



Preem

Green Financing Second Opinion

April 1, 2022

Preem Holdings AB (publ) (“Preem”) is Sweden’s largest fuel refining company. It is the third largest GHG emitter in Sweden, operating a network of around 500 fuel stations nationally and two refineries in Gothenburg and Lysekil. Preem’s owner is Mohamed Hussein Al Amoudi, the majority owner of Moroncha Holdings and owner of Svenska Petroleum Exploration AB, an oil and gas exploration and production company.

Preem plans to allocate an amount of funding equivalent to 60% of the net proceeds of the first issuance to increasing renewable fuels production, and the remainder to renewable feedstock procurement. This will enable the stepwise transformation of Preem’s refineries with retrofits to produce biofuels and increase renewable energy generation (incl. green and blue hydrogen production). Preem’s co-processing approach avoids greenfield development and allows the reuse of existing equipment but requires investments in refinery units that co-process both renewables and fossil fuels. These investments comprise a large share of the use of proceeds.

Only co-processing units that Preem targets to process a minimum 25% share of renewables by 2026 are eligible; this is substantial compared to these units’ current shares (approx. 2%). However, even if the target is achieved, the units will still co-process a large volume of fossil fuels. It is thus critical that Preem has included a target for eligible co-processing units to reach 100% renewable fuels by 2030, as it has already achieved for its green hydrotreater unit in Gothenburg. Financed assets could in principle be used to refine fossil fuels later on. It is Preem’s responsibility to report on the share of renewable fuels in the financed co-processing units over time, in addition to the quantity of fossil fuels avoided.

Preem has an ambitious target to be carbon neutral by 2035, involving 90% absolute Scope 1, 2 and 3 emissions reductions, but has no published pathway to 2035 or date to end fossil fuel refining—there thus remains a risk of continued fossil fuel refining at the corporate level. Preem aims to reach 5,000,000 m³ of renewable production in 2030 from 341,000 m³ in 2021. It expects renewables to exceed 30% of total output by 2030, but this depends on renewable feedstock supply. According to Preem, 93% of its renewable feedstock in 2021 was certified; the rest was externally audited for compliance with its sustainability criteria. Even if certified, it is difficult to fully exclude unsustainable feedstock, e.g. waste from operations linked with adverse environmental impacts. Feedstock from palm oil and soy is excluded. Preem uses fossil fuels for internal operations and vehicles but shared that it aims to replace these with renewables.

Preem shows a strong commitment to sustainability and has established sound governance procedures for the green financing proceeds. The selection process includes life cycle assessments and supply chain considerations. Reporting on proceeds allocation, but not impact reporting, will be externally verified. Preem reports according to the TCFD recommendations but has not conducted business-wide scenario analysis nor assessed climate risks in its supply chain.

Based on an assessment of the framework’s alignment with the Green Bond and Loan Principles, the project categories and Preem’s governance, Preem’s Green Financing framework receives an overall **CICERO Light Green** shading and a governance score of **Good**. The shading reflects climate risks from investments in co-processing units and Preem’s eligibility criteria for these units, as well as its assurance that proceeds will only finance investments that are crucial for increasing renewable fuel capacity.

SHADES OF GREEN

Based on our review, we rate Preem’s green financing framework **CICERO Light Green**.

Included in the overall shading is an assessment of the governance structure of the green financing framework. CICERO Shades of Green finds the governance procedures in Preem’s framework to be **Good**.



GREEN BOND AND LOAN PRINCIPLES

Based on this review, this Framework is found in alignment with the principles.





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1 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated April 2022. This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences and email correspondence.

Expressing concerns with 'Shades of Green'

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

CICERO Shades of Green



Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.



Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.



Light green is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.

Examples



Wind energy projects with a strong governance structure that integrates environmental concerns



Bridging technologies such as plug-in hybrid buses



Efficiency investments for fossil fuel technologies where clean alternatives are not available

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.



2 Brief description of Preem's green financing framework and related policies

Preem is Sweden's largest fuel refining and marketing company and sells fossil and renewable fuels and lubricants to companies and consumers. The company also has a large market share in Norway, where it supplies around a quarter of all fuels. Preem operates a network of around 500 fuel stations in Sweden as well as two refineries in Gothenburg and Lysekil. The company has started to transition its business towards renewable fuels and is planning a number of retrofits and new investments to expand its biofuels production capacity, and in 2021, 1.94% of the fuels refined in Preem's refineries was renewable fuel. The renewable fuel is blended with conventional diesel and sold at its retail sites. Preem had annual revenues of SEK 68 billion in 2020 and employs over 1,400 people. Preem's main customer base is currently the commercial road transport (CRT) segment, but will in the future mainly focus on aviation, shipping, and petrochemicals.

Preem is a wholly-owned subsidiary of Corral Petroleum Holdings AB (publ), which is in turn owned by Moroncha Holdings Co. Ltd. Mohamed Hussein Al Amoudi is the sole owner of Moroncha Holdings. Preem owns 100% of the operating company Preem AB (publ) ("Preem OpCo"). The company informs that there are outstanding intercompany loans between Preem OpCo and a sister company, Corral Morocco Gas & Oil AB, as well as between Preem and Corral Petroleum Holdings AB (publ). According to Preem, the existing external financing arrangement of the group as well as the coming bond issue impose significant restrictions on the ability to upstream any funds, regardless of origin, to Mr Al-Amoudi, whether through intercompany loans or dividends, and they do not foresee doing so in the coming years.

