

Second-Party Opinion

Stora Enso Green and Sustainability-Linked Financing Framework



Evaluation Summary

Use of Proceeds Instruments

Green Bond Principles 2021 and Green Loan Principles 2023

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework is credible and impactful and aligns with the four core components of the Green Bond Principles 2021 and Green Loan Principles 2023. The eligible categories for the use of proceeds – Sustainable Forest Management, Sustainable Product Processes, Energy Efficiency, Renewable Energy and Waste to Energy, Sustainable Water Management, and Waste Management and Pollution Control – are aligned with those recognized by the Green Bond Principles and the Green Loan Principles and are expected to lead to positive environmental impact.

Sustainability-Linked Instruments

Sustainability-Linked Bond Principles 2020

Sustainability-Linked Loan Principles 2023

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework aligns with the Sustainability-Linked Bond Principles 2020 and Sustainability-Linked Loan Principles 2023.

Overview of KPIs and SPTs:

| KPI | Strength of the KPI | SPT | Ambitiousness of SPT |
|---|---------------------|--|----------------------|
| KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO ₂ e) | Very Strong | SPT 1a: Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline | Highly Ambitious |
| KPI 1b: Absolute scope 3 GHG emissions (million tCO ₂ e) | Very Strong | SPT 1b: Reduce absolute scope 3 GHG emissions by 50% by 2030 from a 2019 baseline | Highly Ambitious |
| KPI 2: Technical recyclability of products | Strong | SPT 2: Achieve 100% technical recyclability of products by 2030 | Ambitious |
| KPI 3: Birch seedlings planted | Strong | SPT 3: Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline | Ambitious |

| | |
|------------------------|-------------------|
| Evaluation Date | May 03, 2023 |
| Issuer Location | Helsinki, Finland |

The UoPs and SPTs contribute to the following SDGs:



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Scope of Work and Limitations

Sustainalytics' Second-Party Opinion reflects Sustainalytics' independent¹ opinion on the alignment of the Stora Enso Green and Sustainability-Linked Financing Framework with current market standards. As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework's alignment with the Green Bond Principles 2021, Green Loan Principles 2023, Sustainability-Linked Bond Principles 2020 and the Sustainability-Linked Loan Principles 2023^{2,3,4};
- The credibility and anticipated positive impacts of the use of proceeds and SPTs;
- The issuer's sustainability strategy, performance and sustainability risk management; and

As part of this engagement, Sustainalytics held conversations with various members of Stora Enso's management team to understand the sustainability impact of their business processes and the core components of the Framework. Stora Enso representatives have confirmed that:

- (1) They understand it is the sole responsibility of Stora Enso to ensure that the information provided is complete, accurate or up to date;
- (2) They have provided Sustainalytics with all relevant information; and
- (3) 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 Stora Enso.

Sustainalytics' Second-Party Opinion assesses alignment of the Framework with current market standards but does not provide any guarantee of alignment nor warrants alignment with any future versions of such standards. Regarding the portion of the Second-Party Opinion which assesses:

- use of proceeds categories, Stora Enso is encouraged to update the associated parts of the Framework after 24 (twenty-four) months from the evaluation date, if necessary, and seek an update to this Second-Party Opinion to ensure ongoing alignment of the Framework with market standards and expectations.
- sustainability-linked instruments, this Second-Party Opinion is valid for issuances aligned with the Framework for up to 24 (twenty-four) months or until one of the following occurs: 1) a material change to the external benchmarks against which targets were set; 2) a material corporate action (such as a material M&A or change in business activity) which has a bearing on the achievement of the SPTs or the materiality of the KPIs.

For use of proceeds instruments, Sustainalytics relied on its internal taxonomy, version 1.12, which is informed by market practice and Sustainalytics' expertise as an ESG research provider. This Second-Party Opinion:

- addresses the anticipated impacts of eligible projects but does not measure their actual impact. Reporting and measuring impact of projects financed under the Framework is the responsibility of the Framework owner.
- opines on the potential allocation of proceeds but does not guarantee their realized allocation towards eligible activities.

For sustainability-linked instruments, the Second-Party Opinion:

- addresses the anticipated SPTs of KPIs but does not measure progress on the KPIs. Measuring and reporting on KPIs is the responsibility of the Framework owner.

¹ 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.

² The Bond Principles, Guidelines and Handbooks are administered by the International Capital Market Association and are available at: <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/>

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 Sustainability-Linked Loan Principles were updated by LSTA in February 2023. They are administered by the LSTA and are available at: <https://www.lsta.org/content/sustainability-linked-loan-principles-sllp/#>

No information Sustainalytics provides under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument in favour or against the truthfulness, reliability or completeness of any facts or statements and related circumstances that Stora Enso may have disclosed to Sustainalytics for the purpose of this Second-Party Opinion.

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Introduction

Stora Enso Oyj (“Stora Enso” or the “Company”) is a Helsinki-based company engaged in the production of paper, packaging, biomaterials and forestry products for publishers, printing houses and the packaging, joinery and construction industries. In 2021, the Company generated a revenue of EUR 10.2 billion, employed approximately 22,000 personnel and owned or leased 2.01 million hectares of forested land in more than 30 countries.

The Company’s corporate history dates back to 1288 when it was issued a share in a copper mine in Sweden. Stora Enso was formed in 1998 through the merger of Swedish mining and forestry products company Stora AB and Finnish forestry products company Enso Oyj.

Stora Enso has developed the Stora Enso Green and Sustainability-Linked Financing Framework dated May 2023 (the “Framework”) under which it may issue use of proceeds green bonds, green loans, schuldscheine and other debt financing instruments. The Company may also issue sustainability-linked financing instruments, such as sustainability-linked bonds and sustainability-linked loans and schuldscheine,⁵ whose financial and structural characteristics, such as margin, coupon rate and redemption price, will be tied to the achievement or non-achievement of certain SPTs defined in the Framework. Stora Enso engaged Sustainalytics to review the Framework and provide a Second-Party Opinion on the Framework’s alignment with the Green Bond Principles 2021, Green Loan Principles 2023, Sustainability-Linked Bond Principles 2020 and Sustainability-Linked Loan Principles 2023. The Framework has been published in a separate document.⁶

Under use of proceeds instruments, Stora Enso will use the proceeds to finance and refinance, in whole or in part, existing and future projects that are expected to result in positive environmental impact and advance Stora Enso’s sustainability strategy. The Framework defines eligibility criteria in six green categories:

1. Sustainable Forest Management
2. Sustainable Product Processes
3. Energy Efficiency
4. Renewable Energy and Waste to Energy
5. Sustainable Water Management
6. Waste Management and Pollution Control

Tables 1 and 2 below describe the KPIs and SPTs defined by Stora Enso.

Table 1: KPIs

| KPI | Description |
|---|--|
| KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO ₂ e) | <p>The KPI is defined as absolute scope 1 and 2 GHG emissions measured in million tonnes of CO₂ equivalent (million tCO₂e) and covers 100% of Stora Enso’s global scope 1 and 2 GHG emissions.</p> <ul style="list-style-type: none"> • Scope 1 GHG emissions include direct emissions from Stora Enso’s owned and controlled operations including on-site energy generation and processes, power boilers, lime kilns and on-site transportation. • Scope 2 GHG emissions include indirect emissions from purchased electricity, heat and cooling for Stora Enso’s operations. <p>Stora Enso calculates its scope 1 and 2 emissions in accordance with the GHG Protocol.⁷</p> |
| KPI 1b: Absolute scope 3 GHG emissions (million tCO ₂ e) | <p>The KPI is defined as absolute scope 3 GHG emissions from Stora Enso’s sourcing and manufacturing of raw materials and services, processing of products by customers, and transportation of raw materials, expressed in million tCO₂e.</p> <p>Stora Enso calculates its scope 3 GHG emissions in accordance with the GHG Protocol.⁸</p> |

⁵ This Second-Party Opinion assesses the Framework’s alignment with the Sustainability-Linked Bond Principles and the Sustainability-Linked Loan Principles only in the context of Stora Enso issuing sustainability-linked bonds, loans and schuldscheine. Different standards may apply to other instruments that may be issued under the Framework, in which case the Company will provide further details in the offer documents of such issuances.

⁶ The Stora Enso Green and Sustainability-Linked Financing Framework is available on Stora Enso’s website at: <https://www.storaenso.com/en/investors/stora-enso-as-an-investment/debt-investors/green-bonds>

⁷ The Greenhouse Gas Protocol, “A Corporate Accounting and Reporting Standard revised edition”, (2015) at: <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

⁸ Ibid

| | |
|--|--|
| KPI 2: Technical recyclability of products | KPI 2 measures the technical recyclability of all of Stora Enso’s current packaging, pulp, paper and solid wood products as well as biochemical by-products produced by the Group for sale, consolidated as tonnes of production volume. The KPI is calculated as a summation of the multiplication of the volume of sales production of Stora Enso’s products and the technical recyclability of the associated product divided by the total volume of sales production, expressed as a percentage. |
| KPI 3: Birch seedlings planted | KPI 3 measures the number of birch seedlings planted by Stora Enso in its owned and managed forests in Sweden. |

Table 2: SPTs and Past Performance

| KPI | 2019 | 2020 | 2021 | SPT |
|---|--------------------|------|-----------------|--|
| KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO ₂ e) | 2.68 (Baseline) | 2.33 | 2.31 | SPT 1a: Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline |
| KPI 1b: Absolute scope 3 GHG emissions (million tCO ₂ e) | 8.18 (Baseline) | 7.38 | 7.83 | SPT 1b: Reduce absolute scope 3 GHG emissions by 50% by 2030 from a 2019 baseline |
| KPI 2: Technical recyclability of products | 0 | 0 | 94% | SPT 2: Increase technical recyclability of products to 100% by 2030 |
| KPI 3: Birch seedlings planted | 0 | 0 | 0 (Baseline) | SPT 3: Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline |

Sustainalytics' Opinion

Section 1: Alignment of the Framework with Relevant Market Standards

Alignment with Use of Proceeds Principles

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework is credible, impactful and aligns with the Green Bond Principles 2021 and Green Loan Principles 2023. For detailed information please refer to Appendix 1: Green Bond/ Green Bond Programme External Review Form. Sustainalytics highlights the following elements of Stora Enso's Green and Sustainability-Linked Financing Framework:



