Second-Party Opinion

Fortum Green Finance Framework

Evaluation Summary

Sustainalytics is of the opinion that the Fortum Green Finance Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2021 and the Green Loan Principles 2023. This assessment is based on the following:

USE OF PROCEEDS The eligible categories for the use of proceeds – Renewable Energy, Energy Efficiency and Nuclear Power Generation – are aligned with those recognized by the Green Bond Principles and the Green Loan Principles. Sustainalytics considers that investments in the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDG 7.

PROJECT EVALUATION AND SELECTION Fortum has established the Green Finance Committee which will be responsible for the project evaluation and selection process. Fortum has processes in place to identify and mitigate common environmental and social risks potentially associated with the eligible projects. Sustainalytics considers the project selection process in line with market practice.

MANAGEMENT OF PROCEEDS Fortum's Treasury department will be responsible for the management and allocation of net proceeds under the Framework. The Company will track the proceeds using a green register through a portfolio approach. Fortum intends to allocate the net proceeds within 24 months of issuance. Pending full allocation, proceeds will be placed in a liquidity reserve. This is in line with market practice.

REPORTING Fortum will report annually on the allocation of net proceeds and corresponding impact in a green finance report, which will be published on its website until full allocation. In addition, Fortum intends to report on relevant impact metrics. Sustainalytics views Fortum's allocation and impact reporting as aligned with market practice.

Second-Party Opinion
Reviewed by:
MORNINGSTAR | SUSTAINALYTICS

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Report Sections

For inquiries, contact the Sustainable Corporate Solutions project team:

Nadia Djinnit (Amsterdam)
Project Manager
Nadia.Djinnit@morningstar.com
(+31) 20 560 2933

Stefan Spataru (Amsterdam)
Project Support

Siina Matihaldi (Amsterdam)
Project Support

Kibii Sisulu (London)
Client Relations
susfinance.emea@sustainalytics.com
(+44) 20 3880 0193

Introduction

Fortum Oyj ("Fortum" or the "Company") is a Finnish energy company majorly owned by the state of Finland and headquartered in Espoo, Finland. Fortum operates power plants that use renewable energy sources (hydro, nuclear and solar) to sell electricity, heat, cooling and power products and services. The Company's core operating countries include Finland, Sweden, Poland, Denmark and Norway. As at September 2023, Fortum has a power generation capacity of 9,003 MW and a heat generation capacity of 2,193 MW, providing electricity and district heat to private and business customers. As at September 2023, the Company has 5,393 employees.[1]

Fortum has developed the Fortum Green Finance Framework dated January 2024 (the "Framework") under which it intends to issue green bonds and loans and use the proceeds to finance or refinance, in whole or in part, existing or future projects intended to support the decarbonization of the Nordic energy market. The Framework defines eligibility criteria in three areas:

1. Renewable Energy
2. Energy Efficiency
3. Nuclear Power Generation

Fortum engaged Sustainalytics to review the Framework and provide a Second-Party Opinion on the Framework's environmental credentials and its alignment with the Green Bond Principles 2021 (GBP)[2] and the Green Loan Principles 2023 (GLP).[3] The Framework will be published in a separate document.[4]

Scope of work and limitations of Sustainalytics' Second-Party Opinion

Sustainalytics' Second-Party Opinion reflects Sustainalytics' independent[5] opinion on the alignment of the reviewed Framework with current market standards and the extent to which the eligible project categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework's alignment with the Green Bond Principles 2021, as administered by ICMA, and the Green Loan Principles 2023, as administered by LMA, APLMA and LSTA;
- The credibility and anticipated positive impacts of the use of proceeds; and
- The alignment of the issuer's sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.15, which is informed by market practice and Sustainalytics' expertise as an ESG research provider.

As part of this engagement, Sustainalytics held conversations with various members of Fortum's management team to understand the sustainability impact of its business processes and planned use of proceeds, as well as the management of proceeds and reporting aspects of the Framework. Fortum representatives have confirmed that: (1) they understand it is the sole responsibility of Fortum to ensure that the information provided is complete, accurate and up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics' opinion of the Framework and should be read in conjunction with that Framework.

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and Fortum.

[1] Fortum, "Interim Report", (2023), at: https://www.fortum.com/files/fortum-january-september-2023-interim-report/download
[2] The Green Bond Principles are administered by the International Capital Market Association and are available at https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/.
[3] The Green Loan Principles are administered by the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications and Trading Association and are available at https://www.lsta.org/content/green-loan-principles/
[4] The Fortum Green Finance Framework is available at: https://www.fortum.com/investors/why-invest-fortum/credit-facilities-and-rating
[5] When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics' hallmarks is integrity, another is transparency.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible projects expected to be financed with bond and loan proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner.

In addition, the Second-Party Opinion opines on the potential allocation of proceeds but does not guarantee the realised allocation of the bond and loan proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument, either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that Fortum has made available to Sustainalytics for the purpose of this Second-Party Opinion.