Investors should be aware that among diverse business interests in Europe, the Middle East and Africa, Mr Al Amoudi owns Svenska Petroleum Exploration AB, an oil & gas exploration and production (E&P) company operating/holding exploration licenses in Nigeria and the Ivory Coast. According to Preem, Svenska Petroleum has previously also been in possession of a dormant exploration license in the Baltics that was never activated or used, and which was divested to a third party under a sale agreement during Autumn 2021. The closing of said transaction is still pending certain regulatory approvals. Preem currently shares a board chairman and two other board directors with Svenska Petroleum, but according to the company, there are no other relationships between Preem and Svenska Petroleum.

Environmental Strategies and Policies

Preem is the third largest emitter of greenhouse gases in Sweden, with around 1.5 million tonnes direct CO₂ emissions in 2020 (Scope 1), a reduction from around 2.1 million tonnes in 2019. Its Scope 1 emissions for 2021 were 2.2 million tonnes, which according to the company, is a more representative figure due to impacts on its operations in 2019 and 2020 from the coronavirus pandemic and a planned maintenance stop. In 2020, total Scope 1, 2, and 3 emissions were 49.4 million tons. Scope 3 constitutes 96 % of the company's emissions, and the use of sold products is the main part of the Scope 3 emissions.

Preem has an overarching emissions target to achieve net zero for Scope 1, 2, and 3 emissions by 2035 (brought forward from 2045). This target entails a 90 % reduction in absolute emissions, and Preem intends to allocate 70% of its capital expenditures in 2022 and 68% in 2023 to transitional projects.

The company has identified four "levers" for achieving its 2035 target, and both carbon removals and compensation activities will play a role in addressing the potentially remaining emissions.



- Transform refineries to renewable and reduced production
- Convert to sustainable resources
- Capture and remove carbon dioxide
- Adapt our offerings to the needs of a sustainable society

Preem also has a public target to reach a renewable fuel production capacity of 5,000,000 m³ by 2030. As of 2020, Preem's renewable production was 217,000 m³, and fossil fuel production was 17,226 million m³. According to the company, its production of renewable fuels increased to 341,000 m³ in 2021, and it expects that renewables will exceed 30% of total output in 2030. Preem does not have other publicly announced intermediate targets, although it has shared that it aims to announce a near-term Scope 1 emissions reduction target this year.

Nearly 90% of Preem's Scope 1 emissions are from the use of natural gas for burning/heating. This includes emissions from use of natural gas in hydrogen production, which over the last three years, represented 13-18% of Scope 1 emissions at the Gothenburg refinery¹ (see "Convert to sustainable resources" below for more on hydrogen). Preem uses electricity from the grid, but also uses fossil fuels to power vehicles and internal operations like heating of furnaces. The company informs that around 2.5% of the fossil fuel output is used for internal purposes. The fossil fuels used are gradually being replaced by i.a. internally produced biogas or waste heat from the renewable units. Preem informs that they have a programme to control and repair methane leakages. According to Preem, it is monitoring the possibility of sourcing renewable electricity, e.g. via a long term Power Purchase Agreement ("PPA") from a proposed wind farm near one of its refineries.

As mentioned above, Preem has a target of expanding its renewable fuel production capacity to 5,000,000 m³ by 2030. Preem indicates in its framework that, once its 2030 renewable fuel production target is achieved, Scope 3 emissions savings will be around 12.5 million tonnes per annum compared with fossil fuel alternatives. The average CO₂ saving for Preem's renewable feedstock and products compared to fossil alternatives was according to the company 86% in 2020. Preem also expects that a shift away from fossil fuel refining will generate emissions reductions.

In accordance with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), Preem's sustainability reporting includes data on its GHG emissions across Scope 1, 2 and 3 and includes information about the climate-related risks and opportunities that it has identified. The company informs that transition risks and opportunities are a fundamental part of Preem's annual strategy process and a foundation for Preem's net-zero target. Preem has identified main physical risks related to the refineries and depots and reports according to the TCFD recommendations, but has yet to conduct scenario analysis in line with the recommendations. Impacts of supply chain disruptions, including to feedstock, from physical climate risks have not been considered.

Preem's sustainability and climate strategies are linked to the company's business strategy and approved by the Board. The sustainability strategy also focuses on sustainable value chains and responsible business. Preem conducts regular materiality assessments. Climate, biodiversity, and renewable fuels are among the topics that are considered material for Preem's stakeholders. Preem is certified according to ISO 9001 (Quality) and ISO 14001 (Environment). Operations at refineries are in accordance with ISO 45001 (Occupational health and safety).

The company's sustainability report includes transparency on the share of investments associated with renewable fuels. Besides TCFD, the sustainability report does not follow any other specific reporting frameworks and has not been externally audited.

¹ According to Preem, equivalent data for the Lysekil refinery are currently unavailable.



Transform refineries to renewable and reduced production

In 2020, the company produced 217,000 m³ of renewable fuels and 17,226 million m³ of fossil fuels. Since 2010, the company's Gothenburg refinery has produced increasing amounts of hydrogenated vegetable oil (HVO) biodiesel, which it has enabled via stepwise retrofits to its green hydrotreater (GHT) unit to allow co-processing of renewable fuels. As of January 2021, that unit is now processing 100% renewable fuels, which increased the refinery's output of renewable diesel by 40%. The renewable fuel is blended with conventional diesel and sold under the Preem Evolution Diesel brand at its retail sites.