Use of Proceeds

| Use of Proceeds | Activity | Description and Sustainalytics' Assessment |
|---|--|--|
| Sustainable Forest Management | Sustainable forest management | <ul style="list-style-type: none"> - Investment in ownership, acquisition and research and development (R&D) related to: <ul style="list-style-type: none"> ▪ Forest land certified under FSC⁹ or PEFC¹⁰ ▪ Tree nurseries ▪ Silviculture - Sustainalytics views expenditures under this category to be aligned with market expectations. |
| Sustainable Product Processes | Bioeconomy products and its production facilities | <ul style="list-style-type: none"> - Investment in ownership, acquisition, R&D, equipment, processes, and technologies related to: <ul style="list-style-type: none"> ▪ Manufacture of bioeconomy products. ▪ Mills or facilities which produce packaging, cross laminated timber, laminated veneer lumber and products developed from lignin. ▪ Stora Enso has confirmed to Sustainalytics that 99% of the land owned and managed by the Company, and 77% of all procured wood used in its mills is certified under the FSC or PEFC certification. Stora Enso has also confirmed to Sustainalytics that non-certified wood input is covered by third-party traceability systems such as the FSC's Chain of Custody or Controlled Wood standard or PEFC's Chain of Custody certification. ▪ Stora Enso has also confirmed to Sustainalytics that the Company's end products are FSC or PEFC certified.¹¹ - Sustainalytics views expenditures under this category to be aligned with market expectations. |
| Energy Efficiency | Energy efficiency initiatives | <ul style="list-style-type: none"> - Investment in activities according to following criteria: <ul style="list-style-type: none"> ▪ Refurbishment or retrofitting of production facilities resulting in a 30% energy efficiency improvement relative to pre-investment levels. ▪ Installation, maintenance or upgrade of energy efficient equipment such as management systems at production facilities, heat recovery and exchange systems and upgrades of production units through process redesign. - Sustainalytics views expenditures under this category to be aligned with market expectations. |
| Renewable Energy and Waste to Energy | Development, acquisition, manufacture, installation and maintenance of renewable energy projects | <ul style="list-style-type: none"> - Investment in onshore and offshore wind turbines, solar photovoltaic and concentrated solar power (CSP) systems, hydroelectric power plants, and recovery boilers for energy production. - Stora Enso has confirmed to Sustainalytics that CSP systems financed will generate at least 85% of their electricity from solar energy. |

⁹ Forest Stewardship Council, at: <https://fsc.org/en/what-the-fsc-labels-mean>

¹⁰ Program for the Endorsement of Forest Certification, at: <https://pefc.org/standards-implementation/standards-and-guides>

¹¹ Sustainalytics notes that FSC-certified end products may carry one of three different labels with distinct criteria for input materials. Forest Stewardship Council, "What's in a label", at: <https://dev-fsc-website-revamp.pantheon.io/en/what-the-fsc-labels-mean>

| | | |
|---|---|--|
| | | <ul style="list-style-type: none"> - Stora Enso has confirmed to Sustainalytics that hydroelectric projects that became or will become operational after the end of 2019 comply with at least one of the following criteria: i) are run-of-river without an artificial reservoir; ii) have a power density above 10 W/m²; or iii) have a life cycle carbon intensity below 50 gCO₂e/kWh. Facilities that became operational before the end of 2019 and are being refinanced comply with the following: i) are run-of-river without artificial reservoir or low storage capacity; ii) have a life cycle carbon intensity below 100 gCO₂e/kWh; or iii) have a power density greater than 5 W/m². - For all new hydropower projects invested in under the Framework, Stora Enso will require an environmental and social impact assessment to be conducted by a credible body and will exclude projects associated with significant controversies. - Stora Enso has confirmed to Sustainalytics that feedstock for bioenergy generation will be limited to forestry or agricultural residues. - Investment in supportive infrastructure dedicated to the renewable energy projects. - Stora Enso has confirmed to Sustainalytics that electricity transmission and distribution infrastructure financed will be dedicated to connecting renewables to the power grid. - Sustainalytics views expenditures under this category to be aligned with market expectations. |
| Sustainable Water Management | Water and wastewater treatment plants and associated equipment | <ul style="list-style-type: none"> - Investment in: i) equipment used for reduction of water use at production facilities such as cooling towers, control and measurement equipment; ii) equipment used for recycling of water in industrial processes; and iii) equipment for wastewater treatment to recycle and reuse water including biological wastewater treatment plants, micro filters and aeration equipment. - Sustainalytics views expenditures under this category to be aligned with market expectations. |
| Waste Management and Pollution Control | Equipment and management systems for pollution prevention and control | <ul style="list-style-type: none"> - Investment in equipment for the reduction of waste, wastewater, residuals and air emissions, and equipment for processing and reusing waste and residuals such as air feed systems in boilers, selective non-catalytic reduction (SNCR) technology, evaporators, automation equipment to monitor emissions, electrostatic precipitators, filtration devices, scrubbers, gas collection systems, non-condensable gas systems, carbon capture and storage (CCS) technology, sludge and dewatering presses. - Stora Enso has communicated to Sustainalytics that in the case of multi-fuel boilers, the Company will use them exclusively for biofuel production. - Stora Enso has confirmed to Sustainalytics that financed CCS technology will result in the long-term storage of captured carbon. - Sustainalytics views expenditures under this category to be aligned with market expectations. |

Additional considerations on use of proceeds

- The pulp and paper industry is energy intensive, largely driven by the substantial amount of heat required in the chemical pulp production and paper drying processes, where drying accounts for approximately 70% of the total energy used.^{12,13} Despite the continued increase in the use of renewable energy in the sector, primarily biomass inputs and process by-products such as black liquor, fossil fuels continue to be utilized, especially for the calcination process in lime kilns requiring high temperatures. As a result, the sector was responsible for approximately 2% of global industrial emissions in 2021.¹⁴
- Sustainalytics notes that some proceeds under the Framework will be used to finance systems, processes, technologies and equipment at production facilities that the Company is in the process of transitioning away from fossil fuel use. In its bid to decrease its reliance on fossil fuels, Stora Enso has made substantial progress in its transition toward low-carbon alternatives with the objective to reduce the carbon intensity and overall environmental impact of its operations. As of 2021, 85% of Stora Enso’s total annual fuel consumption in production units was derived from biomass and peat with the remaining 15% being derived from fossil fuels

¹² Japan Ministry of Economy, Trade and Industry, “Technology Roadmap for “Transition Finance” in Pulp and Paper Sector”, (2022), at: https://www.meti.go.jp/policy/energy_environment/global_warming/transition/transition_finance_technology_roadmap_paper_eng.pdf

¹³ IEA, “Pulp and Paper”, at: <https://www.iea.org/reports/pulp-and-paper>

¹⁴ Ibid.

including coal and natural gas.¹⁵ Sustainalytics notes that the Framework excludes equipment, processes and technologies directly reliant on fossil fuels and the procurement of fossil fuel-based raw materials, thereby reducing any risk of fossil fuel lock-in.

- Sustainalytics notes that Stora Enso’s carbon intensity is well below the B2DS threshold in Transition Pathway Initiative’s (TPI) decarbonization trajectory for the Paper sector.¹⁶ The TPI’s Below 2°C scenario (B2DS) decarbonization trajectory for the Paper sector has set a carbon intensity threshold of 0.57 tCO₂/tonne of pulp, paper and paperboard for the year 2021.¹⁷ The Company reduced the carbon intensity of its operations to 0.26 tCO₂/tonne of pulp, paper and paperboard by 2021.¹⁸
- In addition to the above-mentioned exclusion of investment in activities related to fossil fuels, the Framework excludes investments related to genetically engineered trees and procurement of illegally harvested wood and fibre from: i) protected areas; ii) areas currently undergoing official processes of being declared as protected forest; iii) high conservation value forests; iv) areas undergoing conversion from forest or other wooded ecosystems to plantations or non-forest use; and v) areas or processes supporting violation of traditional rights or civil rights.
- Stora Enso has confirmed to Sustainalytics that investments in R&D will be limited to 10% of net proceeds per issuance.
- Stora Enso has defined a look-back period of three years for the refinancing of projects. However, in case of refinancing of assets, the Company has not established a look-back period. Sustainalytics considers this to be in line with market practice.

Project Evaluation and Selection



- Stora Enso has defined a multi-step process for selecting projects and assets, which includes the assessment and compliance of eligible projects and assets against the eligibility criteria in the Framework, applicable laws and regulations, and the Company’s sustainability strategy and policies. The steps are integrated into Stora Enso’s existing governance model.
- Stora Enso’s Investment Working Group reviews all investments under the Framework. The investments are approved by the Company’s CEO or the board of directors. The Company’s Sustainability Council outlines the principles for how investments are incorporated, while its Green Finance Council approves green assets and individual investments.
- Stora Enso relies on its internal environmental and social risk management systems to assess and manage risks associated with eligible projects and assets. For additional details, please refer to Section 2.
- Based on the presence of a multi-step process for project evaluation and selection and the environmental and social risk management systems in place, Sustainalytics considers Stora Enso’s project evaluation and selection process to be in line with market expectations.

Management of Proceeds



- Stora Enso’s Treasury will be responsible for the management and allocation of proceeds using a portfolio approach and will track the proceeds using an internal register.
- The Company has communicated to Sustainalytics that it intends to allocate proceeds in full within 12 months of each issuance. Pending allocation, proceeds may be temporarily held or invested in cash, cash equivalents or short-term liquid instruments in line with the Company’s liquidity and liability management policies.
- Stora Enso has confirmed to Sustainalytics that instruments issued under the Framework may include multi-tranche 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. This is aligned with market practice.

¹⁵ Stora Enso, “Annual Report 2021”, at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

¹⁶ Transition Pathway Initiative, “TPI online tool- Stora Enso”, at: <https://www.transitionpathwayinitiative.org/companies/stora-enso>

¹⁷ Ibid.

¹⁸ Stora Enso, “Annual Report 2021”, at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

- Based on the use of an internal register and disclosure of temporary allocation of proceeds, Sustainalytics considers this process to be in line with market practice.



Reporting

- Stora Enso commits to report on the allocation and corresponding impact of proceeds in a separate document on its website, on an annual basis and until green debt instruments remain outstanding.
- Allocation reporting will include the amount of proceeds allocated to each category, the balance of unallocated proceeds, description of some of the activities financed and geographical distribution.
- Where relevant, Stora Enso intends to report on impact, which may include metrics such as percentage of owned and leased lands covered by forest certification; estimated avoided GHG emissions (measured in tCO_{2e}); CO₂ sequestered through forests' carbon sequestration (measured in tonnes); annual energy savings (measured in MWh); and renewable energy generation (measured in MWh). For a full list of impact metrics, please refer to Appendix 1: Green Bond/Green Bond Programme External Review Form.
- **Stora Enso has confirmed to Sustainalytics that if the Company obtains revolving credit facilities under the Framework, it will report on the allocation of proceeds until loan maturity.**
- Based on the commitment to allocation and impact reporting, Sustainalytics considers this process to be in line with market practice.

Alignment with Sustainability-Linked Principles

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework aligns with the Sustainability-Linked Bond Principles 2020 and the Sustainability-Linked Loan Principles 2023. For detailed information, please refer to Appendix 2: Sustainability Linked Bond External Review Form. Sustainalytics highlights the following elements of the Stora Enso Green and Sustainability-Linked Financing Framework:



Selection of Key Performance Indicators (KPIs)

Relevance and Materiality of KPIs

In its assessment of materiality and relevance, Sustainalytics considers: i) whether an indicator speaks to a material impact of company's business on environmental or social issues; and ii) to what portion of impact the KPI is applicable.

KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO_{2e}) and KPI 1b: Absolute Scope 3 GHG emissions (million tCO_{2e})

KPIs 1a and 1b collectively address the issue of direct GHG emissions from Stora Enso's own and controlled operations including on-site energy generation and processes, power boilers, lime kilns, and onsite transportation, and indirect GHG emissions from purchased electricity, heat and cooling, sourcing and manufacturing of raw materials and services, processing of products by customers, and transportation of raw materials and final products.¹⁹

Sustainalytics considers KPI 1a and 1b to be material and relevant given the importance of reducing GHG emissions for the paper and pulp industry. Sustainalytics' ESG Risk Rating report identifies Carbon - Own

¹⁹ Stora Enso, "Annual report", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

Operations²⁰, and Carbon - Products and Services²¹ as material ESG issues for Stora Enso.²² In addition, the Sustainability Accounting and Standards Board (SASB) identifies GHG emissions and Energy Management as material issues for Stora Enso.²³

Regarding applicability, Sustainalytics has taken a combined approach towards assessing the applicability of KPI 1a and KPI 1b as they address the material issue of Stora Enso's scope 1, 2 and 3 GHG emissions. KPI 1a covers 100% of scope 1 and 2 GHG emissions from Stora Enso's operations and purchased energy (2.34 million tCO₂e in 2021) and KPI 1b addresses 100% of Stora Enso's scope 3 GHG emissions (7.83 million tCO₂e in 2021). Therefore, KPIs 1a and 1b collectively covered 100% of Stora Enso's Scope 1, 2 and 3 GHG emissions in 2021.

Based on the above, Sustainalytics considers KPI 1a and KPI 1b to be material, relevant and highly applicable.

KPI 2: Technical recyclability of products

Sustainalytics considers KPI 2 to be material and relevant based on the following:

- Packaging waste generated in the EU was estimated at 177.2 kg per inhabitant in 2020, with paper and cardboard having the largest share of waste materials.²⁴ In its Circular Economy Action Plan, the European Commission has set requirements and proposed measures to ensure that all packaging on the EU market is reusable or recyclable by 2030.²⁵
- According to the New EU Forest Strategy for 2030, better use, reuse and recycling of all wood-based products should be prioritized as "enhanced circularity of products offers a possibility of maintaining all wood-based products longer in the economy for the multiple uses."²⁶
- The pulp and paper manufacturing value chain has a significant environmental impact upstream during the sourcing of raw materials and production process, and downstream when paper and its by-products are recycled. As the pulp and paper sector uses renewable and recyclable raw materials as its primary resource, it has the potential to reduce its environmental impact by adopting processes that lead to greater material efficiency and circular flows of resources, such as returning material post-use back into production through recycling and reducing material loss.²⁷

Regarding applicability, the KPI covers 100% of Stora Enso's products by production volume.

Based on the above, Sustainalytics considers KPI 2 to be material, relevant and to have a high scope of applicability.

KPI 3: Birch seedlings planted

Sustainalytics considers KPI 3 to be material and relevant given that Sustainalytics' ESG Risk Rating report identifies Land Use and Biodiversity²⁸ as a material ESG issue for Stora Enso.²⁹ Furthermore, SASB identifies Ecological Impacts as a relevant issue to monitor and disclose for the Forestry Management industry.³⁰

Regarding applicability, KPI 3 covers Stora Enso's forests in Sweden, which account for approximately 70% of the total forest area owned and managed by the Company.

²⁰ Sustainalytics' material ESG issue "Carbon – Own Operations" refers to a company's management of risks related to its own operational energy use and GHG emissions (scope 1 and 2). It also includes parts of Scope 3 emissions.

²¹ The Sustainalytics material ESG issue "Carbon - Products and Services" refers to a company's management of the energy efficiency and GHG emissions of its services and products during the use phase.

²² Sustainalytics ESG Risk Rating - Stora Enso Oyj.

²³ SASB, "Materiality Finder, Stora Enso OYJ", at: [https://www.sasb.org/standards/materiality-finder/find/?company\[\]=FI0009005953&lang=en-us](https://www.sasb.org/standards/materiality-finder/find/?company[]=FI0009005953&lang=en-us)

²⁴ Eurostat, "Packaging waste statistics", at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Packaging_waste_statistics

²⁵ European Commission, "A new Circular Economy Action Plan", at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>

²⁶ European Commission, "New EU Forest Strategy for 2030", at: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0572&from=EN>

²⁷ UNECE, "Circularity concepts in forest-based industries", at: [https://morningstaronline.sharepoint.com/sites/sa/Resources/sfs/Shared%20Documents/001SFS%20Projects/01%20Projects/Hybrid%20\(UoP+Linked%20Instrument\)/Stora%20enso/SPO%202022/Supporting%20document/Stora%20Enso%20KPI%202/Circularity%20concepts%20in%20forest-based%20industries%20ECE_TIM_SP_49.pdf?CT=1678089555520&OR=ItemsView](https://morningstaronline.sharepoint.com/sites/sa/Resources/sfs/Shared%20Documents/001SFS%20Projects/01%20Projects/Hybrid%20(UoP+Linked%20Instrument)/Stora%20enso/SPO%202022/Supporting%20document/Stora%20Enso%20KPI%202/Circularity%20concepts%20in%20forest-based%20industries%20ECE_TIM_SP_49.pdf?CT=1678089555520&OR=ItemsView)

²⁸ The Sustainalytics ESG material issue, Land Use and Biodiversity, refers to how companies manage their impact on land, ecosystems and wildlife. Topics include land conversion, land rehabilitation and forest management.

²⁹ Sustainalytics, "Stora Enso Oyj – ESG Risk Rating".

³⁰ SASB, "Materiality Finder, Forestry Management", at: [https://www.sasb.org/standards/materiality-finder/find/?industry\[\]=RR-FM&lang=en-us](https://www.sasb.org/standards/materiality-finder/find/?industry[]=RR-FM&lang=en-us)

Based on the above, Sustainalytics considers KPI 3 to be material, relevant, and to have a high scope of applicability.

KPI Characteristics

In its assessment of KPI characteristics, Sustainalytics considers: i) whether a clear and consistent methodology is used; ii) whether it follows an externally recognized definition; iii) whether the KPI is a direct measure of the performance of the issuer on a material environmental or social issue; and if applicable, iv) whether the methodology can be benchmarked to an external, contextual benchmark.³¹

KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO₂e)

KPI 1b: Absolute scope 3 GHG emissions (millions tCO₂e)

Sustainalytics considers Stora Enso's definition and methodology to calculate its progress on KPI 1a and 1b to be clear and consistent with the Company's historical calculation methodology. Stora Enso calculates its scope 1, 2 and 3 GHG emissions in accordance with the GHG Protocol. Additionally, the Company follows the recommendations of the Science Based Targets initiative (SBTi), and KPI 1a and 1b have been used to set targets that received SBTi validation. In addition, Sustainalytics consider KPI 1a and 1b to be directly linked to the Company's environmental performance on the material issue of GHG emissions.

Furthermore, KPIs 1a and 1b support benchmarking against external emission reduction trajectories, such as those developed by SBTi.

KPI 2: Technical recyclability of products

KPI 2 measures the technical recyclability of Stora Enso's products via the following methods:

- Stora Enso uses international standards and tests developed by organizations such as PTS, CTP, CEPI, 4evergreen when available to define technical recyclability.
- In the absence of international standards and tests, the Company uses industry-standard definitions or value chain initiatives to estimate recyclability.
- Stora Enso has also communicated to Sustainalytics that for products not tested using the above methods, technical recyclability is determined by product similarities with products that have been tested.
- In the absence of the above tests, definitions or ability to gauge similarity with tested products, Stora Enso uses its own definitions or tests to define technical recyclability.

Sustainalytics considers Stora Enso's definition and methodology to calculate KPI 2 to be clear. The Company first reported on the KPI in 2021.

Sustainalytics considers the KPI to be a direct measure of the Company's performance on the improvement in the circularity of its products. Sustainalytics positively notes Stora Enso's efforts to facilitate the recycling of its products through initiatives such as OneLoop,³² through which the Company collects and repurposes products at their end of life to manufacture new products, requiring no disposal or storage by the end user.

Sustainalytics is of the opinion that KPI 2 does not follow an externally defined methodology and does not lend itself to be compared against an external contextual benchmark due to the lack of a suitable externally defined methodology and trajectory for comparison.

KPI 3: Birch seedlings planted

Sustainalytics considers Stora Enso's definition and methodology to calculate KPI 3 to be clear based on its ease of calculation and replicability. The Company intends to initiate its planting of birch seedlings in 2023 and hence, has not calculated or reported on the KPI historically.

Sustainalytics considers the KPI to be a direct measure of the Company's performance related to improvement in biodiversity at its owned and managed forests. Sustainalytics is of the opinion that KPI 3 does not follow an externally defined methodology and does not lend itself to be compared against an external contextual benchmark due to the lack of a suitable trajectory for biodiversity related metrics.

³¹ External contextual benchmarks provide guidance on the alignment with ecological system boundaries. This criterion is not applied to social KPIs or impact areas for which such contextual benchmarks are not available.

³² Stora Enso, "OneLoop", at: <https://www.storaenso.com/en/products/services/one-loop>

However, Sustainalytics acknowledges the positive environmental impact of increasing the birch tree population in Sweden. Birch are deciduous, hardwood trees that provide a species-rich environment for the survival of several bird species, such as the white-backed woodpecker, long-tailed tit and lesser-spotted woodpecker.³³ According to the Forest Stewardship Council Sweden, “biodiversity benefits from an increased proportion of deciduous trees in a stand and deciduous stands in a landscape”.³⁴ Stora Enso has communicated to Sustainalytics that it intends to create birch-dominated stands in its owned and managed forests. Furthermore, the Swedish PEFC Forestry Standard aims to increase the proportion of older and thicker deciduous trees and the forest area dominated by deciduous trees.³⁵ Stora Enso has confirmed to Sustainalytics that approximately 99% of its owned and managed forests are FSC or PEFC certified. The Company has also communicated to Sustainalytics that, aside from planting birch seedlings, it intends to manage the planted birch over a 60-year rotation cycle, which includes seedling production in proprietary nurseries, tending, thinning, final felling, tree breeding and planting.

Overall Assessment

Sustainalytics considers KPI 1a - Absolute scope 1 and 2 GHG emissions (million tCO₂e) and 1b - Absolute scope 3 GHG emissions (million tCO₂e) to be very strong given that they: i) are a direct measure of Stora Enso’s performance on a material environmental issue; ii) have a high scope of applicability; iii) follow a clear and consistent methodology in line with external references; and iv) support benchmarking against an external GHG emissions reduction trajectory.

Sustainalytics considers KPI 2 – Technical recyclability of products to be strong given that it: i) is a direct measure of Stora Enso’s performance on a material environmental issue; ii) has a high scope of applicability; iii) follows a clear methodology which is not externally defined; and iv) does not support comparison against an external contextual benchmark.

