KEMIJOKI

Green Finance Framework

Kemijoki Oy

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1. Introduction

1.1 About Kemijoki Oy

Kemijoki Oy is the most important producer of hydropower and regulating power in Finland. We own 20 hydropower plants, 16 of which are located at the Kemijoki watercourse area, two at River Lieksanjoki and two at River Kymijoki. In addition, we regulate the reservoirs in Lokka and Porttipahta as well as Lake Kemijärvi and Lake Olkkajärvi. Our most important goal is to produce hydropower for our stakeholders reliably and cost-effectively.

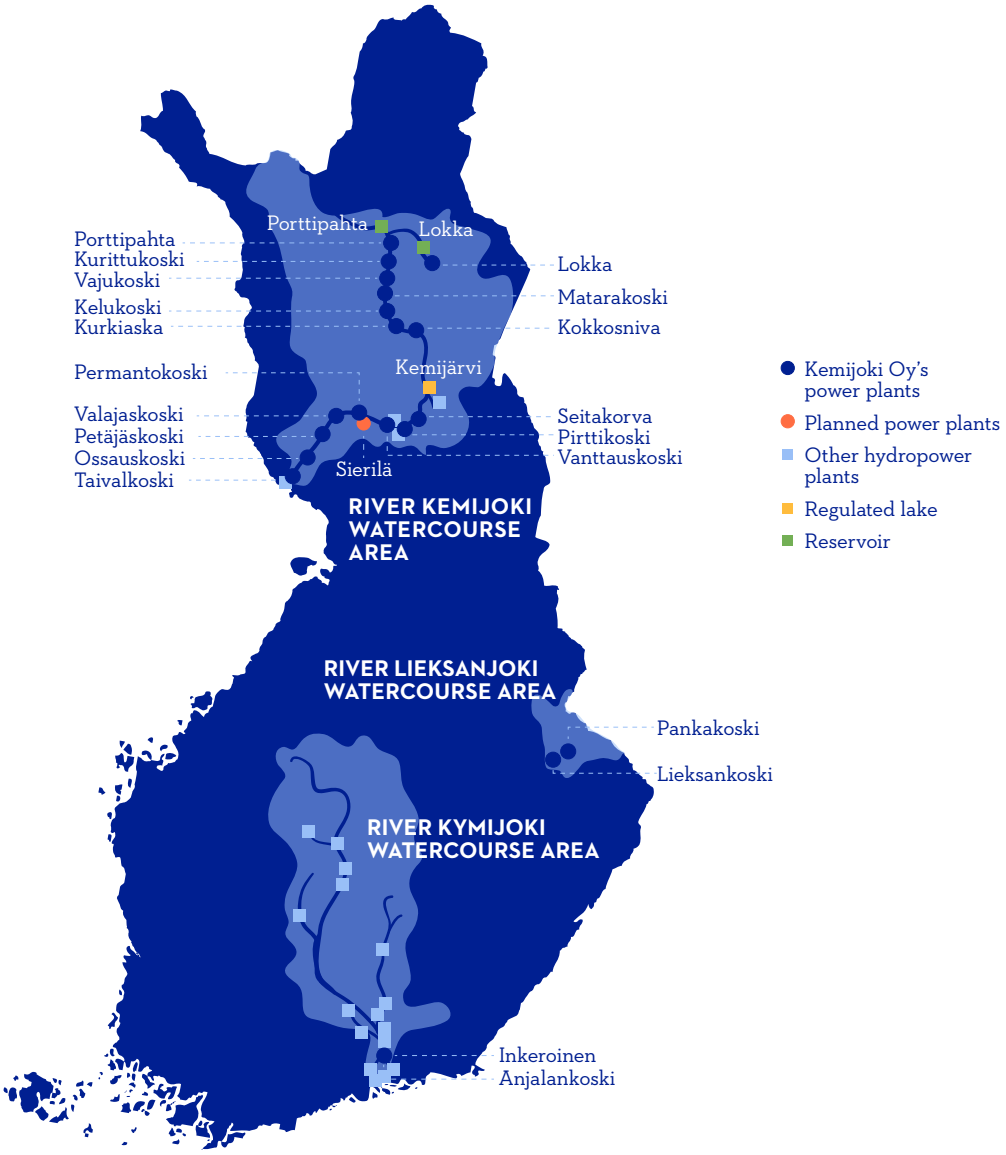

Figure: Illustration of Kemijoki Oy's power plants

We operate as an expert and commissioner organization of hydropower production and are developers of hydropower expertise. We acquire most of our operations from service providers. Thanks to our agile, partnership-based operating model, we are able to produce hydroelectricity cost-efficiently and adapt to changing conditions. Sustainability is at the core of Kemijoki Oy's business operations. Together with our partners, we fulfil hydropower obligations, but we want to do more. We, for example, maintain electricity self-sufficiency and security of supply, strengthen regional employment and are experts of sustainable hydropower.