In 2020, the company also retrofitted a unit at its Lysekil refinery to produce HVO biodiesel and is now planning to complete additional retrofits at this refinery to expand renewable fuel production. In total these retrofits would add an additional 1,080,000 m³ of biofuel production capacity by 2023. Preem is also in the process of evaluating two additional large-scale projects: one for the production of HVO and sustainable aviation fuel ("Project Viking") and one that will retrofit the isocracker at its Lysekil refinery. In September 2021, Preem commissioned a plant in Gävle (co-owned with Setra) that uses sawdust to produce pyrolysis oil, which is used as feedstock to one of the catalytical units at the Lysekil refinery. According to Preem, it has secured renewable feedstock supply for these projects.

Feedstock for Preem's renewable fuel production currently includes crude tall oil and non-fossil pyrolysis oil, which are produced from byproducts and waste streams from pulp and paper mills and sawmills, such as black liquor and sawdust. To secure continued access to such feedstocks, Preem has signed supply agreements for crude tall oil and pyrolysis oil with Sunpine and Pyrocell, respectively, in which it owns 25% and 50% stakes. About half of the renewable fuel feedstocks Preem needs to reach the 2035 target are currently secured through these joint ventures. The company also aims to further expand partnerships with selected suppliers, e.g. Ecoson and Crayton.

Preem also imports recycled cooking oil and animal waste fats, and has started production of vegetable oil from crop-based waste fuel as rapeseed and sunflower oil. When looking into the potentials to increase the volume of crop-based waste fuel, Preem considers possibilities for deforestation and other possible negative consequences for biodiversity, as well as the possibility of outcompeting food production. Preem is currently sourcing renewable feedstock primarily from the Nordic countries and Europe, but is also sourcing from Russia, the USA and the Asian market. The addition of pre-treatment capacity is being planned at both of Preem's refineries to increase Preem's flexibility and reduce exposure on the renewable feedstock market.

Convert to sustainable resources

Preem currently produces hydrogen from natural gas, which is a large source of the company's process emissions. The company has ongoing projects looking into alternatives to natural gas, including biogas or other internal renewable residual streams (like bio methane/ethane and propane from the conversion of bio-oils to HVO). The company informs that a large part of the hydrogen needed can be produced from internally generated biogas. Preem also has a project related to electrolysis of water with renewable electricity to generate green hydrogen in cooperation with Vattenfall.²

Capture and remove carbon dioxide

Preem aims to further reduce fossil emissions from its refineries by installing carbon capture and storage (CCS) on its hydrogen-units in the Lysekil and Gothenburg hydrogen-units. CO₂ from the hydrogen production will be captured. When biogas has been used to produce the hydrogen, it will become a net carbon removal activity as biogenic carbon emissions from renewable fuel production increase (BECCS). Transport and storage of captured CO₂ is included in the project, conducted in cooperation with i.a. Aker Solutions and Equinor.³ According to

² [Vattenfall and Preem look into large-scale production of fossil-free hydrogen - Vattenfall](#)

³ [Aker Solutions Starts CCS Test Program at Preem Refinery in Sweden | Aker Solutions](#)



Preem, its flue gas CO₂ capture demonstration project at its Lysekil refinery is the largest in Sweden, and a full-scale CCS plant scheduled to be finalised in 2026 will reduce CO₂ emissions by 500,000 tonnes annually.

Adapt our offerings to the needs of a sustainable society

Preem also intends to capture opportunities from the low-carbon transition by expanding its offering of renewable products. Renewable fuels will play an important role to address the climate challenges of the transport sector, but Preem sees that over time the importance of liquid fuels will likely remain strongest within aviation and shipping. Preem has therefore entered into an agreement with Recharge to invest in rapid charging points across Preem's retail footprint, with the aim of equipping 15-25 of its stations annually with rapid chargers using energy produced from wind. Preem's product portfolio is also likely to grow by providing renewable feedstocks e.g, for the petrochemical sector.

Sustainable value chains and responsible business

Preem's approach to sustainable sourcing is implemented using a control system that is certified according to the International Sustainability and Carbon Certification (ISCC)⁴ criteria and comprises:

- Compliance with the Swedish Act on Sustainability Criteria and the EU Renewables Directive
- Sustainable supply of renewable raw materials and fuels
- Control of its suppliers

Preem requires employees and suppliers to comply with its code of conduct, which outlines Preem's expectations on a range of environmental and social issues. It specifically identifies Preem's sustainability criteria for renewable feedstock, namely that their production should have a "favourable" climate effect on a life-cycle basis, have "favourable" energy efficiency, not impact food availability, not deplete water supplies or threaten biodiversity (including destruction of forests and other effective carbon sinks), and not violate human rights as defined by UN conventions. The code of conduct forms the basis for how Preem's sustainability department reviews raw materials and its supplier risk assessment. Preem has clarified that its definition of "favourable" is based on definitions in EU RED. The company does not include a specific definition of what it considers to be forests or effective carbon sinks.

Preem indicates that the majority of its renewable raw materials are ISCC-certified (69% of total volumes in 2021). A further 23% were certified according to Swedish national legislation ("Hållbarhetsbesked"⁵). Small volumes of raw materials have other or additional certification than ISCC, e.g. INS certification.⁶ When sourcing from suppliers of uncertified raw materials, the company implements external audits to ensure compliance with its sustainability criteria.

Use of proceeds

Project categories in Preem's framework include: 1) Eco-efficient and circular economy adapted products, production, technologies and processes, 2) Renewable energy, and 3) Energy efficiency. The company informs that it currently plans to allocate an amount of funding equivalent to 100% of the net proceeds of its inaugural green bond transaction to be used within the Eco-efficient and circular economy project category.

