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Powered by Shades of Green

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Second Party Opinion

Gasum Oy Green Finance Framework

April 13, 2026

Location: Finland **Sector:** Power utilities

Alignment Summary

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✕

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

See Alignment Assessment for more detail.

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Dark green

Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our Shades of Green Analytical Approach >

Strengths

Gasum's sustainability strategy is focused on transitioning the business model to the production and provision of renewable energy. Most of its revenue to date has been generated from the sale of natural gas. That said, the issuer has been investing in the production and supply of biogas and its liquefied form (LBG) to gradually replace natural gas, as defined in this framework.

Weaknesses

No weaknesses to report.

Areas to watch

The majority of Gasum's carbon footprint relates to the supply of natural gas, which is not in scope of this framework. In 2025 the issuer's downstream end-use of natural gas accounted for most of its scope 3 emissions. To address this, Gasum will gradually replace natural gas with biogas and reduce its operational emissions.

Increased use of agricultural waste, including manure, could result in higher value-chain environmental and climate exposures. The issuer intends to increase its use of this feedstock in Sweden, following environmental management and due diligence processes.

Shades of Green Projects Assessment Summary

In the three years following issuance of the financing, Gasum expects to allocate the majority of the proceeds to the Renewable Energy category, and a smaller proportion to the Circular Economy Adapted Productions, Production Technologies and Processes, Pollution Prevention and Control and Energy Efficiency categories.

The issuer expects most of the proceeds to be allocated to refinancing projects.

Based on the project categories' Shades of Green detailed below, the expected allocation of proceeds, and considering the environmental ambitions reflected in Gasum's Green Finance Framework, we assess the framework as Dark green.

Renewable energy	**Dark to Medium green**
Biogas or LBG for the use of transport on land and at sea, industry, and energy production.	
Circular economy adapted production, production technologies and processes	**Dark green**
Recycled fertilizer and nutrient products supplied to partners in agriculture or industry.	
Pollution prevention and control	**Dark to Medium green**
Treatment of a wide feedstock base of biodegradable fractions of waste and agricultural side-streams.	
Development of the use of side-streams of biogas production and improving the resource efficiency of the process, and increasing the use of renewable energy in Gasum's operations.	
Energy efficiency	**Medium green**
Overall energy efficiency improvements in own or customer operations and those related to management systems.	

See Analysis Of Eligible Projects for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Issuer Description

Gasum Oy (Gasum) is an energy company operating in the Nordic market and owned entirely by the Finnish government. It is one of the leading suppliers of natural gas to industrial processes, and local grids, as well as to the shipping sector and road vehicles through its network of filling stations. It is diversifying its business model by investing in the generation, transmission, and supply of biogas and liquefied biogas (LBG), as well as the production of fertilizers and nutrient products for the agriculture and industrial sectors and the provision of consumption optimization services for its clients. It operates primarily in Finland and Sweden, and in 2024 entered the Danish market through the acquisition of Haerup Biogas ApS. With 280 employees, in 2025 it generated €1,248 million in revenue from the sale of natural gas and biogas.

Material Sustainability Factors

Climate Transition Risk

Power generation is the largest direct source of greenhouse gas emissions globally, making this sector highly susceptible to the growing public, political, legal, and regulatory pressure to accelerate climate goals. At present, natural gas contributes approximately 25% to worldwide electricity production according to the International Energy Agency (IEA). Although some regions have used it to replace coal power and reduce annual emissions, its future utilization becomes uncertain in a world where non-polluting renewable energy sources can prevail in the long run. We view the transition to a low carbon economy as also highly material for midstream energy companies as they provide logistics for the carbon-intensive oil and gas sector. Public awareness of the urgency for climate action has reached a turning point. In turn, policymakers and regulators are increasingly pushing for a faster transition to lower-carbon energy, especially as these technologies become more mature and cost competitive. Over the past decade, we have seen multibillion-dollar impairments for most polluting assets, reflecting their weaker economics as taxes increase and they are displaced by new, cleaner technologies. In addition, more stringent decarbonization rules might sometimes restrict their license to operate. The number of countries announcing pledges to achieve net zero emissions over the coming decades continues to grow. With no direct emissions, renewable energy technologies have a vital role to play in reducing emissions associated with power and heat, which will be key to limiting the rise in global temperature to 1.5C.