Figure: Illustration of Kemijoki Oy's partnership-based operating model

1.2 Hydropower as an Enabler of the Green Transition

Hydropower is the world's main source of low-carbon electricity, producing more than all other renewables-based generation combined and 55% more than nuclear (IEA 2021). Hydropower is also an enabler for all other renewables: it provides a reliable base and peak load, flexible supply, and storability at scale to compensate for intermittency of solar and wind and provides a majority of the system stability services. On global scale, hydropower accounts for almost 30% of global flexible supply capacity based on hour-to-hour ramping need (figure below). Also in the EU, hydropower storage is the main energy storage and, according to the European Commission, the need for more storage and flexibility in the European system has increased. Hydropower supports pursuing the EU's three key energy policy objectives: sustainability, affordability, and security of supply.

Finland is one of the top contributors of hydropower in the EU. Hydropower's share in Finland's energy mix is among the highest in the EU. Hydropower accounts for:

- Over 50% of renewable electricity produced in Finland (2020, Finnish Energy)
- 24% of Finland's total power generation (2020, Finnish Energy)
- Majority of the grid stability services:
  - Almost 60% of the capacity in the FCR-N market (2021, Fingrid)
  - More than 50% of the capacity in the FCR-D market (2021, Fingrid)
  - All the capacity in the aFRR-market (2018, Fingrid)
  - About 85% of the activated bids in the mFRR-market (2018, Fingrid)

Kemijoki Oy produces about one third of the hydropower production in Finland and makes up about half of the flexible hydropower capacity.

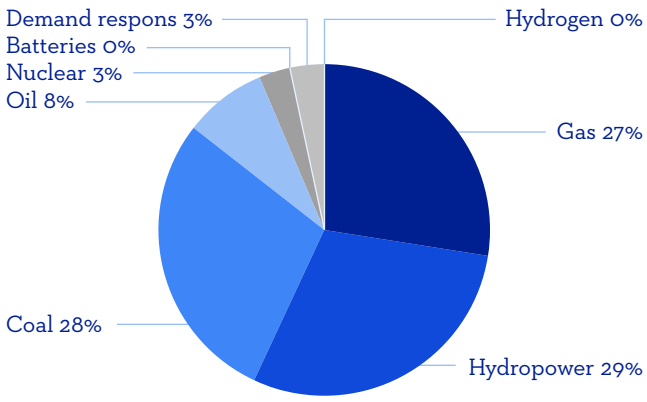

Figure: Global electricity system flexibility by source, 2020 (IEA Hydropower Special Market Report 2021)

1.3 Hydropower and the Nature

As the largest source of low-carbon electricity generation, hydropower has positive impacts on the global climate and plays a crucial role in the fight against the climate change. According to IAEA, estimated avoided emissions by hydropower are almost 100 Gt in years 1971–2018, exceeding the share of nuclear and other low-carbon technologies combined. Hydropower also contributes positively to the development and sustainability of other ecosystem services, such as flood protection, irrigation, navigation and drinking water.

We recognise that hydropower production may have adverse environmental impacts. The use of hydropower has an impact on nature, scenery, and the lives of local residents and other users of the river. The recognition of environmental effects and reducing them are a central part of our operations. In particular, we are focused on the management of the river environment, the fish fauna, and the quality of the river water. In 2020, we spent 4.7 million euros on obligation-based and environmental work. We always examine the effects of our operations on the living environment in advance.

We follow the requirements established by the ISO 14001 standard. We also require our partners to follow the same standard. We want to be a forerunner company in environmental matters related to hydropower production.