Preem will allocate green financing proceeds to finance or refinance new and existing projects and assets that meet the framework's eligibility criteria. This can include both capital expenditures and operating expenditures, where

⁴ ISCC EU Trader with storage (logistic centre (HQ)), ISCC EU LYR (Refinery, Co-processing, Warehouse), ISCC EU GOR (Co-processing, HVO-plant, Warehouse). [All Certificates > ISCC System \(iscc-system.org\)](#)

⁵ [Hållbarhetsbesked \(energimyndigheten.se\)](#)

⁶ [Sustainability Certification of Biofuels and Bioliquids - RINA.org](#)



the latter includes expenditures on filters, catalysts, personnel costs for financed production units, and renewable feedstock. Operating expenditures cannot include procurement of fossil fuels used in project construction/retrofits. Preem estimates that around 60% of the allocated funds will relate to capital expenditures and the remainder to procurement of renewable feedstock.

The lookback period for refinancing is 36 months for eligible green projects, renewable raw materials and assets. The framework also indicates that assets are eligible for refinancing if “the technology is state of the art and depreciation of the investment is still ongoing.” The latter relates to the modifications in the Gothenburg refinery, enabling the site to produce HVO capable of meeting Nordic climate specifications on HVO-diesel, constituting around 8% of proceeds.

The framework explicitly excludes using green financing proceeds to (re)finance investments that utilise fossil-based raw materials or are associated with environmentally negative resource extraction as defined by the LULUCF-regulation.⁷ This covers all raw materials that do not fulfil the LULUCF-regulation and Preem’s CoC, including palm oil and soy related raw materials.

Selection

The selection process is a key governance factor to consider in CICERO Green’s assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the governance process.

Preem has formed a Green Financing Committee (GFC) that will oversee the selection and monitoring of projects and assets to be financed under the framework. The committee is chaired by Preem’s Head of Finance, and includes its Head of Sustainability Management, Head of Controlling, and other senior members from its sustainability and finance departments. Its Head of Sustainability Management has sustainability and climate competence and holds a veto over final project and asset selection.

In addition to the GFC, Preem has a pre-existing investment committee that is chaired by its CEO and includes its CFO and Head of Sustainable Development, among other business area heads. The investment committee will nominate projects for the GFC to review and ultimately reject or include, based on an assessment against the framework criteria and Preem’s own sustainability policies and procedures. According to the framework, Preem’s working group for procurement of renewable feedstock, led by a sustainability manager, reporting to its Head of Sustainability Management, has established a governance process to align the selection process with the framework’s eligibility criteria. In complex cases, external resources are used, e.g. in the evaluation of palm oil, which led to an exclusion in the use of raw material based on waste palm oil products. According to the company, the selection process includes life cycle assessments and screening of potential suppliers to avoid purchasing e.g., renewable waste material that originates from palm oil or soy.

Management of proceeds

CICERO Green finds the management of proceeds of Preem to be in accordance with the Green Bond and Loan Principles.

Preem aims to allocate at least the balance of net proceeds from green financing instruments to eligible projects and assets within 24 months of their issuance. Preem’s Finance and Treasury departments will track the allocation of proceeds to the eligible projects and assets on a green financing register. The tracking will be on a project-by-

⁷ [Land use and forestry regulation for 2021-2030 \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2021/1056/oj)



project basis. The register will be reviewed annually for the compliance of listed projects and assets against the eligibility criteria. Any project found to be ineligible will be removed and replaced as soon as Preem identifies a substitute.

Unallocated proceeds will be held in temporary investments such as cash, cash equivalents or liquid marketable investments according to Preem's treasury management policies. Preem confirms that unallocated proceeds cannot be used for temporary intercompany loans or other temporary expenditures supporting fossil fuel activities. The balance of unallocated proceeds will be disclosed via Preem's reporting. According to Preem, unallocated proceeds will only be held in cash or foreign currency swaps.

Reporting

Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs. Procedures for reporting and disclosure of green financing investments are also vital to build confidence that green finance is contributing towards a sustainable and climate-friendly future, both among investors and in society.

Preem will report on allocation and impacts of proceed from green financing instruments annually, and the report will be available through Preem's website. Preem indicates that the first report will be ready in Q1 2023. Allocation reporting will take place per eligible project category in the framework and distinguish refinanced and new projects and assets. Preem will also publish a list of eligible projects and assets, including a description and the allocated amount, subject to confidentiality considerations, as well as the balance of unallocated proceeds. Reporting will be on an individual instrument basis.

Preem intends to align its impact reporting with the portfolio approach described in ICMA's Harmonized Framework for Impact Reporting. The company will report on impacts at the project category level and has provided a list of indicative indicators it may use for quantifying impacts.

Allocation report will be produced by the Finance department and the impact reporting by the Sustainability Management department. Preem's Green Financing Committee is responsible for reviewing and approving its allocation and impact reporting.

According to the framework, Preem will request external assurance of the allocation of proceeds to eligible projects and assets, and the results will be issued on the company's webpage. The company will not have external review of its impact reporting.



3 Assessment of Preem’s green financing framework and policies

The framework and procedures for Preem’s green financing investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where Preem should be aware of potential macro-level impacts of investment projects.

Overall shading

Based on the project category shadings detailed below, and consideration of environmental ambitions and governance structure reflected in Preem’s green financing framework, we rate the framework **CICERO Light Green**.

Eligible projects under the Preem’s green financing framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide investors with certainty that their investments deliver environmental returns as well as financial returns. The Green Bond Principles (GBP) state that the “overall environmental profile” of a project should be assessed and that the selection process should be “well defined”.