Sustainalytics considers KPI 3 - Birch seedlings planted to be strong given that it: i) is a direct measure of Stora Enso’s performance on a material environmental issue; ii) has a high scope of applicability; iii) follows a clear methodology which is not externally defined; and iv) does not support comparison against an external contextual benchmark.

| KPI | Strength of KPI | | | |
|---|-----------------|----------|--------|-------------|
| KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO ₂ e) | Not Aligned | Adequate | Strong | Very strong |
| KPI 1b: Absolute scope 3 GHG emissions (million tCO ₂ e) | Not Aligned | Adequate | Strong | Very strong |
| KPI 2: Technical recyclability of products | Not Aligned | Adequate | Strong | Very strong |
| KPI 3: Birch seedlings planted | Not Aligned | Adequate | Strong | Very strong |



Calibration of Sustainability Performance Targets

Alignment with Stora Enso’s Sustainability Strategy

Stora Enso has set the following SPTs for its KPIs:

- SPT 1a: Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline
- SPT 1b: Reduce absolute scope 3 GHG emissions by 50% by 2030 from a 2019 baseline
- SPT 2: Achieve 100% technical recyclability of products by 2030
- SPT 3: Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline

³³ FSC Sweden, “The contribution of FSC certification to biodiversity in Swedish forests”, (2013), at: https://www.se.fsc.org/sites/default/files/2022-02/The%20contribution%20of%20FSC%20certification%20to%20biodiversity%20in%20Swedish%20forests_0.pdf

³⁴ Ibid.

³⁵ PEFC Sweden, “PEFC Sweden Forest Standard”, (2017), at: <https://cdn.pefc.org/pefc.se/media/2021-02/49cc8975-4e4e-4f6e-9c95-37f4829f869f/2c1bd611-0b7f-5c7a-b76d-137e70cfd42.pdf>

Sustainalytics considers the SPTs to be aligned with Stora Enso's sustainability strategy (please refer to Section 2 for an analysis of the credibility of Stora Enso's sustainability strategy).

Regarding SPT 1a and SPT 1b, Stora Enso has set science-based targets to reduce its GHG emissions. To achieve its targets, Stora Enso has established a carbon neutrality roadmap which provides guidelines for Stora Enso's short- and long-term emission reduction initiatives. The Company aims to reduce its CO₂ emissions from the use of fossil fuels by investing in energy efficiency improvements to its production processes and by reducing its use of fossil fuels, supplementing it with clean energy sources, including those sustainably procured, such as wood-based biofuels. To address upstream GHG emissions, Stora Enso adheres to its Supplier Code of Conduct, which prescribes requirements for the Company's suppliers on GHG emissions monitoring, reporting and reduction.

Regarding SPT 2, the Company has set a near-term target to achieve 100% recyclable products by 2030. In the long-term, Stora Enso's goal is to provide transparently sourced and produced circular products that are designed and recycled to improve the environmental and societal benefits of wood and fiber used. The Company has also developed a set of Circular Design Guidelines, which guide the creation of new processes and products seeking to contribute to a circular economy, which Stora Enso aims to fully adopt in its innovation and product development processes by 2025.

Regarding SPT 3, Stora Enso has committed to achieving a net-positive impact on biodiversity in its owned and managed forests and plantations. The Company has outlined initiatives to improve biodiversity at the species, habitat and landscape levels between 2021 and 2030.³⁶ These initiatives include deadwood management, tree retention and restoration of low-biodiversity plantation land.³⁷ Stora Enso also plans to have its wood harvesting suit the specific characteristics of harvesting sites, ensuring that harvesting volumes are in line with the long-term carrying capacity of the relevant forests and plantations.³⁸

Strategy to Achieve the SPTs

Stora Enso intends to achieve the SPTs through the following strategies:

SPT 1a: Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline

- Investments in energy efficiency improvement of production processes and reduction in fossil fuel use.
- Investments in new biobased energy facilities and sourcing of zero- or low-carbon energy.

SPT 1b: Reduce absolute scope 3 GHG emission by 50% by 2030 from a 2019 baseline

- Enforcing adherence to the Company's Supplier Code of Conduct to achieve GHG emissions reduction by Stora Enso's suppliers.
- Maximize the use of lower emission vehicles, such as trains and ships for transport, and the use of only biofuel-powered or electric trucks and ships.
- Optimize and, where possible, reduce upstream and downstream overseas transportation.

SPT 2: Achieve 100% technical recyclability of products by 2030

- Stora Enso has developed a set of Circular Design Guidelines which outline the Company's design principles to achieve circularity and technical recyclability of its products. The guidelines serve as a guidance for all the Company's divisions for the planning and creation of new processes and solutions or to update existing ones. Stora Enso intends to fully adopt the guidelines in its innovation and product management processes by 2025.

SPT 3: Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline

- The Company intends to enhance biodiversity in its own forests in Sweden by 2030 by: i) breeding and growing birch seedlings; ii) planting birch seedlings in its owned and managed forests; and iii) tending to young forests to ensure birch dominance. Stora Enso has started its own birch seedling production as birch seedling production in Swedish nurseries are insufficient for its requirements.

³⁶ Stora Enso, "Annual Report 2021", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

³⁷ Stora Enso, "Reporting on Biodiversity", at: <https://www.storaenso.com/en/sustainability/biodiversity/reporting-on-biodiversity#T2dbf8748-9029-4b1b-9db5-38c75a0876d7>

³⁸ Ibid.

Ambitiousness, Baseline and Benchmarks

To determine the ambitiousness of an SPT, Sustainalytics considers: i) whether the SPT goes beyond a business-as-usual trajectory; ii) how the SPT compares to targets set by peers; iii) and how the SPT compares with science.³⁹

Stora Enso has set the baseline for SPT 1a and SPT 1b at 2019 for consistency with targets validated by SBTi.

Stora Enso has communicated to Sustainalytics that It does not intend to set annual SPTs for sustainability-linked loans obtained under the Framework as the envisioned progress on the SPTs is not linear and is partly based on investments that have not been formally approved. Stora Enso has also communicated to Sustainalytics that it does not have any internal intermediate targets and is working only towards meeting its 2030 targets. Sustainalytics' assessment is limited to the SPTs covered in this second-party opinion. Sustainalytics encourages Stora Enso to establish intermediate SPTs that align with the trajectory of the SPTs outlined in this assessment.

SPT 1a: Sustainalytics was able to use the following benchmarks to assess ambitiousness: i) past performance; ii) peer performance; and iii) alignment with science-based trajectories.

Stora Enso reduced its absolute scope 1 and 2 GHG emissions by an average annual rate of 6.9% between 2019 and 2021. Achieving SPT 1a implies an average annual rate of reduction in Stora Enso's absolute scope 1 and 2 GHG emissions of approximately 4.7% between 2021 and 2030. Therefore, Sustainalytics considers the targeted performance required to achieve SPT 1a to be aligned with the Company's historical performance as it represents a continued reduction in scope 1 and 2 GHG emissions.

Sustainalytics analyzed the performance of seven of Stora Enso's industry peers and found the Company's targets to be above similar targets set by its peers. Therefore, Sustainalytics considers SPT 1 to be above peer performance.

Regarding comparison with science, Sustainalytics notes that SPT 1a is in line with SBTi's 1.5°C scenario, as the SPT implies an average annual reduction in absolute scope 1 and 2 GHG emissions of approximately 4.7% between 2019 and 2030, which exceeds the minimum average annual reduction of 4.2% defined in the absolute contraction approach for alignment with SBTi's 1.5°C decarbonization pathway.

SPT 1b: Sustainalytics was able to use the following benchmarks to assess ambitiousness: i) past performance; ii) peer performance; and iii) alignment with science-based trajectories.

Stora Enso decreased its absolute scope 3 GHG emissions at an average annual rate of 2.1% between 2019 and 2021. Achieving SPT 1b implies an average annual rate of reduction in Stora Enso's absolute scope 3 GHG emissions of approximately 5.3% between 2021 and 2030. Therefore, Sustainalytics considers the targeted performance required to achieve SPT 1b to be above Stora Enso's historical performance on scope 3 GHG emissions reduction.

Sustainalytics analyzed the performance of 10 of Stora Enso's industry peers, a majority of which have not set targets for reduction in scope 3 GHG emissions. Based on this analysis, Sustainalytics is of the opinion that SPT 1b is above the targets set by peers.

Regarding comparison with science, Sustainalytics notes that SPT 1b is in line with the SBTi's 1.5°C scenario, as the SPT implies an average annual reduction in absolute scope 3 GHG emissions of approximately 5.3% between 2021 and 2030, which exceeds the minimum average annual reduction of scope 3 GHG emissions of 2.5% in the absolute contraction approach for alignment with SBTi's 1.5°C decarbonization pathway.

SPT 2: Sustainalytics was able to use the following benchmarks to assess ambitiousness: i) past performance; ii) peer performance; and iii) alignment with science-based trajectories.

Stora Enso started to report on the technical recyclability of its products in the baseline year 2021, therefore, there is no historical data on its progress on the KPI. The Company achieved a technical recyclability level of 94% in 2021. Stora Enso's target to achieve 100% recyclability of its products by 2030 represents an annual average increase of 0.71%. Based on the targets the Company has set for 2030, Sustainalytics considers SPT 2 to be above historical performance.

In its assessment of peer performance, Sustainalytics assessed six of Stora Enso's peers in the paper and pulp products, and forestry management sectors. Sustainalytics notes that while peers have established targets for the end-of-life treatment of products, their targets relate to improving or increasing the levels of product reuse,

³⁹ We refer here to contextual benchmarks that indicate the alignment of targets with ecosystem boundaries.

recycling and composting. Therefore, Sustainalytics is of the opinion that SPT 2 does not facilitate a direct comparison against circularity-related targets set by industry peers due to the lack of disclosure on methodologies used to refine reuse, recyclability and compostability. Hence, without taking into account the underlying methodologies of Stora Enso’s peers’ targets, Sustainalytics has evaluated SPT 2 and assessed it as aligned with peer performance.

Regarding comparison with science, Sustainalytics is of the opinion that SPT 2 cannot be compared against an external contextual benchmark in the absence of a suitable trajectory.

SPT 3: Stora Enso has set the baseline for SPT 3 at 2021.

Sustainalytics was able to use the following benchmarks to assess ambitiousness: past performance and peer performance.

As Stora Enso is scheduled to start planting birch seedlings in 2023, no birch seedlings have been planted in the baseline year 2021. Sustainalytics notes that the Company’s target to plant 3.4 million birch seedlings by 2030 represents a material increase relative to 2021.