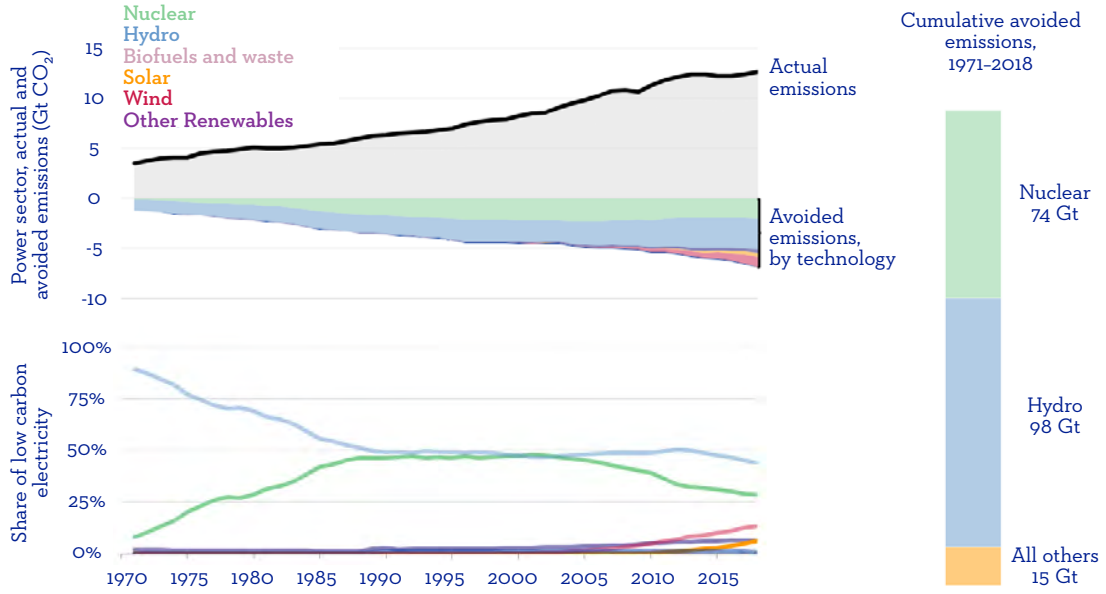

Figure: Global CO_2 emissions from electricity generation, estimated emissions avoided by low carbon technologies (upper panel) and share of low carbon electricity (lower panel), 1971–2018.
Source: Climate Change and Nuclear Power 2020 (IAEA). Note Gt CO2 – gigatons of carbon dioxide.

1.4 Sustainability Programme

Kemijoki Oy's board approves our Sustainability Programme. The programme is valid for a five-year period 2019–2023 and it is divided into three main themes:

1. **Welfare of local people and nature** covers for environmental issues, dam safety, fish, and local stakeholders
2. **Towards carbon neutral Finland** covers for climate change and hydropower's role as regulating power
3. **Expertise in hydropower** covers for human resources, partnership, innovation, and new technologies

Each main theme has individual goals and KPI's that are reported annually to Kemijoki Oy's board. In addition to this we publish an annual GRI-report, that is found at our website.

Association for Finnish Work has given Key Flag symbol for Kemijoki Oy electricity and hydropower expertise.

Kemijoki Oy Net Impact Rating is AA+ ranked by the Upright Project. Net impact is the sum of a company's positive and negative impacts on environment, health, society and knowledge. The Upright net impact model is a mathematical model of the economy that produces continuously updated estimates of the net impact of companies by means of an information integration algorithm that consolidates data from humanity's accumulated scientific knowledge and public statistical databases.

Kemijoki Oy contributes very positively to the society and to the environment. Kemijoki Oy's largest positive impact is its contribution to society. Producing electricity efficiently with renewable sources is crucial for the functioning of the society, while it does not strain the environment. Electricity production has a variety of different impacts downstream along the value chain through the services and products it enables. For instance, Kemijoki Oy's electricity is integral in many knowledge applications through its value chain.

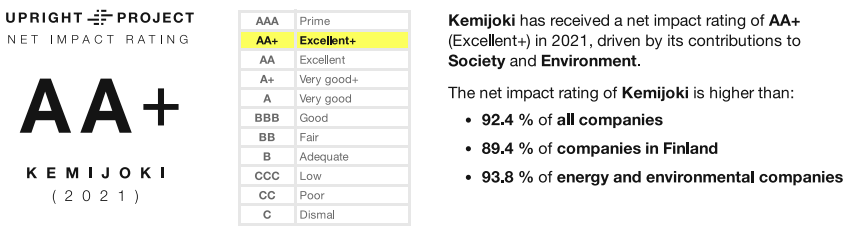

Figure: Kemijoki Oy Net Impact Scorecard

2. Green Finance Framework

Kemijoki Oy ("Kemijoki") has established this Green Finance Framework in order to issue Green Finance Instruments such as Green Bonds, Green Loans, Green Commercial Papers, Green Private Placements and other types of debt instruments where the use of proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Green Projects to support sustainable development and transition to a low carbon economy.