Category	Eligible project types	Green Shading and some concerns
Eco-efficient and circular economy adapted products, production technologies and processes	Financing related to the development, operations, maintenance and expansion of renewable and circular solutions, which provide a sustainable alternative to fossil fuels and products, hence reducing greenhouse gas emissions. Investments in renewable and circular solutions Investments in renewable product refineries – such as refining of used cooking oil, Tall Oil Fatty Acids, pyrolysis oil and waste tallow – for production of biofuels, renewable fuels including diesel and aviation fuel. Such investments include:	Light Green <ul style="list-style-type: none"> ✓ The company informs that it plans to allocate an amount of funding equivalent to 100% of the net proceeds of its inaugural green bond transaction to this category. ✓ Green proceeds allocated under this category are intended to support Preem’s carbon neutrality target, and will be used to support investments with the aim of increasing renewable fuel production. Examples provided are the retrofit of existing diesel production units and pre-treatment facilities that enable the use of new types of biowastes. <i>Notes on investments in co-processing units</i> <ul style="list-style-type: none"> ✓ Co-processing entails using the same operational unit for refining of fossil and renewable fuels. As the renewable share increases over time, fossil fuels will be pushed out.



- Expenditure for planning, developing, constructing, equipping, and managing biofuel facilities which are dedicated to producing biofuel from various waste, residues and innovative raw materials, such as Pyrolysis oil, tall oil fatty acids.
 - Expenditure related to co-processing units where the investment is solely aimed at increasing capacity at these facilities for biofuel and replacing fossil capacity. (By using a stepwise manner for the transition through co-processing, reusing existing equipment rather than building brand new will be possible, thereby being more energy efficient than a green field project.) Investments in co-processing units will only be limited to finance infrastructure dedicated to accommodate the production of renewable fuels.
- Use of proceeds criteria for co-processing units:
- Minimum threshold for eligibility of investments is set to 25 % renewable share of total feed per co-processing unit with operation start no later than 2026. Final renewable share target of co-processing units shall strive towards 100% of total feed with start of operation year no later than 2030.
 - Allocation of proceeds for maintenance activities at co-processing units will only be allocated proportionally to an amount based on the proportion of renewable
- ✓ Co-processing investments support Preem’s stepwise approach to transform its refineries with retrofits; the co-processing approach avoids greenfield development and reduces material needs by allowing the reuse of existing equipment. With the successful conversion of its Gothenburg refinery’s GHT unit to 100% renewable fuels, Preem has established experience with this approach that will support the implementation of the investments identified in its framework.
 - ✓ In practice, the company’s minimum renewable fuel threshold for co-processing units to be eligible means that they must reach at least a 25% renewable fuel share by 2026. This is substantial compared to current shares in these units (approx. 2%), and together with the target for co-processing units to reach 100% renewable fuel, reduces the risk that co-processing units continue processing large volumes of fossil fuels. However, this risk remains and underpins the Light Green shading.
 - ✓ Investments in fossil fuel production are excluded. If investments or maintenance in co-processing units are supported with green proceeds, the company informs that only the renewable share of the investment will be eligible for financing with green proceeds. This will be calculated for each unit based on the percentage of throughput over the last twelve months that was renewable.
 - ✓ Investors should be aware that infrastructure financed with green proceeds in principle can be used for both renewable and fossil fuel refining, for example if the company experiences a lack of availability of renewable feedstock.
 - ✓ Refining is an emissions intensive sector that needs to decarbonise to be able to survive the green transition. Co-processing, full conversion to bio-refineries and the use of CCS are according to the IEA among the measures that could boost biofuels production and introduce decarbonisation in the refineries.
 - ✓ Manufacturing of biogas and biofuels for use in transport is included in the EU Taxonomy as an activity with a substantial contribution to climate mitigation, provided it generates GHG-emission savings of at least 65% compared to fossil fuels, and the feedstocks used are not food or feed crops and



fuels produced in the last 12 months of production for each respective unit.	meet various EU RED II requirements. ⁸ EU regulations on co-processing are expected by March 2022. ⁹
<ul style="list-style-type: none">• Investments in CCS (Carbon Capture and Storage) solutions connected to renewable production.	✓ Equipment financed with green proceeds will not be powered by fossil fuels.
<ul style="list-style-type: none">• Expenditures related to the purchase of sustainability rated and approved raw materials such as Talloil, other waste bio oils/fats for the production of biofuels.	<i>Notes on renewable feedstocks</i> ✓ According to Preem, the average CO ₂ savings for Preem’s renewable feedstock and products compared to fossil alternatives was 86% in 2020. ✓ The equivalent of ca. 40% of the proceeds of the first issuance will be used to purchase renewable feedstock. This will be waste material as defined in the EU RED II (footnote). In 2021 69% of the renewable raw materials were ISCC-certified ¹⁰ , 23% according to “Hållbarhetsbesked” ¹¹ , and 3% from other RED-certification schemes like INS. ¹² 7% was not certified, but sustainability criteria were externally audited.
<ul style="list-style-type: none">• Expenditures related to all technology and equipment, sensors, certifications, and patents related to biofuel production processes, methods and equipment.	✓ Even if Preem’s feedstock is either certified or externally audited as renewable and/or waste-based, sourcing these feedstocks may still indirectly support unsustainable activities if it enables the valorisation of their waste streams.
<i>R&D investments related to renewable and circular solutions</i>	
<ul style="list-style-type: none">• R&D and investments to further develop our solutions portfolio for more sustainable transport, land and sea, aviation, and chemical sectors.	✓ According to the company, all raw material suppliers must comply with the sustainability requirements provided in Preem’s CoC. This will also be the case when green proceeds are used to purchase renewable raw material. Life cycle assessments, certification, and supplier assessments are among the considerations factored into the selection process. ✓ Investors should be aware that waste animal fat is included as a renewable raw material. This might constitute a lock-in risk if meat consumption declines in the future.
	<i>Notes on carbon capture and storage</i> ✓ Proceeds will not be allocated to CCS measures for fossil fuel units. ✓ CCS is a critical component of a sustainable low carbon future. Preem’s investment in and application