Physical climate risk

The physical risks of climate change for midstream and power generation assets are highly material. For stakeholders, extreme weather events, including wildfires, hurricanes, and storms, are becoming more frequent and severe and can result in power outages for large populations of end users as well as disruptions to the energy value chain that can affect service offerings and pricing. Midstream companies have typically maintained resilient operations through extreme weather events. However, the sector is not immune to disruptions given its long-distance, asset-heavy nature, and so its exposure to physical climate risks is higher than for many other sectors. For the midstream energy and power generator sectors these dynamics, coupled with regulatory pressure to preserve security of supply, are driving players to enhance the resilience of their assets.

Pollution

Air, land, or water pollution resulting from gas pipeline leaks or oil spills makes it one of the most material environmental factors for stakeholders. Largescale pollution incidents have been infrequent for the midstream industry. However, smaller events such as spills, leaks, and explosions have occurred, leading to severe and long-lasting consequences for ecosystems, and sometimes resulting in employee, contractor, or general public fatalities.

Issuer And Context Analysis

The projects in Gasum's framework will contribute to addressing its most material sustainability factors. All the categories will target climate transition risk by increasing production of a lower carbon alternative to natural gas and fertilizers. In addition, the production of biogas and the recovery of the resulting by-products to make recycled fertilizers will seek to mitigate pollution and biodiversity risks. As the projects will include physical assets, we also consider physical climate risk to be relevant for the issuer.

Gasum's sustainability and business strategies are to transition its operations away from natural gas, to renewable energy. To date, most of its revenue has come from the sale of natural gas, which entails transition risk given the high greenhouse gas emissions associated with its value chain. To address this, the issuer has been investing in the production and provision of biogas and LBG through the anaerobic digestion of sewage sludge and biowaste. This progressive increase in renewable energy production will not require the development of new and additional infrastructure, as Gasum can leverage its existing natural gas systems. The short-term actions it has identified to support this strategy are to build new biogas production plants and expand some of its existing ones. In doing so, it will add 80 GWh of biogas capacity to its portfolio per year. That said, although natural gas systems will be used for biogas supply, their capacity may be expanded, which in the short-term will result in greater fossil fuel volumes being transmitted.

Gasum has updated its sustainability strategy to more widely address its carbon footprint. According to its calculations, its main emissions exposure is scope 3 (98% of total emissions in 2025), with the largest contributor being the downstream use of its sold products, namely natural gas. Longer term, Gasum aims to reduce this exposure by gradually replacing natural gas with biogas, and targets net zero value chain emissions by 2050. Meanwhile, the issuer has adapted its previous targets to reflect its current operating environment. These include decreasing the emissions intensity of its value chain by 28%, and its absolute downstream transportation emissions by 60% by 2034. Although scopes 1 and 2 constitute a smaller portion of its total carbon footprint, at 2% in 2025, Gasum is working to reduce absolute emissions from its own production by 25% by 2034, compared to 2024. To do so, it will continue to source 100% renewable electricity for its production processes, reduce flaring, improve energy efficiency and leakage management, and recover biogas by-products to produce recycled fertilizers and nutrient products.

Gasum has assessed its portfolio for physical climate risks. Its scenario analysis uses Shared Socio-Economic Pathways (SSP) 1-2.6 (low emissions future) and 8.5 (high emission future) with a time horizon of 2040-2060. It found that its assets and operations are unlikely to be significantly disrupted by physical climate risks in the short and medium terms. It will assess its exposure at least annually.

Gasum has a comprehensive management system to address the potential environmental impacts--biodiversity, land use change, pollution--of its operations. This is based on its Integrated Management System, which complies with ISO 14001 (environmental management) and ISO 50001 and covers the supply of gas, the processing of biodegradable waste, and the production of recycled fertilizers and nutrient products and its energy services. To mitigate value chain risks it also undertakes counterparty due diligence and requires they comply with its Procurement Principles and Code of Conduct for Business Partners, which includes environmental and climate elements, including downstream transport emissions.

Alignment Assessment

This section provides an analysis of the framework's alignment to Green Bond and Loan principles.

