance structure and composition	Financial statements, Corporate Governance Statement p. 3-5	The administrative structure and composition have been reported concerning the listing of board committees.
2-10	Nomination and selection of the highest governance body	Financial statements, Corporate Governance Statement p. 3-5	
2-11	Chair of the highest governance body	Financial statements, Corporate Governance Statement p. 3-5	
2-12	Role of the highest governance body in overseeing the management of impacts	Management of sustainability, p. 31-35	
2-13	Delegation of responsibility for managing impacts	Management of sustainability, p. 31-35	
2-15	Conflicts of interest	Financial statements, Corporate Governance Statement p. 4-5 ; Management of sustainability, p. 32-33	
2-16	Communication of critical concerns	Management of sustainability, p. 32-33	
2-17	Collective knowledge of the highest governance body	Management of sustainability, p. 31-35	

Strategy, policies and practices			
2-22	Statement on sustainable development strategy	Sustainability at all times, p. 5-6	
2-23	Policy commitments	Management of sustainability, p. 31-35; Pohjolan Voima's Sustainability principles in our website: https://www.pohjolanvoima.fi/tietoa-meista/vastuullisuuspolitiikat/	
2-24	Embedding policy commitments	Management of sustainability, p. 31-35	
2-25	Processes to remediate negative impacts	Management of sustainability, p. 32-35	
2-26	Mechanisms for seeking advice and raising concerns	Management of sustainability, p. 32-35	
2-27	Compliance with laws and regulations		No failures to comply or sanctions during the reporting period.
2-28	Membership associations	Management of sustainability, p. 33-35	
Stakeholder engagement			
2-29	Approach to stakeholder engagement	Management of sustainability, p. 33-35	
2-30	Collective bargaining agreements	An energetic attitude, p. 30; Appendices, p. 71	
GRI 3: Material Topics (2021)			
3-1	Process to determine material topics	The material topics of our renewed sustainability programme, p. 30	The identification of material topics pertains to the material topics defined during the year 2023.
3-2	List of material topics	Successes in 2023, p. 26; The material topics of our renewed sustainability programme, p. 30	
ENVIRONMENTAL STANDARDS			
GRI 301: Materials (2016)			
301-1	Materials used by weight or volume	Appendices, p. 72, 75	
301-2	Recycled input materials used	Appendices, p. 76	
GRI 302: Energy (2016)			
302-1	Energy consumption within the organization	Environmentally responsible energy, p. 43; Reporting principles, p. 58; Appendices, p. 73	
302-4	Reduction of energy consumption	Environmentally responsible energy, p. 43; Reporting principles, p. 58; Appendices, p. 75	
GRI 303: Water and Effluents (2018)			
303-1	Interactions with water as a shared resource	Management of sustainability, p. 32; Environmentally responsible energy, p. 50-51; Appendices, p. 67-68	
303-5	Water consumption	Environmentally responsible energy, p. 50	

GRI 304: Biodiversity (2016)

304-2	Significant impacts of activities, products, and services on biodiversity	Environmentally responsible energy, p. 50-53; Our biodiversity measures in 2023, p. 54-56; Biodiversity in our website: https://www.pohjolanvoima.fi/vastuullisuus/luonnon-monimuotoisuus/	
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GRI 305: Emissions (2016)

305-1	Direct (Scope 1) GHG emissions	Environmentally responsible energy, p. 47; Reporting principles, p. 58; Appendices, p. 74	The calculation includes CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, SF ₆ , NF ₃ .
305-2	Energy indirect (Scope 2) GHG emissions	Environmentally responsible energy, p. 47; Reporting principles, p. 58; Appendices, p. 74	The calculation includes CO ₂ .
305-4	GHG emissions intensity	Environmentally responsible energy, p. 48	
305-5	Reduction of GHG emissions	Environmentally responsible energy, p. 47-48; Reporting principles, p. 58; Appendices, p. 74	
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Environmentally responsible energy, p. 47; Reporting principles, p. 58	

GRI 306: Waste (2020)

306-3	Waste generated	Environmentally responsible energy, p. 50; Appendices, p. 76	
306-4	Waste diverted from disposal	Appendices, p. 76	
306-5	Waste directed to disposal	Appendices, p. 76	

SOCIAL STANDARDS**GRI 401: Employment (2016)**

401-1	New employee hires and employee turnover	An energetic attitude, p. 40; Appendices, p. 71, 73	Some information has been left unreported to ensure data protection and privacy.
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GRI 403: Occupational health and safety (2018)

403-1	Occupational health and safety management system	An energetic attitude, p. 38-39	
403-2	Hazard identification, risk assessment, and incident investigation	An energetic attitude, p. 37-38, 41-42	
403-9	Work-related injuries	An energetic attitude, p. 37-42	Information related to work accidents has been described only concerning accidents, fatalities, and preventive measures.

GRI 404: Training and education (2016)

404-1	Average hours of training per year per employee	Appendices, p. 71	
404-3	Percentage of employees receiving regular performance and career development reviews	An energetic attitude, p. 38; Appendices, p. 71	

GRI 405: Diversity and equal opportunity (2016)

405-1	Diversity of governance bodies and employees	An energetic attitude, p. 40	Diversity has been described without age groups.
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Climate risk reporting based on the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD)

Pohjolan Voima publishes a report based on the TCFD recommendations on its climate change risks.

Governance and strategy

Pohjolan Voima's Board of Directors ultimately approves the Group's strategy, sustainability policies and sustainability programme, including climate matters. The Corporate Executive Team prepares proposals for decisions for the Board of Directors and oversees the development and implementation of corporate sustainability. In Pohjolan Voima's Corporate Executive Team, the Group President and CEO is responsible for environmental matters. The identification of climate and environmental effects and risks is an integral part of the operations of all our subsidiaries. The thematic risk report on climate change realised in 2023 was discussed and approved by Pohjolan Voima's Corporate Executive Team and the Audit and Financing Committee.

One of the sustainability development projects for 2024 is to include the assessment of sustainability risks and opportunities as part of the annual risk assessment and strategy process.