This Green Finance Framework has been developed in alignment with the 2021 version of Green Bond Principles[1)] published by the International Capital Markets Association ("ICMA") and the 2021 version of the Green Loan Principles[2)], published by the Loan Market Association ("LMA"), Asia Pacific Loan Market Association ("APLMA") and the Loan Syndications and Trading Association ("LSTA") respectively. In line with best market standard, the framework is structured around the four core components of ICMA GBP:

1. Use of proceeds
2. Process for project evaluation and selection
3. Management of proceeds
4. Reporting

Currently, the development of various taxonomies for defining both sustainable and green finance are still in their early days. Kemijoki Oy will therefore monitor the development of different regulations, standards, and taxonomies regarding sustainable finance. Considerations on alignment with most relevant official and market-based taxonomies are elaborated in 2.1 Use of Proceeds according to recommendations by ICMA[3)].

1) https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf
2) https://www.lma.eu.com/application/files/9716/1304/3740/Green_Loan_Principles_Feb2021_V04.pdf
3) https://www.icmagroup.org/assets/documents/Sustainable-finance/ICMA-Overview-and-Recommendations-for-Sustainable-Finance-Taxonomies-May-2021-180521.pdf

2.1 Use of Proceeds

Kemijoki Oy intends to allocate an amount equivalent to the net proceeds of its Green Finance Instruments to finance or refinance in part or in full Eligible Green Projects with demonstrable environmental benefits in the following Eligible Green Project categories listed below:

ELIGIBLE CATEGORIES ACCORDING TO ICMA GBP	RELEVANT EU TAXONOMY NACE CODES [4]	DESCRIPTION	EXAMPLE PROJECTS	MAPPING TO UN SDG [5]
Renewable energy	D35.11, F42.22	Development, construction, installation, M&A, R&D, improvement, operation, repair and maintenance of hydropower projects and related infrastructure Proceeds are allocated to hydropower facilities that are either run-of-river plants, do not have an artificial reservoir or in case of artificial reservoirs have power densities [6] higher than 5W/m² or life-cycle GHG emissions intensities lower than 100g CO_2e/kWh. Kemijoki Oy does not use pumped storage facilities. New facilities will operate at power densities higher than 10W/m² or life-cycle GHG emissions intensities lower than 50g CO_2e/kWh. [7]	Refurbishments or new plants [8], battery installations, new turbine innovations, electrical innovations, digital solutions relating to monitoring of hydropower plants and optimization of generation or maintenance	7, 13
Climate change adaptation	D35.11, F42.22	Projects aimed at reducing risks associated with climate change based on a systematic assessment of vulnerabilities and risks.	Fortification of hydropower facilities and dams to ensure they can withstand higher levels of precipitation or warmer winters considering findings of a separate climate risk assessment and subsequent action plan.	7, 11, 13
Environmentally sustainable management of living natural resources and land use	A02.10, A02.20, A02.40, D35.11, F42.22	Nature conservation and biodiversity programs	Fish passes, guidance structures, restoration or development of spawning habitats, sustainable PEFC certified afforestation or reforestation, preservation, or restoration of natural landscapes.	14, 15

Processes by which Kemijoki Oy identifies and manages potential environmental risks associated with the relevant projects are further elaborated in 2.2 Process for Project Evaluation and Selection.

4) https://ec.europa.eu/sustainable-finance-taxonomy/tool/index_en.htm
5) https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Mapping-SDGs-to-Green-Social-and-Sustainability-Bonds-2020-June-2020-090620.pdf
6) Power density is defined as the nameplate capacity of the facility divided by the surface area of the reservoir.
7) To demonstrate significant contribution on climate change mitigation of hydropower production, Kemijoki Oy has assessed its facilities against the most relevant official and market-based taxonomies i.e. The EU Taxonomy and Climate Bonds Initiative Hydropower Criteria (https://www.climatebonds.net/files/files/Hydropower-Criteria-doc-March-2021-release3.pdf)
8) Environmental Impact Assessments (EIA) and Social Impact Assessments (SIA) are done to all new hydropower plants.

2.2 Process for Project Evaluation and Selection

Kemijoki Oy has set up a Green Finance Committee to evaluate and approve Green Eligible Projects to be financed with Green Finance Instruments.

The Green Finance Committee consists of the Chief Financial Officer, Chief Operating Officer, the Environmental Manager and the Head of Corporate and Social Responsibility. Other internal representatives with specific expertise may be involved in decision making when deemed necessary.