Sustainalytics' Opinion

Section 1: Sustainalytics' Opinion on the Fortum Green Finance Framework

Sustainalytics is of the opinion that the Fortum Green Finance Framework is credible, impactful and aligns with the four core components of the GBP and GLP. Sustainalytics highlights the following elements of Fortum's Green Finance Framework:

- Use of Proceeds:
  - The eligible categories – Renewable Energy, Energy Efficiency and Nuclear Power Generation – are aligned with those recognized by the GBP and GLP.
  - Fortum has established a look-back period of three years for opex refinancing, which Sustainalytics considers to be in line with market practice.
  - Under the Renewable Energy category, Fortum may finance or refinance the following expenditures.
    - Construction, operation, modernization and R&D for hydropower subject to the following criteria:
      - Hydropower facilities that have become operational before the end of 2019 that: i) have a life cycle carbon intensity below 100 gCO_2e/kWh; ii) have a power density above 5 W/m^2; or iii) are run-of-river plants without an artificial reservoir.
      - Hydropower facilities that will become operational after the end of 2019 that: i) have a life cycle carbon intensity below 50 gCO_2e/kWh; ii) have a power density above 10 W/m^2; or iii) are run-of-river plants without an artificial reservoir.
      - Fortum has communicated to Sustainalytics that the Company complies with regulatory requirements in Finland and Sweden and that the Company's hydropower operations are subject to environmental licensing. In the case of new operations, Fortum confirmed that it will ensure that an environmental and social impact assessment by a credible body and approved by relevant authorities will be carried out for each project, to identify and address any significant risks, expected negative impacts and controversies.
      - Sustainalytics considers these expenditures to be in line with market practice.
    - Construction, operation, modernization and R&D for facilities that produce electricity from wind power.
      - Sustainalytics considers these expenditures to be in line with market practice.
    - Manufacture, project development and R&D for hydrogen and hydrogen-based synthetic fuels.
      - Hydrogen produced or stored at facilities operated by Fortum will adhere to a life cycle GHG emissions threshold of 3 tCO_2e/tH_2 and 70% for hydrogen-based synthetic fuels relative to a fossil fuel comparator of 94 gCO_2e/MJ.

- Fortum has communicated to Sustainalytics that hydrogen production will be made by electrolysis.
- Fortum has communicated to Sustainalytics that hydrogen related operations will use renewables, nuclear or grid electricity.
  - Sustainalytics notes that hydrogen production from water electrolysis has significant potential to reduce emissions over its conventional pathway of production, i.e. steam reforming of natural gas or light ends. Sustainalytics encourages Fortum to favour the sourcing of low carbon intensity power for electrolysis and to report, where feasible, on such intensity.
- Fortum has confirmed to Sustainalytics that in the case of production of hydrogen-based synthetic fuels, CO_2 will not be sourced from fossil fuel operations.
- In addition, related project development and R&D expenditures will result in complying with the above criteria.
- Sustainalytics considers these expenditures to be in line with market practice.

▪ Construction, operation, modernization or R&D of solar photovoltaic electricity generation facilities.
- Sustainalytics considers these expenditures to be in line with market practice.

– Under the Energy Efficiency category, Fortum may finance or refinance:
▪ Construction, refurbishment and operation of energy efficient district heating and cooling distribution complying with the following criteria:
- At least 50% powered by renewable energy or 50% waste heat or combination of both.
- Sustainalytics considers these investments to be in line with market practice.

▪ Installation and operation of electric heat pumps that meet the GWP refrigerant threshold of 675.
- Fortum has confirmed to Sustainalytics that a refrigerant management system will be in place for new projects.
- Sustainalytics considers these investments to be in line with market practice.

▪ Construction, operation, maintenance, modernization or R&D of facilities for the production of heating and cooling using waste heat.
- Fortum has communicated to Sustainalytics that waste heat is extracted from industrial waste heat such as data centres, municipal wastewater, hospitals and other office buildings operating excess heat or cool.
- Fortum has confirmed to Sustainalytics the exclusion of waste heat from fossil fuel production and operation.
- Sustainalytics considers these expenditures to be in line with market practice.

▪ Construction, operation, modernization or R&D of electricity storage facilities, including pumped hydro, and thermal storage facilities, that store electricity or thermal energy and return it at a later moment in time in the form of electricity, thermal energy or other energy vectors.
- Fortum has communicated to Sustainalytics that the energy storage facilities (including pumped hydro and thermal) will be connected to the interconnected European system.
- Sustainalytics recognizes the critical need to expand utility-scale storage systems in order to enable the expansion of renewable energy, while also noting that the environmental benefit of storage systems depends on the carbon intensity of the grid to which they are connected, and that deploying such assets to carbon-intensive grids or associated systems may result in increased emissions. Sustainalytics encourages the issuer to prioritize instalments of storage systems on grids that follow a credible