⁸ [Renewable Energy – Recast to 2030 \(RED II\) | EU Science Hub \(europa.eu\)](https://ec.europa.eu/euro-observatory/en/renewable-energy-recast-to-2030-red-ii)

⁹ The regulations would introduce a methodology for determining the share of biofuel and biogas for transport resulting from co-processing, ie. biomass being processed with fossil fuels in a common process. See https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12711-Renewable-energy-method-for-calculating-the-share-of-renewables-in-the-case-of-co-processing_en

¹⁰ [Solutions for sustainable and deforestation free supply chains > ISCC System \(iscc-system.org\)](https://www.iscc-system.org/)

¹¹ [Hållbarhetsbesked \(energimyndigheten.se\)](https://www.energimyndigheten.se/om-energi/hallbarhetsbesked)

¹² [Sustainability Certification of Biofuels and Bioliquids - RINA.org](https://www.rina.org/)



of this technology advances much needed innovation that can have broad, positive impacts.

- ✓ Preem intends to install carbon capturing facilities on the Lysekil and Gothenburg hydrogen-units. CCS to capture CO₂ from hydrogen produced with biogas (BECCS), will act as a carbon sink and can give negative emissions. BECCs will be allocated a Dark Green shade in our methodology, if there is an assurance that the renewable feedstock is sustainably sourced. See “Renewable energy” below for notes on hydrogen production.
- ✓ According to Preem, its full-scale CCS plant is scheduled to be finalised in 2026 and will reduce CO₂ emissions by 500,000 tonnes annually.

Notes on R&D investments

- ✓ An example of an R&D-project is the manufacturing of green hydrogen using electrolysis, conducted in cooperation with i.a. Vattenfall.

Renewable
energy



Financing related to the construction, development, acquisition, maintenance, and operation of renewable energy including solar and wind with direct life cycle emissions of less than 100gCO₂e/kWh, declining to net-0gCO₂e/kWh by 2050 as stated in the Delegated Act of the EU taxonomy. Examples include:

- On-site (manufacturing and distribution centers) renewable energy projects such as solar rooftop panels
- Power Purchase Agreements (“PPAs”), Virtual Power Purchase Agreements (“VPPAs”), and any other investments that provide for the procurement of renewable energy through a long-term contract (at least ten years) aligned with the GHG Protocol
- District heating from excess energy generated from renewable production

Light Green

- ✓ The shading for this project category reflects the climate risks of these investments that arise from direct linkages with Preem’s ongoing conventional fossil fuel refining activities, despite the investments being part of a stepwise approach to transforming its refineries.
- ✓ Proceeds from the inaugural green bond are not expected to be allocated to this project category.
- ✓ Preem does not currently have any examples of renewable energy investments but informs us that such projects will be subject to an environmental permitting process that will cater for land use aspects.
- ✓ According to the company, renewable energy will be used to power the production of renewable fuels, to replace internal use of fossil fuels, and for production of fossil-free hydrogen, which includes both green and blue hydrogen. Renewable energy produced from investments under the framework will not be used in conventional fossil fuel-based units, as per the framework.
- ✓ Fossil-free hydrogen can be used both in the 100% renewable and the co-processing units, but not for conventional fossil fuel refining.
- ✓ Production of blue hydrogen (producing hydrogen from natural gas equipped with CCS) is considered a necessary activity in the transition to a low carbon



- Production of fossil-free hydrogen

society. Provided it is not used for fossil fuel refining, it is considered Light Green in our methodology due to the dependence on a fossil fuel value chain and the risk of locking in the use of natural gas.

- ✓ Preem has clarified that “manufacturing and distribution centers” refers to biorefining units (co-processing and 100% renewable units), as well as depots for storing bio-oils and bio-products.
- ✓ According to the company, it is monitoring the possibility of establishing PPAs with renewable energy providers but there are no concrete plans yet.
- ✓ According to the company, waste heat for district heating will be sourced only from renewable fuel units.
- ✓ Preem has ongoing projects related to the use of i.a. internally generated biogas to replace the use of natural gas in hydrogen production.
- ✓ The company has confirmed that, where investments in this category would benefit or are otherwise linked with co-processing units, those co-processing units must meet the eligibility criteria specified under “Eco-efficient and circular economy adapted products, production technologies and processes.”

Energy efficiency



Financing related to investments in energy and resource efficiency, including:

- Improvement of energy efficiency in equipment in Preem’s refineries and facilities dedicated to the production of renewable fuels
- Improvement of energy efficiency in other sectors, such as refurbishments of buildings to include energy-saving retrofit of heating systems, refrigeration systems, lighting equipment etc.

Light Green

- ✓ The shading for this project category reflects the climate risks of these investments that arise from direct linkages with Preem’s ongoing conventional fossil fuel refining activities, despite the investments being part of a stepwise approach to transforming its refineries.
- ✓ Proceeds from the inaugural green bond are not expected to be allocated to this project category.
- ✓ Preem has carried out energy mapping and energy efficiency measures are identified.
- ✓ Green proceeds in this category can only be used for energy efficiency improvements on the 100% renewable and co-processing units.
- ✓ Energy efficiency is positive from a climate perspective. However, minimum thresholds for eligibility have not been identified for energy efficiency investments in the refining units nor for building refurbishments, and as such the climate savings will vary accordingly.
- ✓ Converting building heating systems from heating by electricity to waste heat from renewable sources or



refrigeration system from renewable fuel refining is an example of an eligible measure.