We comprehensively describe the management of sustainability, including climate matters, [see page 31](#) of the report.

Identified risks and their management

In 2023, Pohjolan Voima produced a thematic risk report on climate change, which examined the impact of climate change by 2050 from the perspective of Pohjolan Voima's hydropower, thermal power and nuclear power production. The assessment focused in particular on the physical risks of climate change according to the classification of the EU Taxonomy Regulation.

Most of the climate risks related to Pohjolan Voima's hydropower, thermal power and nuclear power production are chronic and related to temperature, water and their derivative risks. The identified key risks for the different production types are changes in rainfall and hydrological variation for hydropower, temperature change and its impact on the demand for district heat, electricity and cooling energy for thermal power, and warming of cooling water due to rising temperatures and the flood risk caused by rising sea levels for nuclear power.

In addition to the risks to the different forms of production, the assessment identified side effects of climate change such as the transitional risks associated with regulation and emissions trading.

The key risk types and the measures to manage them are described in the table below.

The most important risk types related to climate change and their management actions

Risk/impact	Description	Measures
HYDROPOWER		
Hydrological variation	Annual variation will increase further, making it more difficult to predict regulation. The predictability of hydropower production will be reduced.	Adapting regulation practices to input flows. Refining forecasts and surveying additional storage and machinery capacity.
Hydrological variation	High flows during the ice cover season will cause the ice covers of rivers to break, which will lead build-ups of ice. The increased flows will delay the formation of the ice cover, increasing the risk of frazil ice.	Surveying areas with a high risk of ice build-up and flooding caused by frazil ice, as well as determining measures on a case-by-case basis.
Hydrological variation	Changes in flooding risk.	Land use planning, flood protection, surveying of additional storage and machinery capacity.
THERMAL POWER		
Changes in temperature	The district heating season will become shorter, but demand for cooling energy and electricity will increase.	Adapting production, increasing balancing power, energy efficiency.
Changes in temperature	The harvesting of forest biomass will become more difficult as there will be less frost and the load-bearing capacity of the forest floor and forest roads will deteriorate. On the other hand, forests will grow more quickly and carbon storages will increase provided that forest decay is avoided. The likelihood of pests and forest decay will increase.	Fuel storage, back-up fuels.
NUCLEAR POWER		
Changes in temperature	Seawater becoming too warm for optimal cooling.	Capacity limitation if the seawater temperature becomes too high.
Rising sea level	The likelihood of coastal flooding will increase.	Coastal flooding has been taken into account in legislation and planning.
SIDE EFFECTS OF CLIMATE CHANGE/TRANSITIONAL RISKS		
Regulation	Legislation to prevent climate change will be tightened: hydropower compensation requirements will be especially likely, and in the case of thermal power, there may be limitations to the use of forests and wood-based fuels.	Participation in law drafting.
Emissions trading	Stricter emissions trading.	Monitoring the market and acting in a timely manner, negotiating long-term fuel supply contracts, identifying new fuel options, exploring carbon capture.

Our sustainable development goals and our achievements in 2023

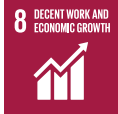
SDG 7



We produce electricity and heat for our customers by means of hydropower, thermal power and nuclear power. We are committed to carbon neutrality. Ensuring that our production plants operate reliably and efficiently is a prerequisite for reaching this target.

Target	Situation assessment	Targets/actual figures/indicators			
7.1 Ensure universal access to affordable, reliable and modern energy services	We play our part in ensuring that electricity and heat are reliably produced, and that sufficient balancing power is available to balance the electrical power system in both normal and abnormal conditions. 99% of our electricity production and 90% of our heat production was carbon neutral in line with the target.	Carbon neutrality of our electricity production		Actual 2022: 97%	Target 2023 97%
		Target 2026–2027: SBT	Actual 2021: 96%	Actual 2023 99%	
		Carbon neutrality of our heat production:		Actual 2022: 80%	Target 2023 83%
		Target 2026–2027: SBT	Actual 2021: 81%	Actual 2023 90%	
		Target 2025: 99%	Actual 2020: 65%		
		Target 2024: 98%			
7.2 Increase the share of renewable energy in the global energy mix	We use fossil fuels and peat only as start-up and back-up fuels to ensure the security of supply based on the market situation. Meanwhile, we increase the share of renewable fuels. We were able to reduce the use of peat by 81% from the 2019 level, i.e. we reached our target. In our hydropower plants, we use modern control methods (river regulation) and develop existing equipment to meet the balancing requirements. This is to ensure weather-dependent balancing power.	Reduction of the use of peat from the 2019 level		Actual 2022 26%	Target 2023 70%
		Target 2025–2027: 80%	Actual 2021: 47%	Actual 2023 81%	
		Target 2024: 75%	Actual 2020: 34%		
		Read more about our measures on page 22	Benchmark year 2019: 1.54 TWh		
7.3. Double the global rate of improvement in energy efficiency	We perform effective maintenance actions and carry out timely investments. The goal with digitisation is to make our production plants even more energy-efficient, emission-free and reliable. All our subsidiaries have specified energy efficiency goals.	The energy efficiency targets of our production companies are specified in the energy efficiency agreements. In 2023, our measures saved a total of 63 GWh/a of electricity, heat and fuels. Information about energy efficiency measures taken in 2023 on our website			

SDG 8



The relevance of our work, occupational health and safety, and wellbeing at work are important to the employees of Pohjolan Voima. In addition to carbon neutrality, relevance is linked to competitiveness and resource efficiency.

