September
2024

BIODIVERSITY ACTION PLAN

1 BACKGROUND

Fortum's operations have an impact on local biodiversity. For example, hydropower production alters water systems by abstraction, impoundment and regulation of water level and flow, and therefore impacts the biodiversity of the local aquatic ecosystems, particularly the fish population. However, hydropower is important in the fight against climate change, which is globally one of the greatest threats to biodiversity. Emissions from fossil fuel-based energy production may impact biodiversity at a global and local level. Increasing CO_2-free energy production mitigates the biodiversity loss caused by climate change. The construction of any facility may have impacts on biodiversity by turning natural areas to a built environment. Indirect impacts from our operations may be caused by, for example, the procurement of biomass for use as fuel or raw material, as well as the procurement of other fuels.

Fortum aims to improve biodiversity in connection with its operations. The need for measures is defined in the Biodiversity Manual. The measures are focused on priority areas with high biodiversity value or those with high potential for improvement. This Group-level action plan is based on measures going beyond site-specific legal or license obligations. In addition to the measures listed in this action plan, Fortum is taking part in other biodiversity-related projects/initiatives. For additional information, please visit the biodiversity section and descriptions about environmental projects of hydropower on our website.

Further, Fortum has also committed to the ambitious biodiversity target of no net loss of biodiversity (excluding any aquatic impacts) from existing and new operations (Scopes 1, 2) from 2030 onwards. In addition, the company will reduce its negative dynamic terrestrial impacts in upstream Scope 3 by 50% by 2030 (base-year 2021). Fortum will continue to implement local initiatives, especially in hydropower production, and is committed to participate to the development of a science-based methodology to assess the company's aquatic impacts.

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Our biodiversity-related measures are connected mainly to the Sustainable Development Goals 15 and 14:

SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss

SDG 14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

2 TARGETS

The main target of this action plan is to improve biodiversity in connection with the watercourses where we operate hydropower plants in Sweden and Finland. Additionally, the action plan aims to improve terrestrial biodiversity of some locations near Fortum's operations.

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3 ACTIONS

Action	Location	Schedule	Cooperation partners	Status
Fortum Hydropower, Sweden				
Low Profitable Dam (LPD) 2023	Sweden – River Uvån	2018-		Ongoing
In year 2024 we are planning to remove four small dams in River Hyttälven: Hyttdammen, Kvarndammen, Sångenand Busken. At Hyttdammen, we are planning to remove the remaining parts of the dam. The dam broke down in 2004 in connection with high flows. After removing the dam, the water level to be set to conditions that prevailed prior to damming. At Kvarndammen, we are also planning to remove the dam and all its connecting parts, resetting the water level to conditions prior to damming. At Sångenn, we are planning to remove the dam's outlet, threshold and connecting parts of the dam, and at Busken, to remove the dams. The water levels in both locations will return to the situation in the 1940s prior to damming.				

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Action	Location	Schedule	Cooperation partners	Status
Habitat improvement measures at Lower River Dalälven.	Near Untra and Lanforsen HPP and area of Ambricka. Lower River Dalälven, Sweden	2011-	Upplandstiftelsen	Planning ongoing for measures in 2024-2026
Target: Improving biodiversity values **Description**: The project continues in 2024 and consists of various measures to develop the high biodiversity values that are linked to Fortum's land areas surrounding the Untra and Lanforsen hydropower plants in River Dalälven. In 2024, there will be a an inventory of birds and rare orchids in Ambricka. Habitat restoration/maintenance measures, such as pulling up reeds and mowing hay, is planned in August/September at a meadow in Ambricka. Near Untra HPP, 200 trees will be ringbarked during June. Removal of invasive alien species of vegetation, mainly lupin, close to the hydro plant has been started. The work will continue throughout the vegetation period. Lupin vegetation has been removed and the job will be executed fully during June 2024 near Lanforsen and Tippön. On 18 September 2024 an excursion/fieldtrip is planned to show the participants the area of the rare Fungi.				
Krafttag ål (Eel programme)	Rivers Göta älv, Lagan, Ätran, and Motala ström, Sweden	2015-	Swedish Agency for Marine and Water Management and five hydropower companies	Yearly implementation
Target: Actions for the threatened eel population **Description**: The trap and transport of silver eels is being carried out during 2024 in four Swedish rivers: Göta älv, Lagan, Ätran, and Motala ström. Migrating eels are transported from lakes to areas downstream the hydropower plants. The work is being performed in an industry programme, managed by Energiforsk, with participation from Fortum and five other hydropower companies.				