- ✓ In the EU Taxonomy, expenditures related to building renovation are eligible if renovation leads to a reduction of primary energy demand of at least 30%.
- ✓ The company has confirmed that, where investments in this category would benefit or are otherwise linked with co-processing units, those co-processing units must meet the eligibility criteria specified under “Eco-efficient and circular economy adapted products, production technologies and processes.”

Table 1. Eligible project categories

Background

According to the IEA, the refining sector faces major challenges in the Net-Zero-Emissions (NZE) scenario. Refinery throughput is expected to drop, and there will be significant changes in the product demand. The demand for traditional products such as gasoline and diesel is expected to go down, while non-combusted products such as petrochemicals increase.¹³

CO₂ emissions from refineries account for about 4% of the global CO₂ emissions, close to 1 billion tonnes of CO₂ per year.¹⁴ The refinery sector therefore is in urgent need to decarbonize. Possible activities include measures such as energy efficiency and methane reductions as well as more advanced solutions such as the use of CCS and transformation to the production of biofuels. CCS could also play a key role in helping to achieve “negative emissions” if bioenergy is used in conjunction with carbon capture and storage (BECCS). Applying CCS to refining operations will be a key mechanism to reduce emissions from the oil value chain. Refineries tend to consist of a variety of scattered CO₂ emission sources across different processing units, making it difficult to capture all emissions from a plant. Units and systems that could be equipped with capture units include hydrogen production units using steam methane reforming, which is the source of around 20% of total CO₂ emissions from a refinery. Refineries are one of the largest users of hydrogen today, and demand for hydrogen is set to grow i.a. as an increased volume of biofuels is generated. Hydrogen production units in refineries result in highly concentrated CO₂ streams, offering one of the lowest-cost opportunities to apply CCS. The adoption of co-generation systems in refineries not only generates energy efficiency benefits but also centralises emissions sources, making CO₂ capture more viable.¹⁵

Bioenergy has a significant greenhouse gas (GHG) mitigation potential, provided that the resources are developed sustainably. Current systems can deliver 80 to 90% emission reductions compared to the fossil energy baseline.¹⁶ According to the revised Renewable Energy Directive (RED II), biofuels must achieve greenhouse gas savings of at least 50% for plants starting operation before 2015 and 65% for plants starting after 2021, in comparison to fossil fuels to be considered sustainable for new production plants. The RED II also lays out targets for biofuel inclusions in the transport sector, like a 14 % inclusion of biofuel in the transport sector by 2030. Biofuels are important to help the EU meet its GHG reduction targets.¹⁷ However, as both biofuels and synthetic carbon-based fuels emit CO₂ when combusted, they are only low carbon on a full life-cycle basis. In all cases, the carbon

¹³ Net Zero by 2050 - A Roadmap for the Global Energy Sector ([windows.net](https://www.windows.net))

¹⁴ CO₂ capture for refineries, a practical approach ([sciencedirectassets.com](https://www.sciencedirectassets.com))

¹⁵ The Oil and Gas Industry in Energy Transitions ([windows.net](https://www.windows.net))

¹⁶ <https://www.ipcc.ch/site/assets/uploads/2018/03/Chapter-2-Bioenergy-1.pdf>

¹⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN>



neutrality of the fuel depends on the production process and feedstock. In the case of biofuels, avoidance of direct and indirect land use change in feedstock production is crucial.

Governance Assessment

Four aspects are studied when assessing the Preem's governance procedures: 1) the policies and goals of relevance to the green financing framework; 2) the selection process used to identify eligible projects under the framework; 3) the management of proceeds; and 4) the reporting on the projects to investors. Based on these aspects, an overall grading is given on governance strength falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

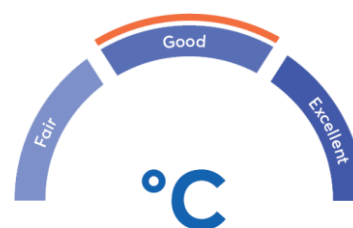
Preem has established an ambitious target to be carbon neutral by 2035, which entails absolute reductions in Scope 1, 2 and 3 emissions, although it has no publicly announced pathway to support the neutrality target, nor an indicated date on when to phase out fossil fuel refining. The target allows the use of offsets, but according to the company this will only be applied to residual emissions. Although the company has set a 2030 target for scaling up renewable production capacity, it has not published an interim emissions reduction target or a target date for phasing out fossil fuel refining.

The company is aware of the climate risks of its operations and reports according to the TCFD-guidelines, even if company-wide scenario analysis is not yet conducted. According to the company, it has conducted asset-level scenario analysis for its refineries and one depot to identify physical climate risks from extreme weather. Impacts of supply chain disruptions, including feedstock, from physical climate risks have not been considered.

Preem's selection process is in accordance with the Green Bond Principles and Green Loan Principles includes among others life cycle assessments, supply chain considerations and the use of external resources where needed. Preem's Green Financing Committee includes environmental and climate competence, and the Head of Sustainability Management holds a veto.

Preem reports scope 1, 2 and 3 emissions, and results are presented in the annual sustainability report. The sustainability report also includes transparency on the share of investments and turnover associated with renewable fuels. The allocation of proceeds will be externally verified and presented on the company's webpage. Impact reporting will be carried out on project basis and presented on the company's website but will not be externally verified.