Target	Situation assessment	Targets/actual figures/indicators			
8.1 Sustain universal economic growth	We produce electricity and heat at cost price for our owners, who play a key role in terms of economic growth. Indirectly, we create jobs and wellbeing in Finland.	<p>In 2023, our share of the electricity produced in Finland was</p> <h1>22%</h1>			
8.2 Achieve higher level of economic productivity through diversification, technological upgrading and innovation	We monitor the development of new technologies. We test and utilise proven solutions. We are capable of deploying profitable solutions on an industrial scale. In the development work, we utilise digitisation and knowledge-based management, as well as synergies between plants.	<p>Read more about our measures on page 22</p>			
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation	We promote the continuous professional development of our employees and encourage them to search for new solutions. We regularly measure the employee experience and employee satisfaction. We achieved our target: the highest PeoplePower personnel satisfaction survey rating of AAA for the fourth year in a row.	<p>PeoplePower results for the Group</p> <p>Target 2024–2027: AAA</p>	<p>Actual 2022: AAA Actual 2021: AAA Actual 2020: AAA</p>	<p>Target 2023</p> <h1>AAA</h1>	<p>Actual 2023</p> <h1>AAA</h1>

Target	Situation assessment	Targets/actual figures/indicators			
8.4 Improve global resource efficiency in consumption and production	We promote the circular economy by improving our energy efficiency, as well as by maintaining and reusing our plants. Well-managed assets and asset lifecycle management are resource efficient in terms of the use of materials, energy efficiency and environmental impact. We effectively utilise the by-products of our power plants. We use recovered fuels, and our by-product utilisation target is 100%. The actual figure in 2023 was 93%. The five-year average for the recovery of by-products was 106%. Any fly ash that is not immediately reused can be put into intermediate storage and reused at a later date. As a result, the recovery rate varies on either side of 100%.	By-product utilisation Target: 100 % Target 2024–2027: 100%	Actual 2022: 112% Actual 2021: 75% Actual 2020: 143%	Target 2023 100%	Actual 2023 93%
8.8 Protect labour rights and promote safe and secure working environments for all workers	We promote wellbeing at work and a proactive safety culture. We invest in occupational health and safety by reacting to observations and promoting the safety awareness of our employees and subcontractors, for example. We were unable to reach our zero accident target: our subcontractors had three accidents. In accident frequency terms, this was 8 per one million hours worked. The target for safety, environmental and energy efficiency observations by Pohjolan Voima's own staff for 2023 was 5 per person, and the actual figure was 7.1 per person.	Zero accidents (own + others) Target 2024 - 2027: 0 + 0	Actual 2022: 4 + 5 Actual 2021: 1 + 7	Target 2023 0 + 0	Actual 2023 0 + 3
		Accident frequency	Actual 2022: 24		Actual 2023 8
		Safety, environmental and energy efficiency observations	Actual: 2022: 6.1/person/year Actual 2021: 11.9/person/year (target 10)	Goal 2023 5 person/year	Actual 2023 7.1 person/year

SDG 15



Our operations affect the environment. Themes important to us include biodiversity, the sustainable use of forests and freshwater ecosystems, and migratory fish.

Target	Situation assessment	Targets/actual figures/indicators					
15.2 Promote the implementation of sustainable management of all types of forests	The biomass fuel we use originates in sustainable silviculture. We comply with the energy sector's forest energy recommendation and our own biodiversity programme. Our target of using biomass that complies with the RED II sustainability criteria was reached in 2023.	The biomass we use complies with the RED II sustainability criteria (yes/no)	Target 2024–2027: yes	Actual 2022: yes	Target 2023 Yes	Actual 2023: Yes	
15.5 Take action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species	From our perspective, biodiversity is connected with forest energy, peat and hydropower production. Our long-term vision is to identify our key impact on biodiversity and move towards net positivity. We promote our skill set and update our targets as knowledge increases. In terms of measures, we comply with our biodiversity programme.	Target: implementing 100% of the biodiversity programme measures.	Actual: 80% of the measures set out in our biodiversity programme for 2023 were implemented. We will continue with the implementation of the remaining measures in 2024.		Target 2023 100%	Actual 2023: 80%	
15.9 Integrate ecosystem and biodiversity values into national and local planning	In all our hydropower operating areas, we cooperate with local communities in concrete projects of local importance which consider biodiversity.	Read more about our measures on page 50					

SDG 17



Our networked operating method is an integral part of our operating model and the expertise of all Pohjolan Voima employees. We promote sustainable development together with our partners.

Target

Situation assessment

Targets/actual figures/indicators

17.7 Encourage and promote effective public, public-private and civil society partnerships

Our operating models are based on strong networks consisting of our owners, partners, technology suppliers, subcontractors and society at large. We use agreements and audits to promote the commitment of our partners and subcontractors to sustainable development. We perform supplier audits as a member of the HSEQ cluster. We exceeded our target of 5 supplier audits: 7 suppliers were audited.

We perform supplier audits

Target 2023: 5
Target 2022: 5
Target 2021: 5

Actual 7
Actual 3 (+ 7*)
Actual 5

(*comparison of HSEQ audit reports)

Target 2023
5 pcs

Actual 2023
7 pcs

Our stakeholder cooperation in 2023

Stakeholder group	Stakeholder involvement and channels for interaction	Key expectations of the stakeholder group in 2023	Our response to the stakeholder expectations in 2023
Customers	Customer introductions Customer discussions Customer satisfaction survey Participation in strategy work Forums	According to the customer satisfaction survey, our customers' main expectations were: <ul style="list-style-type: none"> •Expertise •Developing activities in the right direction •Actions in line with needs •Competitive operations •Investing in the right things •Social responsibility as a development area 	According to the customer satisfaction survey, we did well, scoring above 4 on all the expectations (on a scale of 1 to 5), and 4.3 on environmental and other sustainability expectations. Furthermore, 65% of the responding customer representatives would recommend Pohjolan Voima as a partner (NPS).
Personnel	Involving staff in the renewal of our sustainability programme Joint events at least once a week Personnel survey	The main strengths of Pohjolan Voima as an employer identified by the employees are: The company creates good prerequisites for wellbeing of employees at work changes are well realised and communicated Employees are heard in decisions regarding themselves	The results of the personnel survey were excellent, and we achieved the best PeoplePower rating of AAA. We were selected one of the Most Inspiring Workplaces for the fifth time in a row.
Investors and financiers	Active dialogue Meetings Communication on the website and via the Annual Report	A reliable and responsible operator Active dialogue and sharing of information	Sustainability indicators included in the parent company's syndicated facility A sustainability reporting reform partly to meet the growing requirements of financiers and investors Constant dialogue with financiers
Decision-makers	Decision-maker meetings Statements	Carbon-neutral production Reliable and dependable production	99% of our electricity production and 90% of our heat production was carbon-neutral. Hydropower contributed to the balancing of the electrical power system. Our thermal power plants play an important role in the production of carbon neutral district heat for urban areas. OL3 started regular production and generated 10.4 TWh of electricity.
Authorities	Discussions, Press releases, newsletters, events	Open flow of information, operation according to permit conditions	Our operations comply with the permits, and information on any deviations is published. The key authorities are included in our distribution lists.