decarbonization pathway[6] and to report on the positive impact of such instalments, where feasible.
    - Fortum confirmed to Sustainalytics that all new pumped hydropower storage facilities will have an environmental and social impact assessment in place with no significant risk, controversy or expected negative impact identified.
    - Sustainalytics considers these expenditures to be in line with market practice.
  - Under the Nuclear Power Generation Category, Fortum may finance or refinance investments in: i) research, development, demonstration and deployment of innovative electricity generation facilities produced from nuclear processes with minimal waste from the fuel cycle; ii) projects authorized no later than 2045 for the development and operation of new nuclear power plants; and iii) projects authorized no later than 2040 to increase the lifespan of existing nuclear power plants.
    - Sustainalytics recognizes the benefits of nuclear power as a low-carbon source of electricity and its potential role in the decarbonization of electricity production through 2050 and beyond. Sustainalytics also recognizes that there are substantial risks associated with nuclear power, most notably, the management and long-term disposal of radioactive waste. The management of such risks requires: i) effective governance of nuclear power generation, including a formal governing body and regulations that address, among other areas, site selection, operational safety, radioactive waste management and decommissioning, as well as the effective monitoring and enforcement of such regulations; and ii) evidence of the pursuit of viable options for the secure, long-term storage of high-level radioactive waste.
    - Sustainalytics notes that the Framework incorporates credible criteria for the eligibility of a jurisdiction for the financing of nuclear-related activities, however, Fortum has not specified which jurisdictions in the EU other than Finland and Sweden meet these criteria. Sustainalytics is therefore unable to opine on the Fortum's selection of other jurisdictions in the EU for financing in this area. Sustainalytics thus recommends that, prior to allocation, Fortum transparently discloses those jurisdictions in which nuclear-related expenditures will be financed and the basis for its conclusion that nuclear power in each jurisdiction is adequately governed and has a strong safety record. Finland and Sweden have, in Sustainalytics' opinion, adequate governance and regulations to address nuclear power-related risks (For additional details, see Section 2).
    - For R&D expenditures, Sustainalytics notes that the impact generated from R&D expenditures in small modular reactors is still unclear. Nonetheless, Sustainalytics recognizes their potential to further develop nuclear power as a low-carbon source of energy and to lessen some of the risks associated with it.
- Project Evaluation and Selection:
  - Fortum has established the Green Finance Committee (the "Committee"), which will be responsible for the project evaluation and selection process in line with eligibility criteria under the Framework. Chaired by the Treasury, the Committee is comprised of members from the Finance, Sustainability and Treasury departments.
  - The Company has processes in place to identify and mitigate common environmental and social risks potentially associated with the eligible projects, including a sustainability assessment and EU Taxonomy assessment as part of pre-investment due diligence, covered in Fortum's investment manual.
  - Based on the presence of a dedicated committee and the presence of environmental and social risk management systems, Sustainalytics considers this process to be in line with market practice.
- Management of Proceeds:
  - Fortum's Treasury department will be responsible for the management and allocation of net proceeds under the Framework. The Company will track the proceeds using a green register through a portfolio approach.

[6] Sustainalytics considers a transmission and distribution grid to be aligned with a credible decarbonization pathway if it meets either of the following criteria: i) more than 67% of newly enabled generation installed capacity in the system is below the emissions threshold of 100 gCO_2e/kWh, measured on a life cycle basis in accordance with electricity generation criteria, over a rolling five-year period; or ii) the average system grid emissions factor is below the threshold of 100 gCO_2e/kWh, over a rolling five-year period.

  - Fortum has communicated to Sustainalytics that instruments issued under the Framework may include multi-tranche bonds and loan facilities. The Company intends to label only those tranches of such facilities whose proceeds will be allocated according to the eligibility criteria in the Framework.
  - Fortum intends to allocate the net proceeds within 24 months of issuance. Pending full allocation, proceeds will be placed in the liquidity reserve.
  - Based on the use of a tracking system and the disclosure of the temporary use of proceeds, Sustainalytics considers this process to be in line with market practice.
- Reporting:
  - Fortum will report annually on the allocation of net proceeds and corresponding impact in a green finance report, which will be published on its website until full allocation.
  - Fortum has communicated to Sustainalytics that if it obtains revolving credit facilities under the Framework, it will report on allocation until loan maturity. The Issuer may choose to report directly and non-publicly to the lender or counterparties.
  - Allocation reporting will include: i) the nominal amount of green bonds outstanding; ii) the aggregate size of projects funded per category; iii) share of new financing versus refinancing; iv) the amount of temporary holdings of net proceeds awaiting allocation; and v) share of alignment with the EU Taxonomy.
  - Impact reporting may include: i) renewable energy generation (MWh per year); ii) installed renewable energy capacity (in MW); and iii) GHG emissions reduced or avoided (in tonnes per year).
  - Based on the commitment to allocation and impact reporting, Sustainalytics considers this process to be in line with market practice.

Alignment with Green Bond Principles 2021 and Green Loan Principles 2023

Sustainalytics has determined that the Fortum Green Finance Framework aligns with the four core components of the GBP and GLP.

Section 2: Sustainability Strategy of Fortum

Contribution to Fortum's sustainability and transition strategy

Fortum's sustainability priorities highlight the following objectives: i) decarbonizing its existing electricity generation; ii) increasing the production of reliable low-carbon energy; and iii) improving biodiversity around its plants.[7]

In 2023, Fortum committed to set emissions reduction targets based on the SBTi's 1.5°C trajectory and intends to have them validated by the end of 2024. Fortum's current targets (which are not SBTi validated) include reaching carbon neutrality in its scope 1, 2 and 3 GHG emissions by 2030, and exiting all coal power generation by 2027.[8] In this context, Fortum plans to achieve below 20 gCO_2/kWh for total energy production and below 10 gCO_2/kWh for electricity generation by 2028.[9] With respect to biodiversity, the Company aims to achieve zero net loss of biodiversity caused by existing and new operations in scope 1 and 2 from 2030 onwards, excluding its operations' impact on aquatic environments. Fortum has been reporting on its hydropower plants' impact on biodiversity, land and rivers in Finland and Sweden since 2013 and aims to further assess its aquatic impacts related to its hydropower facilities in 2024.[10,11] In addition, the Company aims to reduce its impact on terrestrial environments by 50% in upstream scope 3 operations by 2030.[12]

As of 2022, 97% of Fortum's power generation in Europe was generated with low-carbon sources. To achieve its decarbonization targets, Fortum invested EUR 266 million in low-carbon energy production in 2022. In this sense, Fortum aims to replace coal in its district heating system in Espoo, Finland, with renewable electricity, waste heat utilization, heat pumps, heat accumulators and electric boilers by 2025.[13] In addition, the Company has invested in new wind energy, including a 380 MW wind park in Närpes and Kristinestad, Finland.[14] Fortum's

[7] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[8] Fortum, "Sustainability targets", at: https://www.fortum.com/sustainability/sustainability-targets
[9] Ibid.
[10] Ibid.
[11] Fortum, "Environmental Report for Hydropower 2022", at: https://www.fortum.com/about-us/our-company/our-energy-production/hydropower-renewable-and-clean-energy/environmental-approach-within-hydropower/environmental-report-hydropower-2022
[12] Fortum, "Sustainability targets", at: https://www.fortum.com/sustainability/sustainability-targets
[13] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[14] Ibid.