Alignment Summary

Aligned = ✓ Conceptually aligned = o Not aligned = ×

- ✓ Green Bond Principles, ICMA, 2025
- ✓ Green Loan Principles, LMA/LSTA/APLMA, 2025

✓ Use of proceeds

We assess all the framework's green project categories as having a green shade, and the issuer commits to allocating the net proceeds issued under the framework exclusively to eligible green projects. Please refer to the Analysis Of Eligible Projects section for more information on our analysis of the environmental benefits of the expected use of proceeds. Our understanding is that instruments eligible under the framework will include bonds and loans. The framework specifies that proceeds can be used to finance and refinance tangible assets with no age restriction and operational expenditures with a look-back period of up to three years prior to issuance of any instruments under the framework.

✓ Process for project evaluation and selection

The evaluation and selection of eligible projects is managed by the Treasury Committee, consisting of the CEO, CFO, group treasury manager, and group risk manager. The meetings take place yearly and are also attended by the head of sustainability. Gasum's business segments propose potential green projects, which are then assessed against the eligibility criteria in the framework by the Treasury Committee and communications and sustainability teams and presented to the board of directors for final approval. The identification and management of environmental and social risks is outlined in pre-feasibility and feasibility studies as per the issuer's investment guidelines. This is followed by post-completion audits. Should a project no longer meet the eligibility criteria, it will be removed by the Treasury Committee. The framework also outlines activities that are excluded from the scope of financing, namely investments that use fossil-based raw materials, or that are associated with environmentally negative resource extraction, nuclear energy generation, weapons and defense industries, gambling and tobacco.

✓ Management of proceeds

Gasum commits to tracking an amount equal to the net proceeds using a register to monitor all green debt instruments and ensure their allocation exclusively to eligible projects. The register will also include a list of all eligible projects. Unallocated proceeds will be held as per Gasum's normal liquidity management policy and will also adhere to the exclusion list outlined in the framework. We understand that loans with green and non-green tranches will be appropriately labelled as specified in the Green Loan Principles.

✓ Reporting

Gasum commits to disclose the allocation and impact of financed projects annually, until full allocation of net proceeds, publicly on its website either as a stand-alone report or integrated into its annual reporting. The allocation report will include the total amount of outstanding green proceeds, breakdowns in the shares of proceeds by category, those used for financing and refinancing, those unallocated, as well as the types of temporary unallocated fund placements and examples and case studies of financed projects. The impact report will include the environmental impacts of financed projects and the calculation methodologies for any metrics and may, to some extent, be aggregated.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "Analytical Approach: Shades Of Green Assessments".

Overall Shades of Green assessment

Based on the project category shades of green detailed below, the expected allocation of proceeds, and consideration of environmental ambitions reflected in Gasum's Green Finance Framework, we assess the framework as Dark green.

Activities that correspond to the long-term vision of a low-carbon climate resilient future.

Our Shades of Green Analytical Approach >

Green project categories

Renewable energy

Assessment

Dark to Medium green

Description

Biogas or LBG for the use of transport on land and at sea, industry, and energy production. Renewable and low-carbon energy products replace fossil or carbon intensive energy sources and enable the reduction of greenhouse gas emissions and local air pollution.

Use of proceeds may include, but is not limited to:

- R&D of renewable and low-carbon feedstocks, products, processes, and technologies
- Investments in and maintenance of facilities and equipment used for production or storage of products
- Investments in and maintenance of infrastructure used for transporting and delivering products, for example the expansion of the fueling station network and developing marine bunkering infrastructure

Analytical considerations

- Bioenergy, including biogas and LBG, derived from sustainably produced feedstocks can provide a lower emissions alternative to fossil fuels as well as a decarbonization pathway where electrification is not possible. At the same time, land use change and biodiversity risks related to feedstock production, transportation and processing emissions, and local pollution at combustion can undermine the climate and environmental benefits of bioenergy. As the biogas and LBG infrastructure to be financed will use feedstocks with varying climate impacts and benefits across their value chains, we assign the overall category as Dark to Medium green.
- With proceeds issued under this category, Gasum will seek to continue investing in its biogas and LBG operations, in support of its objective to provide lower carbon energy for its clients. The issuer has confirmed that infrastructure will be used solely to transport biogas and LBG and not natural gas or its liquefied form, nor will this include dual-purpose systems for natural gas and biogas. Biogas can be a lower carbon alternative to natural gas used in the energy and transport sectors, without the need to materially change the underlying infrastructure or system. According to Gasum, the use of biogas resulted in a greenhouse gas emissions reduction of 95.7% on average in 2025 when compared to a fossil-based equivalent fuel. To support this, Gasum aims to reduce flaring by 5,100 tons of CO_2e by 2030 versus 2024 levels. The issuer has confirmed that