Stakeholder group	Stakeholder involvement and channels for interaction	Key expectations of the stakeholder group in 2023	Our response to the stakeholder expectations in 2023
Partners	Cooperation projects	A reliable partner Security Systematic progress of projects	Cooperation projects to improve production and asset management
Neighbours	Open-door events, newsletters, press releases, websites, migratory fish projects, cooperation projects	Open communication Security of energy supply Migration of fish past hydropower plants	In the annual stakeholder survey, our closest stakeholder groups in the immediate vicinity of our hydropower plants gave the cooperation an average rating of 4.26 (on a scale of 1 to 5). Cooperation projects to restore migratory fish (see Our Biodiversity actions in 2023). Cooperation in regulation Open-door event at the Jumisko power plant, support for local events
Interest groups	Communication, participation in the work of interest groups	Active dialogue, continuous improvement, promotion of shared themes	Active participation in energy industry preparatory and decision-making organs
Non-governmental organisations	Communication, discussions, participation	Carbon neutrality Migration of fish past plants Sustainability Open communication	Invitations to events Communication
Young influencers	Meetings, visits, press releases and newsletters, social media	Open and reliable communication, sustainable operation, cooperation	Discussion events for the youth Invitations to stakeholder events Visits to power plants Support to the Youth Climate Summit Interviews on our communication channels
Media	Press releases and newsletters Social media Meetings	Open and reliable communication, accessibility	Active dialogue Clear and timely press releases Encouraging experts to participate in the discussions

Personnel information

Reporting period

	Women	Men	Others*	Not reported	Total
Number of employees, total	17	23	0	0	40
Number of employees, permanent	16	23	0	0	39
Number of employees, fixed-term	<5	0	0	0	<5
Number of employees, full-time	17	23	0	0	40
Number of employees, part-time	0	0	0	0	0

* Gender reported by the employee

	Women	Men	Total
Share of employees participating in regular performance and career development assessments, %	100	100	100
Average number of training hours per employee	29	12	19

	Coverage of collective labour agreements	Dialogue between management and labour
	Employees - Finland	Representation at work place - Finland
Coverage (%)	82.5	72.5

Value tables of diagrammes

Pohjolan Voima's electricity production in 2023 (p. 15)

	TWh	%
Hydropower	1.8	11%
Nuclear power	14.4	84%
CHP (district heat)	0.0	0%
CHP (industry)	0.9	5%
Total	17.0	100%

Pohjolan Voima's electricity production capacity on 31 December 2022 (p. 15)

	TWh	%
Hydropower	451	16%
Nuclear power	1,974	68%
CHP (district heat)	0	0%
CHP (industry)	463	16%
Total	2,889	100%

Nuclear power production in 2019–2023 (p. 20)

	2019	2020	2021	2022	2023
Nuclear power	8.4	8.3	8.2	9.3	14.4

Electricity production, by energy source 2019–2023 TWh (p. 15)

	2019	2020	2021	2022	2023
Hydropower	1.6	2.2	2.1	1.7	1.8
Nuclear power	8.4	8.3	8.2	9.3	14.4
Wood-based fuels	0.9	0.8	1.0	0.9	0.7
SRF	0.1	0.1	0.1	0.1	0.0
Peat	0.3	0.2	0.2	0.3	0.1
Coal	0.3	0.2	0.2	0.1	0.0
Natural gas	0.0	0.0	0.0	0.0	0.0
Oil	0.0	0.0	0.0	0.0	0.0
Others	0.1	0.1	0.0	0.0	0.0

Heat production by energy source in 2019–2023 TWh (p. 15)

	2019	2020	2021	2022	2023
Wood-based fuels	2.5	2.3	2.6	2.4	2.5
SRF	0.3	0.3	0.3	0.2	0.2
Peat	0.8	0.5	0.3	0.5	0.1
Coal	0.0	0.0	0.0	0.0	0.0
Natural gas	0.0	0.1	0.0	0.0	0.0
Oil	0.0	0.0	0.0	0.0	0.0
Others	0.4	0.4	0.1	0.0	0.0

Hydropower production in 2019–2023 TWh (p. 17)

	2019	2020	2021	2022	2023
Hydropower	1.6	2.2	2.1	1.7	1.8

Process heat and district heat production in 2019–2023 TWh (p. 18)

	2019	2020	2021	2022	2023
Process heat	2.1	1.9	1.6	1.4	1.2
District heat	2.1	1.7	2.0	1.7	1.7

Fuels in heat and electricity production 2019–2023 TWh (p. 18)

	2019	2020	2021	2022	2023
Wood-based fuels	4.7	4.3	5.1	4.5	4.3
SRF	0.6	0.5	0.6	0.4	0.3
Peat	1.5	1.0	0.8	1.1	0.3
Coal	0.7	0.5	0.6	0.3	0.0
Natural gas	0.1	0.1	0.1	0.0	0.0
Oil	0.1	0.0	0.0	0.1	0.0
Others	0.0	0.0	0.0	0.0	0.0

Number of personnel on 31 Dec in 2019–2023, in permanent employment

(p. 40)

	2019	2020	2021	2022	2023
Men	57	54	25	22	23
Women	21	17	17	16	16

Average number of personnel in 2019–2023, in permanent employment and on fixed-term contracts (p. 40)

	2019	2020	2021	2022	2023
Number of personnel	89	81	54	42	40

Breakdown of personnel by age on 31 Dec 2023, in permanent employment

(p. 40)

	under 40	40-50	over 50
Men	6	9	8
Women	0	9	7

Years of employment on 31 Dec 2023, in permanent employment (p. 40)