Finnish power plants comply with the Energy Efficiency Agreement for the 2017-2025 period, which is a pact between the Confederation of Finnish Industries and the Ministry of Economic Affairs and Employment of Finland.[15] In addition, Fortum's refurbishment and modernization of existing power plants in 2022 led to combined energy savings of 5 GWh/a.[16]

To address biodiversity degradation, Fortum's Biodiversity Action Plan outlines specific projects to improve biodiversity across the Company's operations. In this context, in 2023, Fortum began the removal of four small dams on the River Uvån to return the river to its pre-damming conditions and aid in the rehabilitation of the surrounding ecosystem.[17] Fortum has communicated to Sustainalytics that it will remove one other smaller dam on the River Uvån. In addition, Fortum is preparing applications for a similar project in the River Musån, referring to three small dams. Additionally, Fortum is planning to launch a biodiversity strategy with targets in 2024 following the Science Based Targets for Nature framework,[18] having already mapped its own and its value chains' dependencies and impact on biodiversity in 2022.

Fortum reports progress on its sustainability key performance indicators following the GRI guidelines in its sustainability report, which is published annually on its website.[19] The Company's GHG emissions are subject to the EU emissions trading scheme and the reporting follows the GHG Protocol. Fortum's environmental reporting covers the plants where Fortum has operational control.[20]

Fortum's Board of Directors, supported by the Audit and Risk Committee (ARC), Technology and Investment Committee (TIC), members of Fortum Leadership Team (FLT) and other senior executives, oversee and annually approve the Company's sustainability and climate-related targets. A member of the FLT, the Executive Vice President, Sustainability and Corporate Relations has the overall responsibility over the corporate sustainability and the TCFD reporting. The Board of Directors, ARC, TIC and FLT also monitor the Group's sustainability performance and reporting. Fortum's Sustainability, Strategy, Risk Management, Market Intelligence, Public Affairs and Investor Relations departments collaborate in assessing climate-related risks. The strategy department is responsible for providing a consolidated view of Fortum's production portfolio, its long-term development, and its alignment with the Company's strategy and climate-related targets.

Sustainalytics is of the opinion that the Fortum Green Finance Framework is aligned with the Company's overall sustainability strategy and initiatives and will further the Company's action on its key environmental priorities.

Approach to managing environmental and social risks associated with the projects

Sustainalytics recognizes that the proceeds from the instruments issued under the Framework will be directed towards eligible projects that are expected to have positive environmental and social impacts. However, Sustainalytics is aware that such eligible projects could also lead to negative environmental and social outcomes. Some key environmental and social risks possibly associated with the eligible projects may include issues related to: i) emissions, effluents and waste generated from operations and constructions; ii) management and long-term disposal of radioactive waste from nuclear projects; iii) occupational health and safety; iv) community relations; v) land use and biodiversity issues associated with large-scale infrastructure projects; and vi) business ethics. Sustainalytics is of the opinion that Fortum is able to manage or mitigate potential risks through implementation of the following:

- Regarding emissions, effluents and waste, Fortum's plants are ISO 14001[21] certified and operate under the relevant environmental permits. Most of its plants also meet the EU requirements for the use of best-available technologies (BAT) for flue gas emissions.[22,23] Fortum's power plants and other production facilities either have their own wastewater treatment plant or pipe wastewater to a municipal wastewater treatment plant for further processing. Following the requirements set in the respective permits, the Company releases waste and cooling water back to the environment. In addition, Fortum has assessed risks related to water-stressed areas based on water-stress screening using the World Resources Institute's Aqueduct Water Risk Atlas.[24] Regarding waste management, Fortum sorts and recycles conventional waste generated during the operation and maintenance of

[15] Energy Efficiency Agreements, "Energy Efficiency Agreements", at: https://energiatehokkuussopimukset2017-2025.fi/en/agreements/
[16] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[17] Fortum, "Biodiversity Action plan", (2023), at: https://www.fortum.com/files/biodiversity-action-plan-2023/download?attachment=
[18] Ibid.
[19] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[20] Ibid.
[21] ISO, "ISO 14001:2015 – Environmental management systems", at: https://www.iso.org/standard/60857.html
[22] European Commission, "BAT reference documents", at: https://eippcb.jrc.ec.europa.eu/reference
[23] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[24] Ibid.

power and heat plants and delivers hazardous waste to licensed hazardous waste treatment facilities.[25]

