



Green Financing Framework

Update November 2020



Introduction

Lyse is a Norwegian industrial group with activities in energy, infrastructure and telecommunications. Owned by 14 municipalities and with historic roots in hydropower, Lyse has been an integrated part of the societal and industrial development of its home region Rogaland in South-Western Norway for several decades. Given this role in society, Lyse will continue its focus on energy and technology, to increase sustainable growth and to develop new future-oriented solutions.



Hydropower construction work Lysefjorden in 1916

Lyse is one of the largest producers of hydropower in Norway, with a history dating back to 1909. Other activities within energy also include district heating and cooling, biogas from local sources used for transportation, natural gas and solar power solutions.

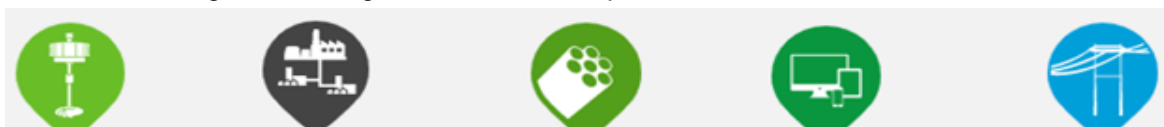
Lyse's hydropower assets have over the past 10 years generated a mean production of around 6.1 TWh of renewable energy annually. This will increase to an annual power production capacity of 9.5 TWh in a newly announced merger with the aluminium company Hydro's RSK assets in South-Western Norway. The new merged company, Lyse Kraft DA, will be owned 74.4 percent by Lyse and 25.6 percent by Hydro. The company is expected to be operational from January 2021 and will become the third largest hydropower producer in Norway. Lyse will be responsible for the water management and market activities for the production portfolio. Hydropower production makes up the majority of Lyse's total energy generation.

As an extension of electricity generation, Lyse also operates, maintains and expands the regional and district electricity grid. Lyse has a strong focus on providing a high security of supply and reducing grid losses. New technologies are applied to achieve these goals. Lyse has for a long time held a strong view on the role which the electricity infrastructure plays in a low carbon society. Already in 2011 Lyse started investing in charging infrastructure for electric vehicles, and later installed Norway's first rapid charger. Today the company operates over 30 charging stations in Rogaland and offers charging solutions for home-owners and apartment complexes.

Building on experience within electricity grid infrastructure, Lyse expanded its activities to include fibre-optic cables for high speed digital services already in 2002. Today, Lyse provides network and content services to approx. 700.000 customers across Norway and Denmark. As a result of this early adoption of fibre technology, Lyse's home region of Rogaland has one of the fastest internet networks in the world. To further develop this position, a decision was made in 2019 to construct two international underwater fibre connections, to Denmark and the UK. This will create new possibilities for large data centres in Norway and attract global companies with demand for reliable power supply, international data connectivity, and access to renewable energy.

Lyse also offers energy efficient solutions and energy management services covering measuring, reporting and steering of energy use to real estate development companies and other commercial clients, as well as charging and solar solutions.

Lyse has been active in the green finance market since 2017. Our first framework is dated December 2016 and received a Dark green shading from the Second Opinion Provider CICERO.



Lyse activities in 2020: hydropower, district heating & cooling, fibre networks, digital content, electricity grids.

Lyse's contributions to sustainable development

At Lyse, we are convinced that every organization, regardless of size, needs to integrate sustainability into its activities to be able to be profitable in the future. We refer to the UN Sustainable Development Goals (SDG) as an overarching framework to assess how our activities are connected to sustainability. For example, both our hydropower production as well as district



heating contribute to SDG number 7 by supplying climate neutral energy. Clean energy is also an important contributor to stop climate change and thus SDG number 13 is integral to Lyse. Our activities within energy- and digital infrastructure contribute to sustainable communities by facilitating electrification and innovation, thus supporting both SDG number 9 and 11. With increased use of work-related videoconferencing based on high speed internet access, this digital infrastructure also enables actions to meet SDG number 13, by replacing emissions-intensive land and air travel. In addition to the already mentioned SDG's, Lyse has also identified SDG 8 and 15 as key goals where the company believes it can make a difference and are in the process of setting specific targets to work towards. Lyse aims to sign on to the UN Global Compact and has started drafting the application in mid-November 2020.