Number of personnel	Men	Women
under 5	8	4
5-15	5	7
over 15	10	5

Safety, environmental and energy efficiency observations per person

(p. 40)

	2019	2020	2021	2022	2023
Observations per person	10.7	11.2	11.9	6.4	7.1
Objective	10	10	10	5	5

Number of personnel by Group companies on 31 Dec 2023, in permanent employment (p. 40)

	Number of persons	%
Pohjolan Voima Oyj	25	64.1 %
PVO-Vesivoima Oy	10	25.6 %
Kymin Voima Oy	<5	5.1 %
Kaukaan Voima Oy	<5	5.1 %
Total	39	100.0 %

Greenhouse gas emissions, Scope 1 and Scope 2

Scope 1 greenhouse gas emissions	2022	2023	% change
Greenhouse gas emissions, Scope 1 (tCO ₂ eq)	553,500	213,400	
Scope 1 greenhouse gas emissions included in emission trading scheme, %	94	86	

Scope 2 greenhouse gas emissions

Greenhouse gas emissions, Scope 2 location-based (tCO ₂ eq)	22,800	4,600
Greenhouse gas emissions, Scope 2 market-based (tCO ₂ eq)	45,800	37,400

Total greenhouse gas emissions

Total greenhouse gas emissions (location-based) (tCO ₂ eq)	576,300	218,000
Total greenhouse gas emission (market-based) (tCO ₂ eq)	599,400	250,800

Greenhouse gas intensity in relation to turnover	2022	2023
Greenhouse gas (location-based) total emissions (Scope 1 and 2) in relation to turnover (tCO ₂ eq/monetary unit)	1,003	258
Greenhouse gas (market-based) total emissions (Scope 1 and 2) in relation to turnover (tCO ₂ eq/monetary unit)	1,044	297

Greenhouse gas intensity in relation to production

Greenhouse gas (location-based) total emissions (Scope 1 and 2) in relation to production (kgCO ₂ eq/MWh)	38	11
Greenhouse gas (market-based) total emissions (Scope 1 and 2) in relation to production (kgCO ₂ eq/MWh)	39	13

Carbon dioxide emissions from heat and electricity production in 2019–2023 (p. 48)

	2019	2020	2021	2022	2023
CO ₂ emissions [mil. tonnes]	0.95	0.64	0.60	0.63	0.18
Electricity production, TWh	11.7	11.8	11.7	12.3	17.0

Usage of by-products and reutilisation levels in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
By-products, t	120,875	96,041	105,396	94,477	71,264
Reutilisation level	105.3%	143.0%	75.3%	112.5%	93.0%

Specific carbon dioxide emissions from electricity production in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
Specific CO ₂ -emissions [g CO ₂ /kWh]	46.9	31.1	33.9	30.7	5.1
Electricity production, TWh	11.7	11.8	11.7	12.3	17.0

Carbon-neutral sources of Pohjolan Voima's electricity production in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
Nuclear	71.7%	70.1%	69.9%	75.6%	84.3%
Water	14.0%	18.8%	17.6%	13.5%	10.6%
Wood-based fuels*	7.9%	6.5%	8.2%	7.1%	4.4%
SRF, 60% bio-share	0.5%	0.3%	0.5%	0.3%	0.1%

Carbon-neutral sources of heat production in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
Wood-based fuels*	60.3%	64.8%	75.8%	75.5%	86.4%
SRF, 60% bio-share	4.8%	4.3%	5.2%	4.1%	3.8%

*Wood-based fuels are carbon-neutral

Reducing the use of peat (p. 48)

	2019	2020	2021	2022	2023
Use of peat, GWh	1,537	1,016	816	1,143	295
Target, %	0	-20	-40	-60	-70
Actual, %	0	-34	-47	-26	-81

Acidifying emissions from heat and electricity production in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
Sulphur dioxide emissions [1,000 t]	0.7	0.5	0.5	0.5	0.2
Nitrogen oxide emissions [1,000 t]	1.9	1.6	1.8	1.5	1.3
Electricity production, TWh	11.7	11.8	11.7	12.3	17.0

Particle emissions from heat and electricity production in 2019–2023 (p. 47)

	2019	2020	2021	2022	2023
Particle emissions [t]	77	72	69	54	41
Electricity production, TWh	11.7	11.8	11.7	12.3	17.0

Type of waste and disposal

Type of waste and disposal (metric tonnes)	2023
Other waste	
Recycled waste (external)	10,938
Recycled waste (internal)	7,348
Reuse of waste	0
Incinerated waste (with energy recovery)	326
Incinerated waste (without energy recovery)	0
Landfill waste	119
Total other waste	18,730
Hazardous waste	
Recycled waste (external)	132
Recycled waste (internal)	0
Reuse of waste	0
Incinerated waste (with energy reuse)	2
Incinerated waste (without energy recovery)	71
Landfill waste	82
Total hazardous waste	287
Total	19,018
Total of reused, recycled or incinerated waste	18,745
Total disposals	272
Hazardous waste (%)	2
Recycling rate (%)	99
Recycling rate of non-hazardous waste (%)	99
Recycling rate of hazardous waste (%)	47

Materials included in waste

Main materials included in waste (e.g. critical substances)	The majority of waste is demolishing waste such as concrete of waste produced in the normal operation of power plant such as metal, energy and mixed waste and used lubricating oils.
Waste streams relevant to industry and operations	The table includes regular and hazardous waste produced in power plant operation. The table does not include fly ash and bottom ash produced in thermal power production. They are reported separately. The ashes are not necessarily reused or disposed immediately but some of the ash can be put into intermediate storage. In 2023, the total volume of ash was 71,300 tonnes. Their recovery rate was 93%. The recycled waste external and internal include the waste from the demolishing of the Laanilan Voima power plant, which was the most significant source of waste in 2023. The demolishing was almost completely reused. The recycled waste external includes also the watery sludge from the operations of Teollisuuden Voima and Voimalohi. The waste reporting does not include radioactive waste from Teollisuuden Voima's nuclear power production. The waste reporting does not include waste from Alholmens Kraft.