- Regarding nuclear waste in its Finnish power plants (Loviisa 1 and 2 and Olkiluoto 1, 2 and 3), a Finnish regulatory guide on nuclear safety for disposal of nuclear waste[26] mandates spent nuclear fuel to be encapsulated and disposed of in repositories constructed deep inside the bedrock. Low- and intermediate-level waste arising from the operation and decommissioning of nuclear power plants and other nuclear facilities are to be processed and disposed of in bedrock repositories constructed at an intermediate depth. Very low-level waste can be disposed of in repositories constructed near the surface. With respect to the final disposal, the Government granted the radioactive waste management company Posiva a construction licence for the spent nuclear fuel repository at Olkiluoto in November 2015.[27] This represents the first repository for used fuel in the world and it is expected to begin operating in the mid-2020s. Posiva plans to pack fuel inside copper-steel canisters at an above-ground encapsulation plant. The fuel will then be placed in the bedrock at a depth of 400-430 metres.[28] Posiva estimates that it will take 100-120 years before all fuel from the existing nuclear reactors in Loviisa and Olkiluoto is disposed of in the repository,[29] at which point the entire facility will be sealed off.[30]
- With regard to its Swedish nuclear plants, the Swedish Radiation Safety Authority's regulations SSMFS 2008:21 stipulate detailed provisions concerning safety in connection with the disposal of nuclear material and nuclear waste.[31] The Swedish Nuclear Fuel and Waste Management Company (SKB) manages all spent nuclear fuel and nuclear waste from Sweden's nuclear power programme. SKB is the licensee for the central interim storage facility for spent nuclear fuel at the Oskarshamn site and the disposal facility for short-lived operational radioactive waste at Forsmark. Regarding final disposal of spent fuel, in 2022, the government of Sweden granted SKB a licence to construct, possess and operate a disposal facility in Forsmark, Östhammar Municipality, for final disposal of nuclear material and nuclear waste from the Swedish nuclear power programme.[32] The final repository in Forsmark is planned to comprise 500 tunnels at a depth of 500 metres in the bedrock. Approved by the Swedish Radiation Safety Authority and the government of Sweden, the repository will accommodate 12,000 tonnes of spent nuclear fuel encapsulated in 6,000 copper canisters.[33] Construction will start in the late 2020s and will take 10 years to complete.[34] In 70 years, when the final repository is completed and all canisters with nuclear waste have been placed there, the sitting government will examine whether the final repository can be permanently sealed.[35]
- With regard to occupational health and safety, as of 2022, all of Fortum's power and heat production worldwide are ISO 45001[36] certified and subject to continual internal and external audits by independent auditors.[37] Fortum sets safety targets and updates its safety development plans annually and trains its employees accordingly. Fortum also requires additional safety measures based on risk assessments, including additional training and pre-job verification for high-risk work, such as work in confined spaces, heavy lifting work and handling hazardous chemicals. Regarding dam safety, Fortum has in place long-term dam safety programmes which cover investigation of the condition of dams, emergency preparedness, competence assurance, operation, maintenance and investments. In relation to nuclear safety, Fortum's plants in Finland, Loviisa 1 and 2, operate under a licence issued by the Finnish government. Renewed in February 2023, the operating licence is valid until 2050 and require the plants' safety systems to undergo periodic testing and inspections to align with operational limits and identify any potential problems.[38] Similarly, Fortum's co-owned plants

[25] Ibid.
[26] STUK, "Disposal of nuclear waste", (2018), at: https://www.stuklex.fi/en/ohje/YVLD-5
[27] STUK, "The encapsulation and final disposal facility of spent nuclear fuel", at: https://stuk.fi/en/final-disposal-facility
[28] Posiva, "Repository in ONKALO", at: https://www.posiva.fi/en/index/finaldisposal/researchandfinaldisposalfacilitiesatonkalo.html
[29] BBC, "Finland's plan to bury spent nuclear fuel for 100,000 years", (2023), at: https://www.bbc.com/future/article/20230613-onkalo-has-finland-found-the-answer-to-spent-nuclear-fuel-waste-by-burying-it
[30] Ibid.
[31] Swedish Radiation Safety Authority, "SSMFS 2008:21 The Swedish Radiation Safety Authority's regulations concerning safety in connection with the disposal of nuclear material and nuclear waste", at: https://www.stralsakerhetsmyndigheten.se/contentassets/d138388c47964b8a951ec8ca919ac485/ssmfs-200821-the-swedish-radiation-safety-authoritys-regulations-concerning-safety-in-connection-with-the-disposal-of-nuclear-material-and-nuclear-waste
[32] SKB, "The Government approves SKB's final repository system", (2022), at: https://skb.com/nyhet/the-government-approves-skbs-final-repository-system/#:~:text=Today%2C%20the%2027th%20of,Dasht%2C%20Managing%20Director%20of%20SKB.
[33] Government Offices of Sweden, "Final disposal of spent nuclear fuel", (2022), at: https://www.government.se/articles/2022/01/final-disposal-of-spent-nuclear-fuel/
[34] Dalton, D., (2022), "Sweden / Government Approves SKB's Plans For Final Repository At Forsmark For Spent Nuclear Fuel", NUCNET, at: https://www.nucnet.org/news/government-approves-skb-s-plans-for-final-repository-for-spent-nuclear-fuel-1-5-2022
[35] Government Offices of Sweden, "Final disposal of spent nuclear fuel", (2022), at: https://www.government.se/articles/2022/01/final-disposal-of-spent-nuclear-fuel/
[36] ISO, "ISO 45001:2018", at: https://www.iso.org/standard/63787.html
[37] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[38] Fortum, "Safety at Loviisa nuclear power plant", at: https://www.fortum.com/energy-production/nuclear-power/plants/loviisa/safety

follow the relevant local nuclear legislation on nuclear safety and worker's health and safety, including the Act on Nuclear Activities (1984:3)[39] and the Radiation Protection Act (2018:396)[40] in Sweden, and the Radiation and Nuclear Safety Authority Regulation on the Safety of a Nuclear Power Plant[41] and Radiation and Nuclear Safety Authority Regulation on the Security in the Use of Nuclear Energy in Finland.[42] Furthermore, Fortum investigates, evaluates and reports on its plants' safety management and potential incidents according to Finnish and Swedish legislation and the international standards, including those of the International Atomic Energy Agency[43] and the World Association of Nuclear Operations[44].