all the feedstocks it uses are waste or residue based. This approach carries climate and environmental benefits because it allows for the circular reuse of materials that would otherwise be disposed of in landfill or incinerators. That said, the overall benefits of biogas and LBG depend on the feedstocks used to generate them. We assess biogas and LBG generated from sewage sludge and food waste as Dark green, and the volumes produced from agricultural (including manure) and industrial waste as Medium green, as these feedstocks are exposed to higher value chain emissions. The latter may increase as Gasum intends to use more agricultural waste (manure) in its Swedish plants.

- Biogas and LBG can be exposed to value chain biodiversity, land use change, and pollution risks. Gasum has confirmed that all the biogas and LBG it produces complies with the EU Renewable Energy Directive (RED; 2018/2001 and 2023:2413), which includes biodiversity and greenhouse gas emissions requirements for the feedstocks used. In addition, all biogases and LBG supplied by Gasum have sustainability certifications, either national sustainability systems based on EU regulation or the International Sustainability and Carbon Certification (ISCC), recognized by the EU Commission as indicating compliance with the EU RED. Fuels produced and supplied by Gasum may also be exposed to transport emissions. The issuer mitigates this by using locally sourced waste.
- Potential environmental risks resulting from the implementation of projects in this category are covered by Gasum's Integrated Management System, as well as the application of pollution monitoring and energy and resource recovery efforts. Fugitive emissions resulting from biogas production are included in the company's scope 1 emissions and monitored using leakage detection equipment.
- The issuer has determined that its portfolio is unlikely to face disruption from physical climate risks, and it regularly undertakes reassessments to monitor its exposure.

Circular economy adapted products, production technologies and processes

Assessment	Description
Dark green	Recycled fertilizer and nutrient products supplied to partners in agriculture or industry. Use of recycled fertilizer and nutrient products reduces industrial production of artificial nutrient products and reduces dependence on mining nutrients from the ground. Use of proceeds may include, but is not limited to: • Investments that improve availability and access to renewable, low-carbon, and eco-efficient products • R&D of renewable and low-carbon feedstocks, products, processes, and technologies

Analytical considerations

- The sourcing of materials and energy use related to the production of goods, and their final disposal, is estimated to account for two-thirds of global greenhouse gas emissions, in addition to having other negative environmental impacts, such as land and water pollution. Goods, including fertilizers and nutrient products, produced by systems that are based on circular resource efficiency principles, can contribute to significant emissions savings.
- Projects in this category will entail recovering by-products from Gasum's biogas production to make fertilizers or nutrient products for the agricultural or industrial sectors. In doing so, the issuer limits its own volume of operational waste to be disposed or incinerated, and reduces its customers' need for products made from virgin, and higher impact, feedstocks. All Gasum's plants are powered by 100% renewable electricity. According to the issuer, this results in production-related greenhouse gas emissions savings of over 90% compared with mineral fertilizer use. We therefore assess this overall category as Dark green to reflect the climate and environmental benefits resulting from recovering biogas by-products.
- Environmental impacts resulting from the production of biogas and the recovery of its by-products are managed through Gasum's Integrated Management System.
- Fertilizers may result in downstream on-field emissions and land and air pollution once they are applied to agricultural fields, if used inadequately. Gasum has stated that on-field emissions and water pollution from the use of its recycled fertilizer is similar to chemical and mineral fertilizers. In addition, it does not seek to address the application method used by end-users. We note, however, that a lack of downstream risk management is common in the industry and that the use of by-products

nevertheless represents substantial climate and environmental benefits when compared to conventional production methods.

- The issuer has determined that its portfolio is unlikely to face disruption from physical climate risks, and it regularly undertakes reassessments to monitor its exposure.