Review of operations based on the EU taxonomy

Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment, i.e. the EU taxonomy, was published in 2020. The aim of the taxonomy is to increase sustainable investments and direct capital flows towards technologies and businesses that are considered sustainable. The Regulation defines six environmental targets. The criteria for climate change mitigation and adaptation were published in a delegated climate regulation on 4 June 2021. A supplementary delegated act on nuclear power and natural gas, related to the climate change mitigation and adaptation criteria, was adopted on 5 July 2022, and based on it, nuclear power and gas were included in the EU taxonomy as 'transitional activities' from 1 January 2023. A delegated act for the other four environmental targets was published in July 2023, and companies will have to report under it from 1 January 2024, covering the year 2023. For reports containing data for the 2023 financial period, the reporting requirements are governed by Directive 2014/95/

EU regarding disclosure of non-financial information (the Non-Financial Reporting Directive or NFRD), and Directive (EU) 2022/2464 regarding corporate sustainability reporting (the Corporate Sustainability Reporting Directive or CSRD) applies to financial periods starting on or after 1 January 2024. Pohjolan Voima is not obliged to report in accordance with the taxonomy yet, but the company has reported the taxonomy eligibility of its business in the 2021 annual report and its taxonomy compliance in the 2022 annual report due to the importance of its financial activities. Taxonomy reporting will be mandatory for Pohjolan Voima in accordance with the CSRD schedule, i.e. from 2025 onwards.

The taxonomy eligibility assessment and the results in Pohjolan Voima's reporting are based on the information and interpretations of the EU Regulation available at the time of reporting, covering the criteria of 'substantial contribution' and 'do no significant harm' for the corresponding activities. In assessing compliance with the criteria for hydropower, we have

reviewed the meeting of the technical criteria and the do no significant harm criteria for each plant, using Finnish Energy's interpretation guideline as an aid. The taxonomy compliance of nuclear power is consistent with TVO's interpretation. In terms of thermal power, we have reported the share of electricity and heat produced with biofuel as taxonomy-compliant where its share at an individual plant exceeds 50%. The part of production that we have not reported as compliant with the taxonomy is shown in the tables for taxonomy-eligible but not environmentally sustainable (non-taxonomy compliant) activities.

In terms of minimum safeguards, Pohjolan Voima is committed to respecting internationally recognised human rights and labour principles and rights: in addition to the OECD Guidelines for Multinational Enterprises and the ILO Fundamental Principles and Rights at Work, international human rights law and the UN Guiding Principles on Business and Human Rights, in particular. Through company-level policies and compliance with national labour law, Pohjolan Voima

ensures that it implements the minimum social safeguards in accordance with Article 18 of the Taxonomy Regulation.

In 2021, Pohjolan Voima carried out a regulatory assessment to identify taxonomy-eligible activities, i.e. activities included in the scope of the EU taxonomy. The European NACE (Nomenclature of Economic Activities) was used as a reference when identifying the activities. In 2022, Pohjolan Voima continued the assessment by reviewing the taxonomy-eligible activities against the sustainability criteria defined in the regulations. This assessment has continued in 2023. The identified taxonomy-eligible activities of Pohjolan Voima focus on the objective "Substantial contribution to climate change mitigation". The identified activities are hydropower electricity production, combined production of heat or cooling and electricity with bioenergy, and nuclear power electricity production (Regulation [EU] 2022/1214). The identified taxonomy-eligible activities correspond to the categories in the EU taxonomy presented in the table below.

Activity number	EU taxonomy activity	Pohjolan Voima's business activity	NACE-code	Relevant to turnover	Relevant to capital expenditure	Relevant to operating expenditure
4.5	Hydropower electricity production	Hydropower	35.11 electricity production	X	X	X
4.20	Combined production of heat or cooling and electricity with bioenergy	Thermal power	35.11 electricity production 35.30 heat and cooling production and distribution	X	X	X
4.27	The construction and safe use of new nuclear installations to produce electricity or heat, including hydrogen production, using best available technologies	Nuclear power	35.11 electricity production	X		
4.28	Nuclear power electricity production	Nuclear power	35.11 electricity production	X		

Non-financial undertakings covered by the Non-Financial Reporting Directive are required to report on key performance indicators ("KPIs"). The KPIs include turnover, capital expenditure (CapEx) and operating expenditure (OpEx) related to economic activities that are taxonomy-eligible as defined in the Commission Delegated Regulation, as well as information on non-taxonomy-eligible economic activities.

The financial information related to compliance with the taxonomy is presented below in accordance with Article 8 of the Taxonomy Regulation. The Group has confirmed that each activity has been considered only once when calculating the KPIs.

Taxonomy tables

Portion of turnover from products or services associated with Taxonomy-aligned economic activities – disclosure covering year 2023

Financial year 2023	Year		Substantial contribution criteria						DNSH criteria (“Does Not Significantly Harm”)											
	Economic Activities (1)	Code (2)	Turnover (3)	Proportion of turnover, year 2023 (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)	Minimum Safeguards (17)	Proportion of Taxonomy-aligned (A.1.) or -eligible (A.2.) turnover, year 2022 (18)	Category enabling activity (19)	Category transitional activity (20)
Text		1000 EUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
TAXONOMY-ELIGIBLE ACTIVITIES																				
Environmentally sustainable activities (Taxonomy-aligned)																				
Hydropower	CCM 4.5	29,781	3.5%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	N/A	N/A	Y	Y	8.4%	E		
Thermal power	CCM 4.20	158,841	18.8%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	N/A	Y	Y	19.8%	E		
Nuclear power	CCM 4.27	325,375	38.6%	Y	N	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	4.1%		T	
Nuclear power	CCM 4.28	221,418	26.2%	Y	N	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	33.1%		T	
Turnover of environmentally sustainable activities (Taxonomy-aligned) (A.1)		735,415	87.1%	87.1%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	65.3%			
Of which enabling		188,622	22.3%	22.3%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	28.2%	E		
Of which transitional		546,793	64.8%	64.8%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	37.2%		T	
Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																				
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL											
Thermal power	CCM 4.20	25,165	3.0%	EL	N/EL	N/EL	N/EL	N/EL	N/EL								1.7%			
Turnover of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		25,165	3.0%	3.0%													1.7%			
Turnover of Taxonomy-eligible activities (A1.+A.2)		760,580	90.1%	90.1%													54.80%			
TAXONOMY-NON-ELIGIBLE ACTIVITIES																				
Nuclear power		2,086	0.2%														0.50%			
Others		81,362	9.6%														44.80%			
Turnover of Taxonomy-non-eligible activities		83,448	9.9%														45.20%			
TOTAL		844,028	100%														100%			