- With reference to community relations, all Fortum's nuclear plants and new hydropower plants are subject to an environmental impact assessment (EIA) that includes consultations of stakeholders in alignment with local regulations. In addition, the Company collaborates with local country boards, water councils and other relevant organizations to increase community involvement.[45]
- Regarding biodiversity, Fortum has in place a biodiversity manual outlining the Company's processes to assess, manage and report on its impact on biodiversity. Fortum's projects follow local biodiversity-related licence requirements and the Group's biodiversity manual. In addition, the nuclear power plants' operating licences require a comprehensive EIA in alignment with the requirements of local legislation and international standards.[46] In relation to supply chains, Fortum uses certifications, such as FSC and PEFC for forest biomass to add transparency and minimize the impact on biodiversity across its supply chains.
- With respect to business ethics, Fortum's Code of Conduct follows internationally recognized business ethics initiatives, including the UN Global Compact, UN Guiding Principles on Business and Human Rights and OECD Guidelines for Multinational Enterprises. It outlines the Company's procedures to prevent, detect, manage and mitigate unethical business practices related to corruption, money laundering, taxing, competition, antitrust and bribery. Fortum has in place an anonymous whistleblower tool called SpeakUp available for internal and external stakeholders.[47] Similarly, Fortum's Supplier Code of Conduct is based on the principles of the UN Global Compact and requires all suppliers to adhere to the code, ensure the monitoring of their sub-suppliers and allow on-site audits conducted by a third-party auditors.[48]
- Sustainalytics notes that the eligible projects financed under the Framework will mostly be located in Finland and Sweden, which are recognized as Designated Countries under the Equator Principles.[49] This indicates the presence of robust environmental and social governance systems, legislation and institutional capacity for protecting the environment and communities, including stakeholder engagement.

Based on these policies, standards and assessments, Sustainalytics is of the opinion that Fortum has implemented adequate measures and is well positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

Section 3: Impact of Use of Proceeds

Impact of financing hydropower projects in Finland

To decarbonize its economy and align with the EU's energy and climate targets, in July 2022, Finland established targets to reduce its GHG emissions by 60% by 2030, 80% by 2040 and 90% by 2050 as compared to 1990 levels. In addition, according to the National Climate Act, Finland aims to become climate neutral by 2035.[50] The Finnish government has in place an Energy Aid Scheme to provide incentives for projects and

[39] Sveriges Riksdag, " Lag (1984:3) om kärnteknisk verksamhet", at: https://www.riksdagen.se/sv/dokument-och-lagar/dokument/svensk-forfattningssamling/lag-19843-om-karnteknisk-verksamhet_sfs-1984-3/
[40] Sveriges Riksdag, " Strålskyddslag (2018:396)", at: https://www.riksdagen.se/sv/dokument-och-lagar/dokument/svensk-forfattningssamling/stralskyddslag-2018396_sfs-2018-396/
[41] STUK, "Radiation and Nuclear Safety Authority Regulation on the Safety of a Nuclear Power Plant", at: https://www.stuklex.fi/en/maarays/stuk-y-1-2018
[42] STUK, "Radiation and Nuclear Safety Authority Regulation on the Security in the Use of Nuclear Energy", at: https://www.stuklex.fi/en/maarays/stuk-y-3-2020
[43] International Atomic Energy Agency: https://www.iaea.org/
[44] World Association of Nuclear Operations: https://www.wano.info/
[45] Fortum, "Sustainability 2022", at: https://www.fortum.com/files/fortum-sustainability-2022/download?attachment=
[46] Ministry of Economic Affairs and Employment of Finland, "Environmental impact assessment report for Loviisa nuclear power plant", at: https://tem.fi/en/loviisa-eia-report
[47] Fortum, "Code of Conduct", (2021), at: https://www.fortum.com/files/code-conduct-english/download?attachment=
[48] Fortum, "Fortum – Supplier Code of Conduct", (2020), at: https://www.fortum.com/files/supplier-code-conduct-english/download?attachment?attachment
[49] Equator Principles, "About the Equator Principles", at: https://equator-principles.com/about-the-equator-principles/
[50] Ibid.

technologies that promote the production and use of renewable energy, energy savings, energy efficiency and the transition to a low-carbon energy system.[51] In 2022, a the Finnish government earmarked allocated EUR 40 million for the commercialization of new energy alternatives, including plants producing advanced biofuels for transport, non-ETS electricity and heat production, including small-scale production; more than half of it (EUR 23 million) went to projects intended to phase out coal use in energy production.[52]

Part of Finland's strategy for reducing emissions from the energy sector relies on the relatively high installed hydropower capacity: in 2021, Finland had 250 hydropower plants with a capacity of 3,190 MW accounting for 15-25% of the country's total electricity production.[53] Finland's National Energy and Climate Strategy emphasises the role of hydropower with control capacity and high predictability as a reliable energy source for the national energy system. The strategy estimates that hydropower will continue to be an important source for electricity generation in Finland, offering stability to the grid and enabling the growth of weather-dependent renewable energy.[54]

This is in contrast to the decision of EU Member States to exclude hydropower plants from go-to areas under the REPower EU Plan[55] because of the associated environmental impacts of the expansion of hydropower, as advocated by WWF EPO, the European Anglers Alliance, the European Environmental Bureau, the European Rivers Network and Wetlands international.[56] Similarly, the Finnish Environmental Institute favours no additional expansion of hydropower due to the associated impacts on the ecosystems around the plants. Yet, Finland may still increase the capacity of existing plants to some extent in connection with renovations.[57] In this context, as a part of Finland's ambition to reach the UN biodiversity targets, the Finnish Ministry of Agriculture and Forestry in collaboration with the local Centre for Economic Development, Transport and the Environment (ELY), hydropower companies, dam owners and other stakeholders, launched the Nousu programme in 2020 to revitalize aquatic habitats around hydropower plants, enhance fishways and restore the original migrating routes by phasing out small-scale hydropower plants. The programme offers financial compensations of up to 50% of the total cost for the participants of the programme.[58]

In this context, Sustainalytics is of the opinion that Fortum's financing of existing hydropower projects is expected to support the transition to a low-carbon economy and contribute to Finland's climate goals.