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Action	Location	Schedule	Cooperation partners	Status
Habitat improvements around Fortum hydropower plants	Edsforsen, Forshult, Dejefors, Forshaga, Krakerud, Munkfors and Skoga HPPs, River Klarälven, Sweden	2019-2031	County of Värmland	Ongoing
Target: Improvements for biodiversity and managing invasive species **Description:** Biodiversity actions on land around HPPs have been implemented since 2019 on the basis of a biodiversity study from external consultants. The land area covered by potential nature conservation is approx. 115 ha within 55 individual maintenance areas. In 2021-2022, a systematic conservation plan with yearly actions for every maintenance area was produced and implemented as a basis for actions over the next 10 years. The measures in the plan have also been prioritised based on ecological value and cost-effectiveness, leaving 40 areas as highly prioritised. A large proportion of the measures cover biological diversity in forests, such as regeneration of dead wood/trees, beneficial for deciduous forests and old/large trees. Restoration of meadows is also included as a prioritised measure. In 2022, measures to restore meadows was carried out within 10 areas around 7 HPPs (in total 2.8 ha). Dead and/or dying trees were regenerated within approx. 16 ha of land, especially around Skoga HPP. In 2023, measures were ongoing according to plan, e.g. annual mowing of meadow areas, thinning out competing trees to benefit valuable trees, and removal of invasive plants. A deeper inventory of areas for the Skoga and Forshaga hydropower plants was made during 2023. Actions in those plants became focus areas for 2024. In 2024, measures have been carried out according to plan. Measures included mowing of meadow areas, thinning out competing trees to benefit valuable trees, and removal of invasive plants. A deeper inventory of areas for the Munkfors and Dejefors hydropower plants was made during 2024. Actions in those plants will become focus areas for 2025.				
Habitat improvements around Fortum hydropower plants	Ljusnefors, Ljusneströmmar, Höljebro, Bergvik	2023-2031		Started
Target: Improvements for biodiversity and managing invasive species **Description:** Biodiversity actions on land around HPPs based on a biodiversity study from external consultants. Systematic conservation plan with yearly actions for every maintenance area will be produced and implemented as a basis for actions over the next 10 years. The measures in the plan will be prioritised based on ecological value and cost-effectiveness, leaving 40 areas as highly prioritised. During summer 2024, suitable measures from the consultant report (Calluna) will be chosen and the real work to create biodiversity will start during autumn 2024.				

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Action	Location	Schedule	Cooperation partners	Status
Habitat improvement in the water and around Söräng hydropower plant	Söräng (former hydropower plant), River Voxnan (tributary to Ljusnan), Sweden	2021-	"Voxnadalens biosfärområde" and "Ljusnan Voxnans Vattenvårdsförbund"	Planning ongoing
Target: Improvements for fish and terrestrial species **Description:** An external consultant conducted a field study to determine the potential for habitat improvements. The results of the study will be used to determine which biodiversity measures to implement. The consultant's report was ready and presented in February 2023. In 2023, the Bollnäs and Ovanåker municipality was informed about the project. Two of the area's active angler associations were also contacted and informed. Local landowners received the information at a meeting in Söräng before summer. The authorities in Gävleborg were critical of the measures suggested, so the project was put on hold. The work is planned to be done in cooperation with "Voxnadalens Biosfärområde" during 2024 and 2025. Within the area there are also plans to tear down an old, empty hydropower plant. This will bring opportunities to add important habitat to the river streams in Söräng. This building removal and habitat restoration is planned to start in late summer 2024, pending approval from authorities. All habitat restorations in Söräng are planned to be ready during 2025.				
Avesta hydropower plant meadow improvement	Avesta HPP, River Dalälven, Sweden	2021-	Municipality of Avesta	Ongoing
Target: Improvement for butterflies, meadow flowers and bees **Description:** In April 2024, specific action was taken. 300 plugs of special meadow flower species were planted in the meadow. In addition, actions in 2024 will concentrate on general maintenance of the meadow, such as mowing and weed removal, and keeping the sandy banks clear. Fortum will also support recreational benches in the area.				

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Action	Location	Schedule	Cooperation partners	Status
Fortum Generation, Hydropower, Finland				
Releases of young salmon and seatrout in the tributaries of River Oulujoki	Muhos, Utajärvi and Vaala, River Oulujoki, Finland	2005-	Municipalities of Muhos, Utajärvi and Vaala, ELY centre** of North Ostrobothnia	Yearly implementation
Target: Improve migrant fish populations in River Oulujoki by releasing fish fry to breeding grounds **Description:** In addition to power companies' legal obligations for fish stocking in the Oulujoki catchment area, about 50,000 one-year-old salmon or seatrout are stocked yearly to River Oulujoki tributaries, the Muhosjoki, Utosjoki and Kutujoki rivers. This fish stocking project, initiated in 2005, contributes to the creation of a viable population of migrating fish in River Oulujoki. Monitoring has proven that the fish have grown well in the stocking area. In 2023, 11,000 one-year-old salmon and 4,000 one-year-old seatrout were stocked in River Kutujoki, 11,000 salmon and 4,000 seatrout in River Utosjoki, and 11,000 salmon and 4,000 seatrout in River Muhosjoki. The stockings will be continued in 2024.				
Seitenoikea fish passage in River Emäjoki	River Emäjoki, Finland	2023-	Ramboll	Planning ongoing
Target: Determine the best solution for upstream migration of fish for Seitenoikea HPP **Description:** The Seitenoikea HPP dam is currently a barrier to migrating fish. In the national fish passage strategy, the Hyrynsalmi route is a top target for restoring the natural life cycle of lake trout, and Seitenoikea is a top target for building a fish passage and restoring the migration connection. A feasibility study of the most suitable fish passage alternative for Seitenoikea HPP was finalised in March 2024. Stakeholders have been involved in the follow-up group of the project and also in open public events held in September 2023 and in February 2024. A decision to go forward to the planning phase with a natural bypass alternative was made in April 2024. The planning phase begins in June 2024. General planning and a water permit application will be finalised in early 2025. The timetable for implementing the project will be clarified as the planning progresses. Fortum to study a by-pass solution for the Seitenoikea hydropower plant to enable fish to migrate upstream | Fortum				