Proportion of CapEx from products or services associated with Taxonomy-aligned economic activities – disclosure covering year 2023

Financial year 2023	Year		Substantial contribution criteria							DNSH criteria ("Does Not Significantly Harm")									
Economic Activities (1)	Code (2)	CapEx (3)	Proportion of CapEx, year 2023 (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)	Minimum Safeguards (17)	Proportion of Taxonomy-aligned (A.1.) or -eligible (A.2.) CapEx, year 2022 (18)	Category enabling activity (19)	Category transitional activity (20)
		EUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
TAXONOMY-ELIGIBLE ACTIVITIES																			
Environmentally sustainable activities (Taxonomy-aligned)																			
Hydropower	CCM 4.5	3,900	51.1%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	N/A	N/A	Y	Y	61.5%	E	
Thermal power	CCM 4.20	822	10.8%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	N/A	Y	Y	13.0%	E	
Nuclear power	CCM 4.27	0	0.0%	Y	N	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	0.0%		T
Nuclear power	CCM 4.28	0	0.0%	Y	N	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	0.0%		T
CapEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)		4,722	61.9%	61.9%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	74.6%		
Of which enabling		4,722	61.9%	61.9%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	74.6%	E	
Of which transitional		0	0.0%	0.0%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	0.0%		
Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
CapEx of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		0	0	EL	N/EL	N/EL	N/EL	N/EL	N/EL								0.0%		
CapEx of Taxonomy-eligible activities (A1.+A.2)		4,722	61.9%	61.9%													74.6%		
TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
CapEx of Taxonomy-non-eligible activities		2,909	38.1%														25.4%		
TOTAL		7,631	100%														100.0%		

Proportion of OpEx from products or services associated with Taxonomy-aligned economic activities – disclosure covering year 2023

Financial year 2023	Year		Substantial contribution criteria							DNSH criteria (“Does Not Significantly Harm”)										
	Economic Activities (1)	Code (2)	OpEx (3)	Proportion of OpEx, year 2023 (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)	Minimum Safeguards (17)	Proportion of Taxonomy-aligned (A.1.) or -eligible (A.2.) OpEx, year 2022 (18)	Category enabling activity (19)	Category transitional activity (20)
Text		EUR	%		Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
TAXONOMY-ELIGIBLE ACTIVITIES																				
Environmentally sustainable activities (Taxonomy-aligned)																				
Hydropower	CCM 4.5	3,904	13%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	N/A	N/A	Y	Y	14%	E	
Thermal power	CCM 4.20	22,507	75%	Y	N/EL	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	N/A	Y	Y	67%	E	
Nuclear power	CCM 4.27	0	0%	Y	N	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	0%		T
Nuclear power	CCM 4.28	0	0%	Y	N	N/EL	N/EL	N/EL	N/EL	N/EL	Y	Y	Y	Y	Y	Y	Y	0%		T
OpEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)		26,411	88%	88%	0%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	81%		
Of which enabling		26,411	88%	88%	0%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	81%	E	
Of which transitional		0	0%	0%	0%	0%	0%	0%	0%	0%	Y	Y	Y	Y	Y	Y	Y	0%		
Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																				
					EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Thermal power	CCM 4.20	3,543	12%	EL	N/EL	N/EL	N/EL	N/EL	N/EL	N/EL								19%		
OpEx of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		3,543	12%	12%														19%		
OpEx of Taxonomy-eligible activities (A1.+A.2)		29,954	100%															100%		
TAXONOMY-NON-ELIGIBLE ACTIVITIES																				
OpEx of Taxonomy-non-eligible activities		0,	0%															0%		
TOTAL		29,954	100%															100%		

Nuclear and fossil gas related activities

Row Nuclear energy related activities

1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	NO
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	YES
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	YES

Row Fossil gas related activities

4.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	NO
5.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	NO
6.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	NO

Taxonomy-aligned economic activities (denominator)

Turnover - Taxonomy-aligned economic activities in the denominator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	325,375	38.6%	325 375	38.6%	0	0.0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	221,418	26.2%	221 418	26.2%	0	0.0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total applicable KPI	546,793	64.8%	546 793	64.8%	0.0	0.0%



CapEx - Taxonomy-aligned economic activities in the denominator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total applicable KPI	0	0.0%	0	0.0%	0	0.0%

OpEx - Taxonomy-aligned economic activities in the denominator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		CCM + CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total applicable KPI	0	0.0%	0	0.0%	0	0.0%

Taxonomy-aligned economic activities (numerator)

Turnover - Taxonomy-aligned economic activities in the numerator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		CCM+CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0,0%	0	0,0%	0	0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	325,375	38.6%	325,375	38.6%	0	0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	221,418	26.2%	221,418	26.2%	0	0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
8.	Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI	546,793	64.8%	546,793	64.8%	0	0%

CapEx - Taxonomy-aligned economic activities in the numerator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		(CCM+CCA)		Climate change mitigation		Climate change adaptation	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
8.	Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%

OpEx - Taxonomy-aligned economic activities in the numerator (EUR 1,000)

Row	Economic activities	Amount and proportion					
		CCM+CCA		Climate change mitigation		Climate change adaptation	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
2.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
3.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
4.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
5.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
6.	Amount and proportion of taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
7.	Amount and proportion of other taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%
8.	Total amount and proportion of taxonomy-aligned economic activities in the numerator of the applicable KPI	0	0.0%	0	0.0%	0	0%