Contribution to SDGs

The Sustainable Development Goals were adopted in September 2015 by the United Nations General Assembly and form part of an agenda for achieving sustainable development by 2030. The instruments issued under the Fortum Green Finance Framework are expected to help advance the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Energy Efficiency	7. Affordable and Clean Energy	7.3 By 2030, double the global rate of improvement in energy efficiency
Nuclear Power	7. Affordable and Clean Energy	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

[51] Business Finland, "Energiajärjestemä vähähiilisemmäksi", at: https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/energiatuki
[52] Finland Ministry of the Environment, "Finland's Fifth Biennial Report under the UNFCCC", (2022), at: https://unfccc.int/sites/default/files/resource/FIN_BR5.pdf
[53] Motiva Oy, "Vesivoima", (2021), at: https://www.motiva.fi/ratkaisut/uusiutuva_energia/vesivoima
[54] Finland Ministry of Economic Affairs and Employment Energy, "Carbon neutral Finland2035 – national climate and energy strategy", (2022), at: https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/164323/TEM_2022_55.pdf
[55] European Council and Council of the European Union, "REPowerEU: Council agrees on accelerated permitting rules for renewables", (2022), at: https://www.consilium.europa.eu/en/press/press-releases/2022/12/19/repowereu-council-agrees-on-accelerated-permitting-rules-for-renewables/
[56] European Anglers Alliance et al., "REPowerEU revision of the Renewable Energy Directive and hydropower Briefing paper", (2022), at:https://wwfeu.awsassets.panda.org/downloads/ngo_briefing_paper___repowereu_and_hydropower___october_2022.pdf
[57] Finnish Environmental Institute, "Vesivoimalla tuotetaan uusiutuvaa sähköä", (2022), at: https://www.ilmasto-opas.fi/artikkelit/vesivoimalla-tuotetaan-uusiutuvaa-sahkoa
[58] Ministry of Agriculture and Forestry, "Vaelluskalakantojen elvyttämisohjelma NOUSU", at: https://mmm.fi/vaelluskalat/vaelluskalaohjelma

Conclusion

Fortum has developed the Fortum Green Finance Framework under which it may issue green bonds and loans and use the proceeds to finance in whole or in part, existing or future projects intended to support the decarbonization of the Nordic energy market. Sustainalytics considers that the eligible projects are expected to provide positive environmental impacts.

The Fortum Green Finance Framework outlines a process for tracking, allocation and management of proceeds, and makes commitments for reporting on allocation and impact. Sustainalytics considers that the Fortum Green Finance Framework is aligned with the overall sustainability strategy of the Company and that the use of proceeds will contribute to the advancement of the UN Sustainable Development Goal 7. Additionally, Sustainalytics is of the opinion that Fortum has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects.

Based on the above, Sustainalytics is confident that Fortum is well positioned to issue green bonds and loans and that the Fortum Green Finance Framework is robust, transparent and in alignment with the four core components of the Green Bond Principles 2021 and Green Loan Principles 2023.

Appendices

Appendix 1: Green Bond / Green Bond Programme - External Review Form

Section 1. Basic Information

Issuer name:	Fortum
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable:	Fortum Green Finance Framework
Review provider's name:	Sustainalytics
Completion date of this form:	January 19, 2024
Publication date of review publication:	

Section 2. Review overview

SCOPE OF REVIEW

The review:

☒ assessed the 4 core components of the principles (**complete review**) and confirmed the alignment with the GBP/SBP/SBG (*delete where appropriate*).

☐ assessed only some of them (**partial review**) and confirmed the alignment with the GBP/SBP/SBG (*delete where appropriate*); please indicate which ones:

☐ Use of Proceeds ☐ Process for Project Evaluation and Selection

☐ Management of Proceeds ☒ Reporting

☐ assessed the alignment with other regulations or standards (CBI, EU GBS, ASEAN Green Bond Standard, ISO 14030, etc.); please indicate which ones:

ROLE(S) OF INDEPENDENT REVIEW PROVIDER

☒ Second Party Opinion ☐ Certification

☐ Verification ☐ Scoring/Rating

☐ Other (please specify):

Does the review include a sustainability quality score?

☐ Of the issuer ☐ Of the project

☐ Of the Framework ☐ Other (please specify):

☒ No scoring

ASSESSMENT OF THE PROJECT(S)

Does the review include:

☒ The environmental and/or social features of the type of project(s) intended for the Use of Proceeds?

☒ The environmental and/or social benefits and impact targeted by the eligible Green and/or Social Project(s) financed by the Green, Social or Sustainability Bond?

☒ The potentially material environmental and/or social risks associated with the project(s) (where relevant)?

ISSUER'S OVERARCHING OBJECTIVES

Does the review include:

☒ An assessment of the issuer's overarching sustainability objectives and strategy, and the policies and/or processes towards their delivery?

☒ An identification and assessment of environmental, social and governance related risks of adverse impact through the Issuer's [actions] and explanations on how they are managed and mitigated by the issuer?

☒ A reference to the issuer's relevant regulations, standards, or frameworks for sustainability-related disclosure and reporting?

CLIMATE TRANSITION STRATEGY

Does the review assess:

☐ The issuer's climate transition strategy & governance?