In its assessment of peer performance, Sustainalytics assessed five of Stora Enso’s peers in the paper and pulp, and forestry management sector. Sustainalytics notes that while peers have established targets for the improvement of biodiversity, most of the peer targets relate to the area of owned forests covered by biodiversity management plans, development of action plans based on biodiversity assessments and procurement of wood from sustainably managed forests. Although, SPT 3 does not facilitate comparison against biodiversity targets set by industry peers, Sustainalytics considers Stora Enso’s target associated with the number of birch seedlings planted to be unique, as birch trees are essential to the relevant forests’ ecosystems, specifically providing protection against wildfires, acting as a source of food for animals and birds, supporting animal diversity, increasing soil function, among others. Therefore, Sustainalytics has not been able to assess peer performance for SPT 3 against targets set by its competitors as it does not facilitate direct comparison.

Regarding comparison with science, Sustainalytics is of the opinion that SPT 3 cannot be compared against an external contextual benchmark in the absence of a suitable trajectory.

Overall Assessment

Sustainalytics considers the SPTs to align with Stora Enso’s sustainability strategy and considers SPT 1a to be highly ambitious given that it: i) is aligned with Stora Enso’s historical performance on scope 1 and 2 GHG emissions; ii) is above similar targets set by Stora Enso’s peers; and iii) is in line with the SBTi’s 1.5°C scenario.

Sustainalytics considers SPT 1b to be highly ambitious given that it: i) represents a material improvement compared to Stora Enso’s past performance on scope 3 GHG emissions; ii) is above peer performance; and iii) is aligned with the SBTi’s 1.5°C scenario.

Sustainalytics considers SPT 2 to be ambitious given that it is: i) above past performance; and ii) aligned with peer performance.

Sustainalytics considers SPT 3 to be ambitious given that it is above past performance.

| SPT | Ambitiousness of SPT | | | |
|---|----------------------|----------------------|-----------|------------------|
| SPT 1a: Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline (million tCO₂e) | Not Aligned | Moderately Ambitious | Ambitious | Highly Ambitious |
| SPT 1b: Reduce absolute scope 3 GHG emissions by 50% by 2030 from a 2019 baseline (million tCO₂e) | Not Aligned | Moderately Ambitious | Ambitious | Highly Ambitious |
| SPT 2: Achieve 100% technical recyclability of products by 2030 | Not Aligned | Moderately Ambitious | Ambitious | Highly Ambitious |
| SPT 3: Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline | Not Aligned | Moderately Ambitious | Ambitious | Highly Ambitious |



Financial Instruments Characteristics

The financial and structural characteristics of sustainability-linked financing instruments issued or obtained under the Framework will be linked to: i) the achievement or non-achievement of the SPTs, as defined in the Framework; ii) Stora Enso's reporting not meeting the requirements set out in the Reporting section of the Framework; or iii) verification of the progress on the KPI not being provided in accordance with the Verification section of the Framework. The occurrence of one of the above trigger events will result in a step-up in the coupon or redemption price for sustainability-linked bonds and a step-up or step-down in the margin of sustainability-linked loans.

Considering that Sustainalytics has taken a combined approach to assessing the applicability of KPI 1a and KPI 1b, Sustainalytics encourages Stora Enso to link both KPI 1a and 1b to the financial characteristics of instruments issued or obtained under the Framework.

The financial and structural characteristics of financial instruments issued or obtained under the Framework and their potential changes following a trigger event will be specified in the corresponding legal documentation of the relevant financial instrument.

Sustainalytics recognizes that the financial characteristics of the sustainability-linked financing instruments are aligned with the SLBP and the SLLP, but does not opine on the adequacy or the magnitude of the financial penalty.



Reporting

Stora Enso commits to report on an annual basis on its progress on the KPIs and the achievement or non-achievement of the SPTs. The Company will publish the above details in a Sustainability-Linked Financing Report annually and at any time relevant for assessing progress towards the SPTs leading to a potential adjustment of the financial and structural characteristics of instruments issued under the Framework. The Sustainability-Linked Financing Report will be published on the Company's website and will also include relevant information on: i) recalculation of the KPIs; ii) relevant updates to the Company's emissions reduction strategy and governance; and iii) a verification report. Sustainalytics considers Stora Enso's reporting commitments as aligned with the SLBP and SLLP.



Verification

Stora Enso commits to have one or more external verifiers provide limited assurance on its progress against each SPT and its associated KPI at least once a year. The verification report will be published together with the Sustainability-Linked Financing Report on the Company's website. The verification commitments are aligned with the SLBP and SLLP.

Section 2: Assessment of Stora Enso's Sustainability Strategy

Contribution to Stora Enso's sustainability strategy

Stora Enso's environmental guidelines focus on: i) Climate; ii) Biodiversity; and iii) Circularity.⁴⁰ Stora Enso launched its company-wide sustainability framework in 2021 with the ambition of developing and offering 100% regenerative products and solutions⁴¹

⁴⁰ Stora Enso, "Environmental Guidelines", (2022), at: https://www.storaenso.com/-/media/documents/download-center/documents/sustainability/environmental_guidelines_2022.ashx

⁴¹ Stora Enso defines regenerative products as those which remove more carbon from the atmosphere than they emit.

by 2050. To achieve its long-term goal, the Company has developed interim 2030 targets which include: i) reduction of absolute scope 1, 2 and 3 GHG emissions by 50% from a 2019 baseline in line with the SBTi's 1.5°C climate scenario; ii) maintenance of at least a 96% coverage level of owned and leased lands in wood production and harvesting covered by forest certification schemes; and iii) achieve 100% technical recyclability of products.⁴²

To achieve its GHG emissions reduction goals, Stora Enso has developed the Carbon Neutrality Roadmap, which is used for GHG scenario assessments and guides the Company's short- and long-term actions on reduction of emissions from fossil fuel use. According to the roadmap, the Company will invest in: i) improving the energy efficiency of its production processes; ii) switching to clean energy sources, such as sustainably sourced wood-based biofuels; and iii) improving efficiency and lowering carbon intensity of its suppliers and logistics. By end 2021, Stora Enso had achieved a 14% reduction in its scope 1 and 2 GHG emissions and a 2% reduction in its scope 3 GHG emissions compared to a 2019 baseline. Regarding energy efficiency, the Company estimated using 211 GWh less in electricity and heat in 2021 than in 2019.⁴³

Stora Enso intends to enhance its impact on biodiversity in its own forests and plantations by 2050 through active biodiversity management. The Company has developed and initiated a comprehensive biodiversity programme which includes an action plan for 2021-2030 to improve biodiversity at the species, habitat and landscape levels. Furthermore, the Company plans to use its own forest in Sweden as a development platform to continually develop new biodiversity management practices to be adapted to local conditions and implemented in different geographical areas when feasible. Stora Enso intends to support its work on biodiversity by using a science-based monitoring programme and will share data on its progress through an online reporting tool.⁴⁴

In regard to circularity, Stora Enso's Circular Design Guidelines outline its commitment to contribute to a circular bioeconomy through the circular design of its products and solutions. The Company intends to adopt these guidelines in all of its innovation and product development processes by 2025. Furthermore, the Company is taking measures to improve circular economy performance with granular testing and stricter recyclability specifications in its products.⁴⁵ In its bid to minimize waste and improve resource use, Stora Enso achieved a 98% utilization rate for process residuals and waste in 2021.

Stora Enso signed the United Nations Global Compact's CEO Water Mandate in 2009, the Finnish Water Stewardship Commitment in 2018 and has actively collaborated with international organizations such as the Climate Leadership Coalition, the Ellen MacArthur Foundation, the Prince of Wales' A4S Accounting for Sustainability, the Forest Dialogue, Transparency International, World Business Council for Sustainable Development and WWF.⁴⁶

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework is aligned with Stora Enso's overall sustainability strategy and initiatives and will further support Stora Enso's key sustainability priorities.

Stora Enso's environmental and social risk management

Sustainalytics recognizes that the use of proceeds from the Framework will be directed towards eligible projects that are anticipated to have positive environmental impact and that the targets defined by Stora Enso are impactful. However, Sustainalytics is aware that such eligible projects and achieving the SPTs could also lead to negative environmental and social outcomes. Some key environmental and social risks potentially associated with the eligible projects and achievement of the SPTs could include issues related to land use and biodiversity, emissions and wastewater, occupational health and safety, supply chain management and community relations.

Sustainalytics is of the opinion that Stora Enso is able to manage or mitigate potential risks through the implementation of the following:

- Stora Enso reviews risks and opportunities in its potential investments through its due diligence procedures, which include environmental and social impact assessments and a sustainability assessment checklist followed by a post-completion audit. Stora Enso evaluates the financial risks and opportunities related to climate change within its Enterprise Risk Management process and takes precautionary actions to mitigate and remedy potential adverse impacts.⁴⁷
- The Company has initiated a Biodiversity Monitoring Programme to monitor and measure the impact of its operations on forest landscapes, habitats and species in its owned forests and continuously updates its monitoring programme. Additionally, the Company only uses land with low biodiversity value, such as former pastureland for its plantations, evaluates and defines sustainable land use practices specifically for each location and excludes establishing plantations

⁴² Stora Enso, "Annual Report 2021", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Ibid.

in natural forests, protected areas and water-sensitive locations.⁴⁸The Company uses recognized forest certifications to ensure traceability of all wood and fibre extracted, monitoring of forest conditions and verification of sustainable forest management.⁴⁹

- Regarding emissions and wastewater, Stora Enso has installed technologies such as coolers, condensers, filters, scrubbers, cyclones and thermal and catalytic incinerators to treat process gases and use boiler process control systems to reduce emissions.⁵⁰ The Company has also adopted WRI's water aqueduct tool to assess water-related risks in its production units and its water stewardship initiative includes measures such as assessment of local conditions at sites and in water basins, and mapping water use to identify potential for savings.⁵¹ The Company's environmental management systems also adhere to the ISO 14001 standard and Stora Enso follows relevant national legislation and regulations in the countries where it operates.⁵²
- To address occupational health and safety risks, Stora Enso has established an occupational health and safety policy that includes a safety framework for risk management and continuous improvement.⁵³ The Company uses international occupational health and safety definitions and standards while reporting incidents and monitors on-site and logistics incidents. The Company's operational units are certified under the ISO 45001 occupational health and safety management standard and Stora Enso encourages its suppliers to pursue similar certification.⁵⁴
- Stora Enso conducts third-party online sustainability audits of its suppliers to identify suppliers with heightened sustainability risks as per its country and category risk assessment.⁵⁵ The Company has introduced a Supplier Code of Conduct (SCoC) that requires suppliers to monitor, report and reduce GHG emissions in their value chain, in addition to complying with standards on data privacy, climate change, biodiversity, ethical recruitment and reasonable remuneration for employees. Stora Enso has also launched a practical guidance for suppliers to support them in the implementation and interpretation of the SCoC requirements and best practices.⁵⁶
- As a part of its due diligence process, the Company conducts community consultations to evaluate the impacts of its existing or potential business operations on local communities and the environment. The Company has established grievance mechanisms for communities affected by its operations and reports on significant stakeholder concerns in its sustainability report.⁵⁷

Based on these policies, standards and assessments, Sustainalytics is of the opinion that Stora Enso has measures in place to manage and mitigate environmental and social risks commonly associated with investments in the eligible categories and achievement of the SPTs.