Taxonomy-eligible but not taxonomy-aligned economic activities

Turnover - Taxonomy-eligible but not taxonomy-aligned economic activities (EUR 1,000)

Row	Economic activities	Proportion					
		CCM+CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%



CapEx - Taxonomy-eligible but not taxonomy-aligned economic activities (EUR 1,000)

Row	Economic activities	Proportion					
		CCM+CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%

OpEx - Taxonomy-eligible but not taxonomy-aligned economic activities (EUR 1,000)

Row	Economic activities	Proportion					
		CCM+CCA		Climate change mitigation (CCM)		Climate change adaptation (CCA)	
		Amount	%	Amount	%	Amount	%
1.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
2.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
3.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
4.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
5.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
6.	Amount and proportion of taxonomy-eligible but not taxonomy-aligned economic activity referred to in Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
7.	Amount and proportion of other taxonomy-eligible but not taxonomy-aligned economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%
8.	Total amount and proportion of taxonomy eligible but not taxonomy-aligned economic activities in the denominator of the applicable KPI	0	0.0%	0	0.0%	0	0.0%

Taxonomy non-eligible economic activities

Turnover - Taxonomy non-eligible economic activities (EUR 1.000)

Row	Economic activities	Amount	Percentage
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
7.	Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	2,086	0.2%
8.	Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI	2,086	0.2%

CapEx - Taxonomy non-eligible economic activities (EUR 1.000)

Row	Economic activities	Amount	Percentage
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
7.	Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%
8.	Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI	0	0.0%

OpEx - Taxonomy non-eligible economic activities (EUR 1.000)

Row	Economic activities	Amount	Percentage
1.	Amount and proportion of economic activity referred to in row 1 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.26 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
2.	Amount and proportion of economic activity referred to in row 2 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.27 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
3.	Amount and proportion of economic activity referred to in row 3 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.28 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
4.	Amount and proportion of economic activity referred to in row 4 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.29 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
5.	Amount and proportion of economic activity referred to in row 5 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.30 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
6.	Amount and proportion of economic activity referred to in row 6 of Template 1 that is taxonomy-non-eligible in accordance with Section 4.31 of Annexes I and II to Delegated Regulation 2021/2139 in the denominator of the applicable KPI	0	0.0%
7.	Amount and proportion of other taxonomy-non-eligible economic activities not referred to in rows 1 to 6 above in the denominator of the applicable KPI	0	0.0%
8.	Total amount and proportion of taxonomy-non-eligible economic activities in the denominator of the applicable KPI	0	0.0%

Pohjolan Voima group reports the proportion of economic activities eligible, ineligible and compliant with the taxonomy for the following key performance indicators (KPIs): the turnover KPI, the capital expenditure KPI and the operating expenditure KPI. The KPI data is presented in table format according to the mandatory models.

Performance indicators related to the EU taxonomy in the consolidated delegated disclosure obligation regulation (EU) 2021/2178 are calculated from data obtained from Pohjolan Voima's financial systems, and they are based on the same information and accounting principles as Pohjolan Voima's consolidated financial statements of 31 December 2023 for

the ended financial year (see notes to the consolidated financial statements for further information).

Pohjolan Voima's consolidated financial statements are prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted by the European Union. The financial statements have been prepared in accordance with the International Accounting Standard (IAS) and the IFRS. Based on the Accounting Act and the regulations issued under it, the IFRS refer to standards and interpretations adopted by the EU in accordance with the procedure described in Regulation (EC) No 1606/2002 of the European Parliament and of the Council. Pohjolan Voima has calculated the KPIs based on the financial data in the 2023 consolidated financial statements and verified that no double claiming has occurred. The definitions of the KPIs are based on the Group's interpretation of the definitions in the consolidated delegated disclosure obligation regulation.

Turnover:

Pohjolan Voima has calculated turnover indicator determined in accordance with the Commission Delegated Regulation using the same accounting principles as for turnover under IFRS, i.e. including all revenue from the sale of goods and services in the ordinary course of business. The total turnover corresponds to the turnover presented in the consolidated financial statements. For more information on the accounting policies, see note 4 to the consolidated financial statements. The taxonomy-eligible turnover includes segmentally only turnover from activities covered by the taxonomy. Pohjolan Voima's taxonomy-eligible turnover includes electricity production with hydropower, CHP from biomass and electricity production with nuclear energy.

Capital expenditure (CapEx):

In accordance with the Commission Delegated Regulation, Pohjolan Voima has included in CapEx-related indicators additions to tangible and intangible fixed assets before depreciation, amortisation, impairment or changes in fair value during the financial period. These items have been accounted for in accordance with IAS 16 Property, Plant and Equipment, IAS 38 Intangible Assets and IFRS 16 Leases. CapEx corresponds to the cash paid for the acquisition of fixed assets presented in the consolidated cash flow statement, adjusted with items accrued but not paid at the end of the reporting period, and additions to leased fixed assets.

Taxonomy-eligible CapEx includes capitalised expenditure on investments in hydropower plants, capitalised expenditure on investments in biopower plants and other capitalised, taxonomy-eligible development expenditure related to the pursuit of a future not dependent on fossil fuels.

Operating expenditure (OpEx):

In accordance with the Commission Delegated Regulation, Pohjolan Voima has included in OpEx-related indicator direct, non-activated expenditure that are necessary to ensure continued and effective operation of property, plant and equipment, including research and development expenditure recognised in accordance with IAS 38 Intangible Assets, short-term lease expenses recognised in accordance with IFRS 16 Leases and maintenance expenditure for fixed assets (or repair and maintenance expenses) recognised in accordance with IAS 16 Property, Plant and Equipment. Maintenance expenditure for fixed assets includes maintenance materials and outsourced maintenance service expenditure.



SUSTAINABILITY AT ALL TIMES 80 YEARS OF POHJOLAN VOIMA

Pohjolan Voima Oyj
Mikonkatu 7 A5
P.O.Box 40
FI-00101 Helsinki, Finland
Business ID 0210161-4
tel. +358 (0)10 478 5000
www.pohjolanvoima.fi