☐ The alignment of both the long-term and short/medium-term targets with the relevant regional, sector, or international climate scenario?

☐ The credibility of the issuer's climate transition strategy to reach its targets?

☐ The level/type of independent governance and oversight of the issuer's climate transition strategy (e.g. by independent members of the board, dedicated board sub-committees with relevant expertise, or via the submission of an issuer's climate transition strategy to shareholders' approval).

☐ If appropriate, the materiality of the planned transition trajectory in the context of the issuers overall business (including the relevant historical datapoints)?

☐ The alignment of the issuer's proposed strategy and targets with appropriate science-based targets and transition pathways that are deemed necessary to limit climate change to targeted levels?

☐ The comprehensiveness of the issuer's disclosure to help investors assess its performance holistically?

Overall comment on this section:

Section 3. Detailed review

1. USE OF PROCEEDS

Does the review assess:

☒ the environmental/social benefits of the project(s)?

☒ whether those benefits are quantifiable and meaningful?

☒ for social projects, whether the target population is properly identified?

Does the review assess if the issuer provides clear information on:

☐ the estimated proceeds allocation per project category (in case of multiple projects)?

☐ the estimated share of financing vs. re-financing (and the related lookback period)?

Overall comment on this section: The eligible categories for the use of proceeds – Renewable Energy, Energy Efficiency and Nuclear Power Generation – are aligned with those recognized by the Green Bond Principles and the Green Loan Principles. Sustainalytics considers that investments in the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals, specifically SDG 7.

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Does the review assess:

☒ whether the eligibility of the project(s) is aligned with official or market-based taxonomies or recognised international standards? Please specify which ones.

Sustainalytics has a proprietary taxonomy which is influenced by the EU taxonomy, Climate Bonds Initiative taxonomy as well as international standards.

☒ whether the eligible projects are aligned with the overall sustainability strategy of the issuer and/or if the eligible projects are aligned with material ESG-related objectives in the issuer's industry?

☒ the process and governance to set the eligibility criteria including, if applicable, exclusion criteria?

☒ the processes by which the issuer identifies and manages perceived social and environmental risks associated with the relevant project(s)?

☒ any process in place to identify mitigants to known material risks of negative social and/or environmental impacts from the relevant project(s)?

Overall comment on this section: Fortum has established the Green Finance Committee which will be responsible for the project evaluation and selection process. Fortum has processes in place to identify and mitigate common environmental and social risks potentially associated with the eligible projects. Sustainalytics considers the project selection process in line with market practice.

3. MANAGEMENT OF PROCEEDS

Does the review assess:

☒ the issuer's policy for segregating or tracking the proceeds in an appropriate manner?

☒ the intended types of temporary investment instruments for unallocated proceeds?

☒ Whether an external auditor will verify the internal tracking of the proceeds and the allocation of the funds?

Overall comment on this section: Fortum's Treasury department will be responsible for the management and allocation of net proceeds under the Framework. The Company will track the proceeds using a Green Register through a portfolio approach. Fortum intends to allocate the net proceeds within 24 months of issuance. Pending full allocation, proceeds will be placed in the liquidity reserve. This is in line with market practice.

4. REPORTING

Does the review assess:

☒ the expected type of allocation and impact reporting (bond-by-bond or on a portfolio basis)?

☒ the frequency and the means of disclosure?

☐ the disclosure of the methodology of the expected or achieved impact of the financed project(s)?

Overall comment on this section: Fortum will report annually on the allocation of net proceeds and corresponding impact in a Green Finance Report, which will be published on its website until full allocation. In addition, Fortum intends to report on relevant impact metrics. Sustainalytics views Fortum's allocation and impact reporting as aligned with market practice.

Section 4. Additional Information

Useful links *(e.g. to the external review provider's methodology or credentials, to the full review, to issuer's documentation, etc.)*

Analysis of the contribution of the project(s) to the UN Sustainable Development Goals:

Additional assessment in relation to the issuer/bond framework/eligible project(s):

ABOUT ROLE(S) OF INDEPENDENT REVIEW PROVIDERS AS DEFINED BY THE GBP

i. Second-Party Opinion: An institution with environmental expertise, that is independent from the issuer may issue a Second-Party Opinion. The institution should be independent from the issuer's adviser for its Green Bond framework, or appropriate procedures, such as information barriers, will have been implemented within the institution to ensure the independence of the Second-Party Opinion. It normally entails an assessment of the alignment with the Green Bond Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability, and an evaluation of the environmental features of the type of projects intended for the Use of Proceeds.

ii. Verification: An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or environmental criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Green Bond proceeds, statement of environmental impact or alignment of reporting with the GBP, may also be termed verification.

iii. Certification: An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against a recognised external green standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.

iv. Green Bond Scoring/Rating: An issuer can have its Green Bond, associated Green Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental performance data, the process relative to the GBP, or another benchmark, such as a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material environmental risks.

Disclaimer

About Sustainalytics, a Morningstar Company

Sustainalytics, a Morningstar Company, is a leading ESG research, ratings and data firm that supports investors around the world with the development and implementation of responsible investment strategies. For more than 30 years, the firm has been at the forefront of developing high-quality, innovative solutions to meet the evolving needs of global investors. Today, Sustainalytics works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. Sustainalytics also works with hundreds of companies and their financial intermediaries to help them consider sustainability in policies, practices and capital projects. With 17 offices globally, Sustainalytics has more than 1500 staff members, including more than 500 analysts with varied multidisciplinary expertise across more than 40 industry groups.

For more information, visit www.sustainalytics.com

Or contact us contact@sustainalytics.com