Pollution prevention and control

Assessment	Description
Dark to Medium green	Treatment of a wide feedstock base of biodegradable fractions of waste and agricultural side-streams. Development of the use of side-streams of biogas production and improving resource efficiency of the process, and increasing the use of renewable energy in Gasum's operations. Use of proceeds may include, but is not limited to: • R&D of waste management and pollution prevention solutions • Equipment and management systems for reduction of waste, wastewater, residuals, and air emissions • Equipment and management systems for improved capacity/efficiency to proceed feedstocks • Developing renewable energy production for use in Gasum operations

Analytical considerations

- Waste and pollution management are important for the prevention of harm to human health and local ecosystems from waste streams. Waste prevention and reuse are the preferred solutions under the waste management hierarchy because they have the least negative environmental impact, followed by recycling, energy recovery, and finally disposal. Wastewater treatment results in benefits including improvements in water quality, relieving water stress, and may provide a source for nutrient and energy recovery. However, waste treatment systems can be energy-intensive and, if not sufficiently managed, can produce significant solid waste and methane emissions.
- The issuer shared that activities funded under this category will support its future operations in the biogas and recycled fertilizer space mostly in the form of R&D. We therefore assess this category as Dark to Medium green, to reflect the considerations of Gasum's biogas production by-product recovery process. Please refer to the Renewable Energy and Circular Economy Adapted Products, Production Technologies and Processes for the shade rationale.

Energy efficiency

Assessment	Description
Medium green	Overall energy efficiency improvements in own or customer operations. Improvements related to management systems. Use of proceeds may include, but is not limited to: • Operational energy saving projects

Analytical considerations

- Activities that seek to improve energy efficiency are necessary to transition to a low carbon economy in line with the Paris Agreement 2050 objectives. This is because they allow for a reduction in overall energy consumption, provided they do not constitute obsolescence risk by prolonging the use of fossil-fuel-powered equipment and assets.
- Projects listed in this category will be aimed at improving the energy performance of Gasum's operations and contributing to its targets of energy savings of 6% by 2030 and cumulative savings of 10% by 2035.The targets were developed as part of the issuer's commitment in 2025 to the Finnish Energy Efficiency Agreement for Industries 2026-2035, which is a voluntary scheme launched to help the country achieve its national targets under the EU Energy Efficiency Directive (2023/1791) by 2030. The issuer has confirmed that fossil-fuel-based machinery and activities will not be in scope of the financing, though we note that its energy savings targets may include Gasum's natural gas operations as it is a company-wide target. Nevertheless, improving the energy efficiency of its activities beyond natural gas will result in lower operational emissions and a reduction in overall energy consumption, and we therefore assign this category a Medium green shade.
- The issuer has determined that its portfolio is unlikely to face disruption from physical climate risks, and it regularly undertakes reassessments to monitor its exposure.

S&P Global Ratings' Shades of Green

	Dark green	Medium green	Light green	Yellow	Orange	Red
Assessments						
Description	Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps towards an LCCR future but will require further improvement to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects	Solar power plants	Energy efficient buildings	Hybrid road vehicles	Fossil fuel buses and rails	Conventional steel production	New oil exploration

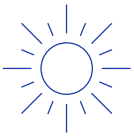
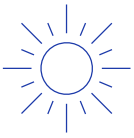
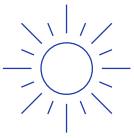
Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Mapping To The U.N.'s Sustainable Development Goals

Where the financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not affect our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs
Renewable energy	 **7. Affordable and clean energy***
Circular economy adapted products, production technologies and processes	 **7. Affordable and clean energy**
Pollution prevention and control	 **9. Industry, innovation and infrastructure**  **11. Sustainable cities and communities***  **12. Responsible consumption and production***  **13. Climate action**
Energy efficiency	 **7. Affordable and clean energy***

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- Analytical Approach: Second Party Opinions, Mar. 6, 2025
- FAQ: Applying Our Integrated Analytical Approach For Second Party Opinions, Mar. 6, 2025
- Analytical Approach: Shades Of Green Assessments, Jul. 27, 2023
- ESG Materiality Maps: Midstream Energy, July. 18, 2022
- ESG Materiality Maps: Power Generators, July 18, 2022

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