Section 3: Impact of the UoPs and SPTs

Importance of sustainable forest management in Sweden

Forests represent a third of all land biodiversity and provide essential resources such as forestry products, including pulp and paper.⁵⁸ The United Nation's Intergovernmental Panel on Climate Change highlights sustainable forest management, restoration of forests and reducing forest degradation as important strategies for climate change adaptation and mitigation, prevention of and recovery from land degradation, and maintaining land productivity.⁵⁹ According to the Food and Agriculture Organization,

⁴⁸ Ibid.

⁴⁹ Stora Enso, "Wood and Fibre Sourcing, and Land Management Policy", at: https://www.storaenso.com/-/media/documents/download-center/documents/sustainability/wood-and-fibre-sourcing-and-land-management-policy_2019.ashx

⁵⁰ Stora Enso, "Annual Report 2021", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

⁵¹ Ibid.

⁵² Ibid.

⁵³ Stora Enso, "Occupational Health and Safety Policy", at: https://www.storaenso.com/-/media/documents/download-center/documents/sustainability/stora_enso_safety_policy_2021.ashx

⁵⁴ Stora Enso, "Annual Report 2021", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

⁵⁵ Ibid.

⁵⁶ Stora Enso, "Supplier Code of Conduct", (2021), at: https://www.storaenso.com/-/media/documents/download-center/documents/suppliers/scoc-2021/stora-enso_supplier-code-of-conduct_2021_v1.ashx

⁵⁷ Stora Enso, "Annual Report 2021", at: https://www.storaenso.com/-/media/documents/download-center/documents/annual-reports/2021/storaenso_annual_report_2021.ashx

⁵⁸ FSC, "Certificate", at: <https://info.fsc.org/details.php?id=a024000000BSfq8AAD&type=certificate&return=certificate.php>

⁵⁹ IPCC, Climate Change and Land, at: <https://www.ipcc.ch/srccl/>

global forest cover declined by 10 million hectares per year between 2015 and 2020,⁶⁰ with deforestation responsible for an estimated 10-12 GtCO₂e of emissions annually.⁶¹

As of 2022, forests cover 70% of the total land area of Sweden.⁶² Although Sweden has less than 1% of the world's commercial forest areas, it is the world's second-largest exporter of sawn timber, pulp and paper, accounting for 5% of the global trade.⁶³ Research suggests that 29-39% of deforestation-related emissions are driven by international trade, fuelled by the demand for commodities of developed nations.⁶⁴ Forest-based products account for 10% of Swedish total goods exports and employ more than 60,000 people,⁶⁵ with the Swedish government labelling its forests "a national resource" to encourage and promote sustainable forest management.⁶⁶ The total area of Sweden's forests doubled in size over the last 100 years but the amount of biodiversity in the country has reduced during this period.⁶⁷ According to the Swedish Society for Nature Conservation, the ancient and old growth forests in Sweden have been replaced with monoculture tree plantations which has negatively impacted biodiversity by threatening different species with extinction due to lack of forests.⁶⁸

The Swedish Forest Agency has the primary function of promoting forest management that emphasizes high yields and biological diversity, and is responsible for implementing the national forest policy.⁶⁹ Additionally, the Swedish Forestry Act, which regulates Swedish forest management, mandates forest owners to implement several measures, such as: i) using tree species that are suitable for sites; ii) reporting clear felling on sites larger than 0.5 hectares to the Swedish Forest Agency; and iii) restocking forests through planting, seeding or natural regeneration.⁷⁰

Based on the above context, Sustainalytics is of the opinion that Stora Enso's issuance of green and sustainability-linked financial instruments is expected to enhance the contribute to sustainable forest management in Sweden.

Importance of circular bioeconomy products, production technologies and processes

The 2022 Circularity Gap Report estimated the global circularity rate at approximately 8.6% in 2020, lower than 9.1% in 2018.⁷¹ The report estimates that approximately 0.5 trillion tonnes of virgin materials were extracted and used between 2015 and 2021, a number that is expected to almost double between 2021 and 2050.⁷² The report highlights the importance of shifting the global economic system to a circular economy model in order to reduce global emissions.⁷³ A circular economy also has the potential to decrease biodiversity loss through reducing consumption and waste, ensuring the sustainable production of goods and services and enhancing the conservation and restoration of ecosystems.⁷⁴ More than 90% of biodiversity loss is caused by resource extraction and processing.⁷⁵ Despite that, only 8.6% of the total material extracted (8.65 billion tonnes of raw material) is recycled.⁷⁶

As of 2022, the circularity rate in the EU stands at 11.8%.⁷⁷ The European Commission considers the transition to a circular economy to be imperative for the preservation of biodiversity and for its 2050 climate neutrality goal. The EU adopted the new Circular Economy Action Plan in 2020, which introduces measures to inform consumers, promote sustainable products and

⁶⁰ FAO, "The State of the World's Forests 2020", at: <https://www.fao.org/state-of-forests/en/>

⁶¹ IPCC, Agriculture, Forestry and Other Land Use (2018): https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter11.pdf

⁶² Forest Industries, "Facts and Key Figures Swedish forest-based industry", (2022), at: <https://www.forestindustries.se/siteassets/dokument/fakta-nyckeltal/fact-and-key-figures-2022-.pdf>

⁶³ World Economic Forum, "Sweden's forests have doubled in size over the last 100 years", (2018), at: <https://www.weforum.org/agenda/2018/12/swedens-forests-have-been-growing-for-100-years/>

⁶⁴ Carbon Brief, "Scientists calculate trade-related deforestation footprint of rich countries", (2021), at: <https://www.carbonbrief.org/scientists-calculate-trade-related-deforestation-footprint-of-rich-countries/>

⁶⁵ Ibid.

⁶⁶ World Economic Forum, "Sweden's forests have doubled in size over the last 100 years", (2018), at: <https://www.weforum.org/agenda/2018/12/swedens-forests-have-been-growing-for-100-years/>

⁶⁷ Ibid.

⁶⁸ World Economic Forum, "Sweden's forests have doubled in size over the last 100 years", (2018), at: <https://www.weforum.org/agenda/2018/12/swedens-forests-have-been-growing-for-100-years/>

⁶⁹ Skogsstyrelsen, "About Us", at: <https://www.skogsstyrelsen.se/en/about-us/>

⁷⁰ Skogsstyrelsen, "The Forestry Act", at: <https://www.skogsstyrelsen.se/en/laws-and-regulations/skogsvardslagen/>

⁷¹ Circle Economy, "Circularity Gap Report 2022", (2022), at: <https://www.circularity-gap.world/2022#Download-the-report>

⁷² Ibid.

⁷³ Ibid.

⁷⁴ SITRA, "The circular economy is key to halting biodiversity loss", (2021), at: <https://www.sitra.fi/en/articles/the-circular-economy-is-key-to-halting-biodiversity-loss/>

⁷⁵ UNEP, "UN calls for urgent rethink as resource use skyrockets", (2019), at: <https://www.unep.org/news-and-stories/press-release/un-calls-urgent-rethink-resource-use-skyrockets>

⁷⁶ WBCSD, "Circular bioeconomy: The business opportunity contributing to a sustainable world", at: <https://www.wbcds.org/content/wbcd/download/10806/159810/1>

⁷⁷ European Commission, "Circular Economy", at: https://environment.ec.europa.eu/topics/circular-economy_en

encourage circularity in sectors with substantial resource use,⁷⁸ include those involving wood, crops, fibres and biofuels.⁷⁹ The European Union has also formed a partnership with the Bio-based Industries Consortium to form the EUR 2 billion Circular Bio-based Europe Joint Undertaking partnership to advance circular bio-based industries in Europe between 2021 and 2031,⁸⁰ following the EUR 3.7 billion partnership from the 2014-2020 period.⁸¹

Based on the above context, Sustainalytics is of the opinion that Stora Enso’s issuance of green and sustainability-linked instruments is expected to contribute to the transition towards a circular economy in Sweden and more broadly in Europe.

Importance of reducing GHG emissions in the pulp, paper and forestry products industry

The pulp and paper industry is energy-intensive, largely driven by the substantial amount of heat required in the chemical pulp production and paper drying processes, where drying accounts for approximately 70% of the total energy used in pulp and papermaking.^{82,83} Although the use of renewable energy in the sector has increased, the industry continues to depend on process by-products such as black liquor in addition to fossil fuels which continue to be widely utilized, especially for the calcination process that takes place in lime kilns and requires high temperatures. As a result, the sector was responsible for approximately 2% of global industrial emissions in 2021.⁸⁴ Additionally, the global consumption of paper is estimated to further grow by approximately 17% to reach 476 million tonnes by 2030, from 408 million tonnes in 2021.^{85,86} As per the IEA, the emissions intensity of paper production worldwide must decline by 4% annually between 2021 and 2030 to achieve net zero emissions by 2050, with bioenergy replacing fossil fuels playing a crucial role in the process.⁸⁷

Sweden has a goal to have 100% of its electricity come from renewable sources by 2040, as part of an objective to achieve net zero emissions by 2045, which represents an 85% reduction in emissions relative to a 1990 baseline.^{88,89} In spite of being the leading sector in Sweden in terms of emissions reduction between 1990 and 2018,⁹⁰ thanks to leading decarbonization efforts in lime kilns and energy efficiency,⁹¹ the Swedish pulp and paper industry has a prominent role in the decarbonization of the country’s energy mix, as it accounts for approximately 52% of the total industry-related energy consumption in the country,⁹² with the drying process alone consuming 20% of Sweden’s total energy use.⁹³

Based on the above, Sustainalytics is of the opinion that Stora Enso’s issuance of green and sustainability-linked instruments is expected to contribute to the reduction of GHG emissions from the pulp and paper sector in Sweden, consequently supporting the transition towards a low-carbon economy.