The Green Finance Committee is responsible for the evaluation and selection process of Green Projects. Only such assets and projects that comply with the Green Project Criteria defined in the Use of Proceeds section of this Framework and with the environmental risk management procedure elaborated below are eligible to be financed with Green Finance Instruments. The Green Finance Committee will keep a register of all Green Projects, and to ensure traceability, all decisions made by the committee will be documented and filed accordingly. The Green Finance Committee convenes annually or as deemed necessary.

To mitigate potential adverse environmental impacts Kemijoki Oy has set up an environmental risk management process to ensure that Green Eligible Projects do not cause environmental harm. In addition to being mentioned in Chapter 2.1 Use of Proceeds, each Green Project is evaluated against criteria that aim to mitigate potential adverse environmental impacts. This risk management procedure depends on Green Project categories, but includes compliance with the following criteria, where applicable:

- All projects are covered by the ISO 14001 standard – environmental management system procedures. The ISO 14001 standard aims to achieve continual improvement to enhance environmental performance by establishing environmental objects and processes in accordance with the organizations environmental policy. The validity of the system is certified every three years.
- Hydropower projects and operation of the hydropower plants are compliant with the water framework directive (Directive 2000/60/EC)
- In addition, projects aiming at new hydropower facilities, comprehensive environmental impact assessments (EIAs) are carried out including cumulative impacts with existing infrastructure on the river basin.

2.3 Management of Proceeds

Kemijoki Oy will endeavour to ensure that the value of Green Projects at all times exceeds the total amount of Green Finance Instruments outstanding. Although Kemijoki will allocate proceeds to Green Projects with limited or no delay, Kemijoki intends to the best of its abilities, to fully allocate the proceeds within 24 months after the issuance of each Green Finance Instrument. Until disbursement to Eligible Green Projects, the proceeds will be placed in the liquidity reserves and managed accordingly.

2.4 Reporting

In line with the Green Bond Principles, Kemijoki Oy will provide an annual report that includes a list of the projects to which Green Finance proceeds have been allocated, as well as a brief description of the projects and the amounts allocated, and their expected impacts. The Green Finance Report will include an Allocation Report and an Impact Report and will be published annually as long as there are Green Finance Instruments outstanding. The report will be published on Kemijoki Oy's website annually.

2.4.1 Allocation Report

The allocation report will include for instance the following information:

- Total amount of Green Finance Instruments issued, divided by instrument
- Amounts invested in each of the Green Project categories defined in this Green Finance Framework
- Share of proceeds used for financing/refinancing
- Case examples of Eligible Green Projects that have been funded by Green Finance Instruments, if applicable
- The amount of net proceeds awaiting allocation to Green Projects (if any)

2.4.2 Impact Report

The environmental impacts of the Green Projects financed under this Framework are disclosed annually in the impact report. In the impact report it is noteworthy that, to some extent, the reported impacts may need to be aggregated on a best intention basis, depending on data availability. The impact assessment may, where applicable, be based on the metrics listed below.

ELIGIBLE CATEGORIES ACCORDING TO ICMA GBP AND LMA GLP	EXAMPLES OF IMPACT METRICS TO BE REPORTED AS PER ICMA HARMONIZED FRAMEWORK FOR IMPACT REPORTING OF DECEMBER 2020 [9]
Renewable energy	• Annual GHG emissions reduced/avoided in tonnes of CO_2 equivalent / a • Annual renewable energy generation in MWh/GWh (electricity) and GJ/TJ (other energy) • Capacity of renewable energy plant(s) constructed or rehabilitated in MW • Enabled renewable energy production in MW or MWh
Climate change adaptation	• Estimated lifespan prolonging of the infrastructure in years • Reduction in flood damage costs in EUR or qualitative explanation • Reduction in number of operating days lost to floods
Environmentally sustainable management of living natural resources and land use	• Absolute number of predefined target organisms and species per km² (more diverse fauna) or m² (smaller fauna and flora) before and after the project • Absolute number of protected and/or priority species that are deemed sensitive in protected/conserved area before and after the project • Maintenance/safeguarding/increase of natural landscape area (including forest) in km² and in % for increase

9) https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Handbook-Harmonized-Framework-for-Impact-Reporting-December-2020-151220.pdf

4. External Review

Kemijoki Oy has obtained a Second Party Opinion from Sustainalytics to confirm the transparency of this Green Finance Framework and its alignment with the ICMA Green Bond Principles published in 2021 and the LMA/LSTA/APLMA Green Loan Principles publishes in 2021. The Second Party Opinion will be made available on our website. Kemijoki Oy also intends to commission a compliance review and annually thereafter until full allocation of any Green Finance Instrument, with the intention of confirming that proceeds have been allocated in accordance with the Use of Proceeds specified in this Framework.