The overall assessment of Preem's governance structure and processes gives it a rating of **Good**.



Strengths

It is considered a strength that the company has set a 2035 net zero target that entails absolute Scope 1, 2, and 3 emissions reductions of 90%, and that it only plans to rely on offsets to neutralize residual emissions. Driven by this target, Preem has started the transition towards production of renewable fuels and has a high focus on increasing the volume of renewable feedstock as well as pre-treatment technologies to utilise sustainable low-quality waste streams. This will support the increasing need for biofuels, which have significant greenhouse gas mitigation potential in hard-to-abate sectors like aviation, heavy transportation and the petrochemical industry in the short to medium term. The use of proceeds presented in the framework will support the company's transition.



This is also visible in the company's capital expenditures for the next two years, where around 70% is intended to be allocated to transitional projects and no investments in new fossil fuel refining capacity is planned.

It is also positive that the company's approach involves stepwise retrofits of its existing refineries that simultaneously increase the percentage of renewable fuel processing capacity and decrease fossil fuel processing capacity. This avoids the need for greenfield developments and saves on material needs as existing equipment and infrastructure can be re-used. The approach is highly dependent on investment in co-processing units. Having converted the GHT unit at its Gothenburg refinery to process 100% renewable fuels over 2010-2021, the company has established experience with this approach that will support the implementation of the investments identified in its framework. However, investments in co-processing units may also indirectly support e.g., maintenance of fossil fuel infrastructure (see "Weaknesses").

It is considered a strength that Preem focuses on R&D related to e.g., the increase of production of biofuels and the use of CCS to reduce the emissions from the refinery. CCS is a critical mechanism to reduce emissions from the oil and gas value chain, as also highlighted by the IEA. Preem's investment in and application of this technology advances much needed innovation that can have broad, positive impacts.

It is considered a strength that Preem has excluded the use of soy and palm oil-based feedstock.

Weaknesses

Preem is Sweden's largest fuel refining company and emits around 2 million tonnes of CO₂ in direct emissions annually. The company has started the transition and has established an ambitious 2035 net zero target. According to Preem, because the target involves absolute emissions reductions across Scope 1, 2 and 3, and assuming that offsets are only used to neutralize residual emissions, it would only be able to refine a minor volume of fossil fuels, if any, by 2035. Further, the company indicated that various factors would make it economically unattractive for it to continue refining fossil fuels, e.g. forecasted margin declines and refinery overcapacity. The company also shared that it expects renewable production to exceed 30% of total volumes by 2030, before reaching 100% in 2035. However, without a clear timeline for phasing out fossil fuel refining and a public emissions reduction pathway to 2035, the possibility remains that Preem continues to refine significant fossil fuel volumes moving forward, and this is a key weakness of the framework. In particular, as proceeds will be allocated to co-processing units and the investments are to be made in existing fossil fuel refineries, it would clearly strengthen the framework if Preem's decarbonization pathway was better defined with interim targets.

Pitfalls

In order to be eligible for investment under the framework, co-processing units must achieve a minimum threshold of 25% renewable fuels by 2026. However, even if this is achieved, it is a pitfall that these units will still co-process a large volume of fossil fuels, which is why Preem's target for the financed co-processing units to reach a 100% renewable fuels share by 2030 is critical. It is Preem's responsibility to report on the share of renewable fuels in the financed co-processing units over time, in addition to the quantity of fossil fuels avoided. It should be noted that, according to Preem, it will use other capital to finance investments required to increase the share of renewable fuels in co-processing units that are ineligible under the framework. We encourage Preem to increase the share of co-processed renewable fuels to 100% as quickly as possible.

Preem uses fossil fuels in its internal operations, among others for heating purposes, but informs that they are working to replace this by renewable energy. The company has not published concrete reduction targets for its Scope 1 emissions, although it has shared that it is currently working on this.



Even if Preem's renewable feedstock is either certified or externally audited as renewable and/or waste-based, sourcing these feedstocks may still indirectly support unsustainable activities if it enables the valorisation of their waste streams. Further, the future supply of renewable feedstock is not guaranteed and may impact Preem's plans to scale up renewable fuel processing.

It is positive that Preem has identified the main physical risks related to the refineries and depots, and that it reports according to the TCFD recommendations. It is however a pitfall that climate scenario analysis has not been conducted for the entire business, and that the impacts of supply chain disruptions, including to feedstock, from physical climate risks have not been considered.

Preem uses vessels and trucks for transportation of raw materials, which is associated with GHG emissions. When expanding the geographical areas from which raw materials are sourced, e.g. to Asia, the GHG emissions related to transport might increase. CICERO Green encourages Preem to work on reduction of emissions from transportation, and to ask their suppliers for the most effective solutions.



Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Preem Green Financing Framework (Apr 2022)	
2	Preem Annual Report 2020	
3	Preem Sustainability Report 2020	
4	Evaluation of new raw materials – Process and systematics	Presentation about Preem’s process for evaluating raw material sustainability (non-public)
5	Sustainability evaluation template	Preem’s internal template for assessing risks related to raw material sourcing (non-public)
6	Preem’s Code of Conduct (Feb 2020)	Describes Preem’s values and ethical guidelines; applicable to its employees and business partners
7	Master Transition plan and intermediate targets to climate neutrality	Describes timebound plans with renewable share per unit for retrofits and development projects to reduce carbon emissions (non-public)



Appendix 2: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognised as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University, the International Institute for Sustainable Development (IISD) and the School for Environment and Sustainability (SEAS) at the University of Michigan.