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 Stora Enso Green and Sustainability-Linked Financing Framework are expected to help advance the following SDGs and targets:

| KPI | SDG | SDG Target |
|-------------------------------|------------------|---|
| Sustainable Forest Management | 15. Life on Land | 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, |

⁷⁸ EU Commission, “Circular Economy Action Plan”, at: https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en
⁷⁹ EU Commission, “Closing the loop - An EU action plan for the Circular Economy”, at: https://eur-lex.europa.eu/resource.html?uri=cellar:8a8ef5e8-99a0-11e5-b3b7-01aa75ed71a1.0012.02/DOC_1&format=PDF
⁸⁰ EU Commission, “Circular Bio-based Europe Joint Undertaking”, at: <https://www.cbe.europa.eu/organisation>
⁸¹ BBI JU, “About BBI JU”, at: <https://wayback.archive-it.org/12090/20221125112338/https://www.bbi.europa.eu/about/about-bbi>
⁸² Japan Ministry of Economy, Trade and Industry, “Technology Roadmap for “Transition Finance” in Pulp and Paper Sector”, (2022), at: https://www.meti.go.jp/policy/energy_environment/global_warming/transition/transition_finance_technology_roadmap_paper_eng.pdf
⁸³ IEA, “Pulp and Paper”, at: <https://www.iea.org/reports/pulp-and-paper>
⁸⁴ Ibid.
⁸⁵ Statista, “Paper consumption worldwide”, (2022), at: <https://www.statista.com/statistics/1089078/demand-paper-globally-until-2030/>
⁸⁶ IEA, “Paper and Pulp”, (2022), at: <https://www.iea.org/reports/pulp-and-paper>
⁸⁷ Ibid.
⁸⁸ Forest Industries, “Facts and Key Figures Swedish forest-based industry”, (2022), at: <https://www.forestindustries.se/siteassets/dokument/fakta-nyckeltal/fact-and-key-figures-2022-.pdf>
⁸⁹ Sebastian Karlsson et. al., “Large-Scale Implementation of Bioenergy With Carbon Capture and Storage in the Swedish Pulp and Paper Industry Involving Biomass Supply at the Regional Level”, (2021), at: <https://www.frontiersin.org/articles/10.3389/fenrg.2021.738791/full>
⁹⁰ Government of Sweden, Ministry of the Environment, “Sweden’s long-term strategy for reducing greenhouse gas emissions”, (2020), at: https://unfccc.int/sites/default/files/resource/LTS1_Sweden.pdf
⁹¹ Lipiäinen, S. et al, “Decarbonization Prospects for the European Pulp and Paper Industry: Different Development Pathways and Needed Actions”, *Energies*, (2023), at: <https://doi.org/10.3390/en16020746>
⁹² Ibid.
⁹³ S. Stenström, “Drying of paper: a review 2000–2018”, *Dry Technol*, (2020), at: <https://doi.org/https://doi.org/10.1080/07373937.2019.1596949>

| | | |
|--|--|--|
| | | restore degraded forests and substantially increase afforestation and reforestation globally ⁹⁴ |
| | | 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species ⁹⁵ |
| Sustainable Product Processes | 12. Responsible Consumption and Production | 12.2 By 2030, achieve the sustainable management and efficient use of natural resources |
| Energy Efficiency | 9. Industry, Innovation and Infrastructure | 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities |
| Renewable Energy and Waste to Energy | 7. Affordable and Clean Energy | 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix |
| Sustainable Water Management | 6. Clean Water and Sanitation | 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity |
| Waste Management and Pollution Control | 12. Responsible Consumption and Production | 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment |
| | | 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse |
| KPI 1a: Absolute scope 1 and 2 GHG emissions (million tCO ₂ e) KPI 1b: Absolute scope 3 GHG emissions (million tCO ₂ e) | 9. Industry, Innovation and Infrastructure | 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities |
| KPI 2: Technical recyclability of products | 12. Responsible Consumption and Production | 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse |
| KPI 3: Birch seedlings planted | 15. Life on Land | 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally ⁹⁶ |

⁹⁴ Sustainalytics notes that this SDG target represents an interim goal established by the UN in 2015 as a pathway to achieve sustainable development by 2030 and has not since been updated. However, in 2019, the UN reported that the annual rate of deforestation globally was estimated at 10 million hectares between 2015 and 2020. Sustainalytics recognizes the continued need for investment toward the achievement of this target and considers it to be relevant and impactful in the context of the Framework.

UN Statistics Division, "Progress summary for SDG targets with a 2020 deadline" at: <https://unstats.un.org/sdgs/report/2020/progress-summary-for-SDG-targets/>

⁹⁵ Sustainalytics notes that this SDG target represents an interim goal established by the UN in 2015 as a pathway to achieve sustainable development by 2030 and has not since been updated. However, in 2019, the UN reported that species extinction risk has worsened by about 10 per cent over the last three decades, with the Red List Index declining from 0.82 in 1990 to 0.75 in 2015, and to 0.73 in 2020. Sustainalytics recognizes the continued need for investment toward the achievement of this target and considers it to be relevant and impactful in the context of the Framework.

UN Statistics Division, "Progress summary for SDG targets with a 2020 deadline" at: <https://unstats.un.org/sdgs/report/2020/progress-summary-for-SDG-targets/>

⁹⁶ Ibid.

Conclusion

Stora Enso has developed the Stora Enso Green and Sustainability-Linked Financing Framework under which it may issue use of proceeds and sustainability-linked bonds, loans and other debt financing instruments.

The proceeds raised from the green use of proceeds bonds and loans are intended to finance projects related to Sustainable Forest Management, Sustainable Product Processes, Energy Efficiency, Renewable Energy and Waste to Energy, Sustainable Water Management, and Waste Management and Pollution Control. Sustainalytics considers that projects funded with proceeds from the green bonds and loans are expected to provide positive environmental impacts. The Stora Enso Green and Sustainability-Linked Financing Framework outlines a process for tracking, allocating and managing proceeds, and makes commitments for Stora Enso to report on their allocation and impact.

Under the sustainability-linked instruments, Stora Enso intends to tie the margin, coupon rate or redemption price to the achievement of the following SPTs:

- (1) Reduce absolute scope 1 and 2 GHG emissions by 50% by 2030 from a 2019 baseline;
- (2) Reduce absolute scope 3 GHG emissions by 50% by 2030 from a 2019 baseline;
- (3) Achieve 100% technical recyclability of products by 2030;
- (4) Increase birch seedlings planted to 3.4 million by 2030 relative to a 2021 baseline;

Sustainalytics considers KPI 1a - Absolute scope 1 and 2 GHG emissions (million tCO₂e) and KPI 1b - Absolute scope 3 GHG emissions (million tCO₂e) to be very strong, and KPI 2 - Technical recyclability of products and KPI 3 - Birch seedlings planted to be strong. Sustainalytics considers SPTs 1 and 2 to be highly ambitious, and SPTs 3 and 4 to be ambitious. In addition, Sustainalytics is of the opinion that the reporting and verification commitments are aligned with market expectations.

Furthermore, Sustainalytics believes that the Stora Enso Green and Sustainability-Linked Financing Framework is aligned with the overall sustainability strategy of the Company and that Stora Enso has measures in place to manage and mitigate environmental and social risks commonly associated with investments in the eligible categories and achievement of the SPTs.

Based on the above, Sustainalytics is confident that Stora Enso is well positioned to issue green use of proceeds bonds and loans and sustainability-linked bonds and loans and that the Stora Enso Green and Sustainability-Linked Financing Framework is in alignment with the Green Bond Principles 2021, Green Loan Principles 2023, Sustainability-Linked Bond Principles 2020, and Sustainability-Linked Loan Principles 2023.

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

Section 1. Basic Information

| | |
|--|--|
| Issuer name: | Stora Enso Oyj |
| Green Bond ISIN or Issuer Green Bond Framework Name, if applicable: | Stora Enso Green and Sustainability-Linked Financing Framework |
| Review provider's name: | Sustainalytics |
| Completion date of this form: | May 03, 2023 |

Section 2. Review overview

SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBP:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting |

ROLE(S) OF REVIEW PROVIDER

- | | |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 nd opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Rating |
| <input type="checkbox"/> Other (<i>please specify</i>): | |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW (*if applicable*)

Please refer to Evaluation Summary above.

Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

1. USE OF PROCEEDS

Sustainalytics is of the opinion that Stora Enso Green and Sustainable-Linked Financing Framework is credible and impactful and aligns with the four core components of Green Bond Principles 2021 and Green Loan Principles 2023 (“Use of Proceeds Principles”). The eligible categories for the use of proceeds – Sustainable Forest Management, Sustainable Product Processes, Energy Efficiency, Renewable Energy and Waste to Energy, Sustainable Water Management and Waste Management and Pollution Control – are aligned with those recognized by the Use of Proceed Principles and will lead to positive environmental impact and advance Company’s sustainability strategy.

Use of proceeds categories as per GBP:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Renewable energy | <input checked="" type="checkbox"/> Energy efficiency |
| <input checked="" type="checkbox"/> Pollution prevention and control | <input checked="" type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation | <input type="checkbox"/> Clean transportation |
| <input checked="" type="checkbox"/> Sustainable water and wastewater management | <input type="checkbox"/> Climate change adaptation |
| <input checked="" type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes | <input type="checkbox"/> Green buildings |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBP | <input type="checkbox"/> Other (<i>please specify</i>): |

If applicable please specify the environmental taxonomy, if other than GBP:

2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Stora Enso has defined a multi-step process for selecting projects and assets, which includes the assessment and compliance of eligible projects and assets against the eligibility criteria in the Framework, applicable laws and regulations, and the Company’s sustainability strategy and policies. The steps are integrated into Stora Enso’s existing governance model. Stora Enso’s Investment Working Group reviews all investments under the Framework. The investments are approved by the Company’s CEO or the Board. The Company’s Sustainability Council outlines the principles on how investments are incorporated as green assets and individual investments are approved by the Green Finance Council. Stora Enso relies on its internal environmental and social risk management system to assess and manage risks associated with eligible projects and assets. This is in line with market expectations.

Evaluation and selection

- | | |
|--|---|
| <input type="checkbox"/> Credentials on the issuer’s environmental sustainability objectives | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input checked="" type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |

- Summary criteria for project evaluation and selection publicly available
- Other (*please specify*):

Information on Responsibilities and Accountability

- Evaluation / Selection criteria subject to external advice or verification
- In-house assessment
- Other (*please specify*):

3. MANAGEMENT OF PROCEEDS

Stora Enso’s Treasury will be responsible for the management and allocation of proceeds using a portfolio approach and will track the proceeds using an internal register. The Company has communicated to Sustainalytics that it intends to allocate proceeds in full within 12 months of each issuance. Pending allocation, proceeds may be temporarily held or invested in cash, cash equivalents or short-term liquid instruments in line with the Company’s liquidity and liability management policies. This is in line with market practice.

Tracking of proceeds:

- Green Bond proceeds segregated or tracked by the issuer in an appropriate manner
- Disclosure of intended types of temporary investment instruments for unallocated proceeds
- Other (*please specify*):

Additional disclosure:

- Allocations to future investments only
- Allocations to both existing and future investments
- Allocation to individual disbursements
- Allocation to a portfolio of disbursements
- Disclosure of portfolio balance of unallocated proceeds
- Other (*please specify*):

4. REPORTING

Stora Enso intends to report on the allocation of proceeds and corresponding impact in a separate document on its website, on an annual basis and until green debt instruments remain outstanding. Allocation reporting will include the amount of proceeds allocated to each category, the balance of unallocated proceeds, description of some of the activities financed and geographical distribution. Where relevant, impact reporting may include metrics such as percentage of owned and leased lands covered by forest certification; estimated avoided GHG emissions (measured in tCO2e); CO2 sequestered through forests’ carbon sequestration (measured in tonnes); annual energy savings (measured in MWh); and renewable energy generation (measured in MWh). This is in line with market practice.