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Action	Location	Schedule	Cooperation partners	Status
Montta fish trap operation and development	Montta HPP, Muhos, River Oulujoki, Finland	2021-	Municipalities of Muhos, Utajärvi and Vaala, ELY centre** of North Ostrobothnia	Ongoing
Target: Strengthen stream fish populations in River Oulujoki **Description:** The main focus at the Montta fish trap is to trap and transport mature salmonids to the improved spawning areas in the tributaries upstream of several dams in River Oulujoki. In 2020, we transported the first salmon and trout spawning pairs to River Utosjoki, a tributary of Oulujoki. When suitable, one of the aims is to try to collect eggs from the trapped salmon to improve the quality and the genetic biodiversity of the farmed salmon population at Fortum's fish farm in Montta. The expected outcome is an improvement in the salmon stocking results. In 2023, because of exceptionally rainy conditions in autumn and spilling at the Montta hydropower plant, no fish were trapped for transport. In 2023, the mature fish given to Natural Resources Institute Finland for renewing their broodstock used for salmon stocking obligations were trapped from downstream Merikoski instead of Montta. In 2023, the monitoring of the results of the transports in Rivers Kutujoki and Utosjoki was done by electrofishing. The described measures are continuing in 2024. Also in 2023, it was agreed that a test fishing of downstream migrating smolts would be done in rivers Utosjoki and Kutujoki in spring-early summer 2024. The aim is to collect background information (amount of smolts, efficiency of fishing) for the possible future transport of smolts downstream of hydropower plant dams.				

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Action	Location	Schedule	Cooperation partners	Status
Fishheart solution for upstream passage of fish at Leppikoski hydropower plant and supporting actions	Leppikoski HPP, Paltamo, River Emäjoki, Finland	2021-	Fishing rights owners' associations Paltamo I and Paltamo II	Ongoing
Target: Give fish the possibility to pass the dam **Description:** Fortum's goal is to strengthen the natural cycle of lake trout in the vicinity of the Leppikoski hydropower plant in the Oulujoki watershed, which is one of the top targets in the national fishway strategy. In 2021, Fortum constructed a hydraulic dam bypass solution, Fishheart, at the Leppikoski power plant. Fishheart is a Finnish innovation to enable fish passage over a migratory obstacle. In order for the fish passage to be useful in strengthening migratory fish stocks, habitats and breeding areas are needed for the fish to migrate to. A total of 26 hectares of potential habitats and breeding areas of lake trout can be found in the tributaries above Leppikoski. In 2023, over 19.000 fish were taken upstream of the Leppikoski hydropower plant. The number of lake trout was 19. In 2023, a study was started with Natural Resources Institute Finland to estimate the size of the lake trout population downstream of Leppikoski and the efficiency of Fishheart. Field work was done in 2023 and the results are expected in spring 2024. Also in 2023, it was agreed with Natural Resources Institute Finland to conduct studies of downstream migration in 2024. The study area is located from upstream of the Seitenoikea hydropower plant to downstream of the Leppikoski hydropower plant. The Fishheart fishway will be in operation also in 2024.				

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Fortum Circular Solutions, Recycling & Waste, Sweden				
Kumla butterfly landscape	Kumla, Sweden	2020-2026	Kumla municipality	Ongoing
Target: Increase biodiversity by restoring former grasslands to meadows **Description:** In Sweden, we are taking part in the project coordinated by the Kumla municipality to build a butterfly landscape in the area close to our waste treatment facility, in the Norra Mossby area. The aim of the butterfly landscape project is to increase the biodiversity in the area and to restore former grasslands to benefit plants and insects, and butterflies in particular, which thrive in meadowland with calcareous soil. The project also aims to use the butterfly path and landscape for educational purposes. During 2020, sandy habitats for solitary bees were created and meadows were restored. In 2021-2022, the meadow land areas were expanded in order to increase biodiversity, and measures to simplify the future care of these areas were made. In 2023, various management practices, such as felling and the control of problematic species, as well as the opening of another of the meadows were executed. In 2023, we planted meadow flowers on 7 hectares of the landfill surface at Fortum's waste facility in Kumla, close to the location of the Kumla butterfly landscape. In 2024, we plan to construct a sand embankment in a protective embankment at our site to create nesting places for swallow sand martins. In 2025, we plan to increase the surface for meadow flowers at the landfill at Fortum's waste facility in Kumla. https://www.fortum.com/media/2021/06/butterfly-landscape-kumla-sweden				