Use of proceeds reporting:

- Project-by-project On a project portfolio basis
- Linkage to individual bond(s) Other (please specify):

Information reported:

- Allocated amounts Green Bond financed share of total investment
- Other (please specify): Amount of unallocated proceed and geographical distribution

Frequency:

- Annual Semi-annual
- Other (please specify):

Impact reporting:

- Project-by-project On a project portfolio basis
- Linkage to individual bond(s) Other (please specify):

Information reported (expected or ex-post):

- GHG Emissions / Savings Energy Savings
- Decrease in water use Other ESG indicators (please specify):

| Project Category | Example Impact Indicators |
|---|---|
| Sustainable forest management | <ul style="list-style-type: none"> • Owned and leased lands covered by forest certifications (%) • Positive climate impact (CO₂) through forests' carbon sequestration (tonne) |
| Sustainable product processes | <ul style="list-style-type: none"> • Total amount of products produced (tonne) • Annual production capacity (m³) • Externally validated life cycle calculations such as product carbon footprints |
| Energy Efficiency | <ul style="list-style-type: none"> • Annual energy savings in (MWh) • Avoid or reduce CO₂ emissions (tonne) • Amount of carbon captured (tonne) |
| Renewable Energy and waste to energy | <ul style="list-style-type: none"> • Total renewable/bioenergy energy generation (MWh) • Avoid or reduce CO₂ emission (tonne) |
| Sustainable water management | <ul style="list-style-type: none"> • Amount of water withdrawal reduced per saleable tonne (m³/tonne) • Amount of process water discharges reduced per saleable tonne (m³/tonne) |

| | |
|---|--|
| Water management and pollution control | <ul style="list-style-type: none"> • Amount of waste and residual reduced (tonne) |
|---|--|

Frequency

- Annual
 Semi-annual
 Other (please specify):

Means of Disclosure

- Information published in financial report
 Information published in sustainability report
 Information published in ad hoc documents
 Other (please specify): Stora Enso’s website
 Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):

Where appropriate, please specify name and date of publication in the useful links section.

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer’s documentation, etc.)

SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE

Type(s) of Review provided:

- Consultancy (incl. 2nd opinion)
 Certification
 Verification / Audit
 Rating
 Other (please specify):

Review provider(s):

Date of publication:

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.

Appendix 2: Sustainability-Linked Bonds - External Review Form

Section 1. Basic Information

Issuer name: Stora Enso Oyj

Sustainability-Linked Bond ISIN:

Independent External Review provider’s name for second party opinion pre-issuance (sections 2 & 3): Sustainalytics

Completion date of second party opinion pre-issuance: May 03, 2023

Independent External Review provider’s name for post-issuance verification (section 4):

Completion date of post issuance verification:

Original completion date of post issuance verification [please fill this out for updates]:

At the launch of the bond, the structure is:

- a step-up structure a variable redemption structure

Section 2. Pre-Issuance Review

2-1 SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review:

- | | |
|---|---|
| <input checked="" type="checkbox"/> assessed all the following elements (complete review) | <input type="checkbox"/> only some of them (partial review): |
| <input type="checkbox"/> Selection of Key Performance Indicators (KPIs) | <input type="checkbox"/> Bond characteristics (acknowledgment of) |
| <input type="checkbox"/> Calibration of Sustainability Performance Targets (SPTs) | <input type="checkbox"/> Reporting |
| <input type="checkbox"/> Verification | |
- and confirmed their alignment with the SLBP.

2-2 ROLE(S) OF INDEPENDENT EXTERNAL REVIEW PROVIDER

- | | |
|--|---|
| <input checked="" type="checkbox"/> Second Party Opinion | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification | <input type="checkbox"/> Scoring/Rating |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

2-3 EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW (if applicable)

Sustainalytics is of the opinion that the Stora Enso Green and Sustainability-Linked Financing Framework aligns with the Sustainability-Linked Bond Principles 2020 and Sustainability-Linked Loan Principles 2023 (SLLP) (the “Sustainability-Linked Principles”).

Section 3. Detailed pre-issuance review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

3-1 SELECTION OF KEY PERFORMANCE INDICATORS (KPIs)

Overall comment on the section (if applicable): Sustainalytics considers KPI 1a - Absolute scope 1 and 2 GHG emissions (million tCO2e) and 1b - Absolute scope 3 GHG emissions (million tCO2e) to be very strong given that they: i) are a direct measure of Stora Enso’s performance on a material environmental issue; ii) have a high scope of applicability; iii) follow a clear and consistent methodology in line with external references; and iv) support benchmarking against an external GHG emissions reduction trajectory.

Sustainalytics considers KPI 2 – Technical recyclability of products to be strong given that it: i) is a direct measure of Stora Enso’s performance on a material environmental issue; ii) has a high scope of applicability; iii) follows a clear methodology which is not externally defined; and iv) does not support comparison against an external contextual benchmark.

Sustainalytics considers KPI 3 - Birch seedlings planted to be strong given that it: i) is a direct measure of Stora Enso’s performance on a material environmental issue; ii) has a high scope of applicability; iii) follows a clear methodology which is not externally defined; and iv) does not support comparison against an external contextual benchmark.

List of selected KPIs:

- Absolute scope 1 and 2 GHG emissions
- Absolute scope 3 GHG emissions
- Technically recyclability of products
- Birch seedlings planted

Definition, Scope, and parameters

- | | |
|--|---|
| <input checked="" type="checkbox"/> Clear definition of each selected KPIs | <input checked="" type="checkbox"/> Clear calculation methodology |
| <input type="checkbox"/> Other (please specify): | |

Relevance, robustness, and reliability of the selected KPIs

- | | |
|--|---|
| <input checked="" type="checkbox"/> Credentials that the selected KPIs are relevant, core and material to the issuer’s sustainability and business strategy. | <input type="checkbox"/> Evidence that the KPIs are externally verifiable |
| <input type="checkbox"/> Credentials that the KPIs are measurable or quantifiable on a consistent methodological basis | <input type="checkbox"/> Evidence that the KPIs can be benchmarked |
| | <input type="checkbox"/> Other (please specify): |

3-2 CALIBRATION OF SUSTAINABILITY PERFORMANCE TARGETS (SPTs)

Overall comment on the section (if applicable): Sustainalytics considers the SPTs to align with Stora Enso’s sustainability strategy and considers SPT 1a to be highly ambitious given that it: i) is aligned with Stora Enso’s historical performance on scope 1 and 2 GHG emissions; ii) is above similar targets set by Stora Enso’s peers; and iii) is in line with SBTi’s 1.5°C scenario. Sustainalytics considers SPT 1b to be highly ambitious given that it: i) represents a material improvement compared to Stora Enso’s past performance on scope 3 GHG emissions; ii) is above peer performance; and iii) is aligned with SBTi’s 1.5°C scenario.

Sustainalytics considers SPT 2 to be ambitious given that it is: i) above past performance; and ii) aligned with peer performance.

Sustainalytics considers SPT 3 to be ambitious given that it is above past performance.

Rationale and level of ambition

- | | |
|--|---|
| <input checked="" type="checkbox"/> Evidence that the SPTs represent a material improvement | <input checked="" type="checkbox"/> Credentials on the relevance and reliability of selected benchmarks and baselines |
| <input checked="" type="checkbox"/> Evidence that SPTs are consistent with the issuer’s sustainability and business strategy | <input type="checkbox"/> Credentials that the SPTs are determined on a predefined timeline |
| | <input type="checkbox"/> Other (please specify): |

Benchmarking approach

- | | |
|--|--|
| <input checked="" type="checkbox"/> Issuer own performance | <input checked="" type="checkbox"/> Issuer’s peers |
| <input checked="" type="checkbox"/> reference to the science | <input type="checkbox"/> Other (please specify): |

Additional disclosure

- | | |
|---|--|
| <input checked="" type="checkbox"/> potential recalculations or adjustments description | <input checked="" type="checkbox"/> issuer’s strategy to achieve description |
| <input checked="" type="checkbox"/> identification of key factors that may affect the achievement of the SPTs | <input type="checkbox"/> Other (please specify): |

3-3 BOND CHARACTERISTICS

Overall comment on the section (if applicable): The financial and structural characteristics of sustainability-linked financing instruments issued or obtained under the Framework will be linked to: i) the achievement or non-achievement of the SPTs, as defined in the Framework; ii) Stora Enso’s reporting not meeting the requirements set out in the Reporting section of the Framework; or iii) verification of the progress on the KPI not being provided in accordance with the Verification section of the Framework. The occurrence of one of the above trigger events will result in a step-up in the coupon or redemption price for sustainability-linked bonds and a step-up or step-down in the margin of sustainability-linked loans.

Considering that Sustainalytics has taken a combined approach to assessing the applicability of KPI 1a and KPI 1b, Sustainalytics encourages Stora Enso to link both KPI 1a and 1b to the financial characteristics of instruments issued or obtained under the Framework.

The financial and structural characteristics of financial instruments issued or obtained under the Framework and their potential changes following a trigger event will be specified in the corresponding legal documentation of the relevant financial instrument.

Sustainalytics recognizes that the financial characteristics of the sustainability-linked financing instruments are aligned with the SLBP and the SLLP but does not opine on the adequacy or the magnitude of the financial penalty.

Financial impact:

- variation of the coupon
- variation of the redemption price
- Other (please specify):

Structural characteristic:

- ...
- ...
- Other (please specify):

3-4 REPORTING

Overall comment on the section (if applicable): Stora Enso commits to report on an annual basis on the performance of the KPIs and the achievement or non-achievement of the SPTs. The Company will publish the above details in a Sustainability-Linked Financing Report annually and at any time relevant for assessing the progress on the KPIs leading to a potential adjustment of the financial and structural characteristics of instruments issued under the Framework. The Sustainability-Linked Financing Report will be published on the Company’s website and will also include relevant information on: i) recalculation of the KPIs; ii) relevant updates to the Company’s emissions reduction strategy and governance; and iii) a verification report. Sustainalytics considers Stora Enso’s reporting commitments as aligned with the SLBP and SLLP.

Information reported:

- performance of the selected KPIs
- level of ambition of the SPTs
- verification assurance report
- Other (please specify):

Frequency:

- Annual
- Other (please specify):
- Semi-annual

Means of Disclosure

- Information published in financial report
- Information published in ad hoc documents
- Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):
- Information published in sustainability report
- Other (please specify): Sustainability-Linked Financing report

Where appropriate, please specify name and date of publication in the “useful links” section.

Level of Assurance on Reporting

- limited assurance
- reasonable assurance
- Other (please specify):

USEFUL LINKS (e.g. to review provider methodology or credentials, to issuer’s documentation, etc.)

Section 4. Post-issuance verification

Overall comment on the section (if applicable): Stora Enso commits to have an external verifier provide limited assurance on the performance of each KPI against its associated SPT at least once a year. The verification report will be published, together with the Sustainability-Linked Financing Report, on the Company’s website. The verification commitments are aligned with the SLBP and SLLP.

Information reported:

- limited assurance
- reasonable assurance
- Other (please specify):

Frequency:

- Annual
- Semi-annual
- Other (please specify):

Material change:

- Perimeter
- KPI methodology
- SPTs calibration

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For more information, visit www.sustainalytics.com

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