At Lyse we see it as our responsibility to contribute to the climate-related and environmental efforts of our municipal owners and the Norwegian government. To gain a better understanding of the challenges and opportunities in our home region we commissioned an analysis of the greenhouse gas sources in Southern-Rogaland. According to the study, the transportation sector and agriculture are among the largest emitters. We are convinced that our activities can contribute to improving this situation. Lyse is contributing through several initiatives:

- Lyse has entered into a collaboration with Felleskjøpet and IVAR, establishing a new company whose aim it is to look at how to refine agricultural waste into biogas. Through this collaboration Lyse will help address the challenges with one of the main greenhouse gas sources in Southern-Rogaland.
- Lyse works to provide more biogas as a substitute to natural gas.
- Lyse has installed over 30 public 50-150 kW supercharge charging stations for electric vehicles since 2011, and has installed thousands of EV chargers in homes, office buildings and housing associations. At several locations the chargers are combined with batteries and roof-top solar panels.
- Lyse is engaged in a process to enhance the electrification of marine transport. The extension and enforcement of the electricity grid, which enables the further electrification of transportation, will receive a large share of green financing proceeds over the next years.

In a broader sense we think that our core activities within energy, technology and digitalization are central to achieving a number of the SDG's.

The Green Financing Framework

This Green Financing Framework is based on the 2018 version of Green Bond Principles, published by the International Capital Markets Association, and the 2018 version of the Green Loan Principles, published by the Loan market Association with the support of the International Capital Markets Association.

The net proceeds of the Green loans and bonds issued by Lyse will be used to finance or re-finance eligible assets and projects that have been evaluated and selected by Lyse in accordance to this Green Finance Framework. Refinancing of eligible projects will have a look-back period of no longer than 3 years from the time of issuance.

1. USE OF PROCEEDS

The eligible project categories included in this framework are **renewable energy**, **energy efficiency**, **pollution prevention and control** and **green digital solutions** (see also table on page 5). Based on the current investment plans, the likely distribution of proceeds from the financing under this framework will be: Renewable energy 15%; energy efficiency 50%; pollution prevention and control 5%; green digital solutions 30 %. We would like to provide some context and examples for the type of investments that we plan to finance with proceeds from issuances under this framework.

Renewable Energy: Lyse will primarily finance the rehabilitation and upgrading of existing hydropower plants. The purpose of these investments is to extend the lifetime of older hydropower plants by lifting the technical standard to today's levels. In the case of one plant which Lyse partly owns, investments in upgrades will increase the power production from the same amount of water passing through the plant. Most of the planned investments will benefit plants which have a power density ratio which is above the EU taxonomy threshold¹ of 5W/m². At this stage we do not have concrete plans to finance new assets during the validity period of this framework.

Energy efficiency: This category contains a variety of investments in the regional- and distribution electricity grids. Investments are driven by an increase in demand due to the electrification of economic activity and transportation. At the distribution level investments include the extension of the grid to connect and/or electrify, among others, aquaculture fish farms, a hydropower plant with increased capacity, charging stations for buses, bus lanes for electric buses along highways and the extension of greenhouses based on heat from electricity instead of natural gas. Lyse is legally obliged to offer grid connection to all clients. However, Lyse will not use green finance proceeds to connect facilities and clients involved in the exploration, production, refining and transport of fossil fuels, should such a request be put forth in the future. Given the increased demand at the distribution level, the capacity of the regional grid needs to be enforced. Lyse's investments will upgrade existing transformer-stations to increase their capacity and reduce losses. We calculated that for one of our main transformer stations, losses will be reduced from currently 10% to 2-4% after the upgrades. Under this category Lyse will also allocate a smaller share to our cooling infrastructure, where we harness the cooling effect from pumped sea water to cool down public and commercial buildings. The seawater is in a closed loop and is released back into the sea at a higher temperature (from 8 degrees pumped to 16 degrees released). Investments will finance the temperature exchangers, pipe networks and pumps. According to our calculations, this technology is 10 times more efficient compared to conventional cooling machines and does not require environmentally harmful chemicals.









Pollution prevention and control: Lyse will finance the extension of its district heating infrastructure in the Stavanger and Sandnes area. The heat which the infrastructure distributes originates from the Forus waste incineration plant. This plant is connected to the IVAR recycling facility, which is seen as one of the largest and most modern of its kind. Only fractions that are not removed for recycling are incinerated. This may include certain types of plastics for which recycling processes are not established yet, or which cannot

¹ Method for calculation to be explained here

be detected. The waste comes from households (at least 80%) and economic activity in the surrounding municipalities.

Green Digital Solutions: Lyse will finance the extension of its fiber-optic network which transfers data for internet- and other digital services. Fiber-Optic networks can carry data for multiple services and applications at an energy consumption which is estimated at around 10% that of alternative copper networks.² Fiber-networks enable more efficient remote working, which again reduces the need for fossil-intensive car and air travel.

Proceeds will also partly finance the first direct fiber-optic connection between Norway and Denmark. The cable is 100% owned by Lyse and was Ready for Service in November 2020. It will, among other purposes, be an incentive for data centers to choose Norway as a location, where their electricity and cooling demand can be met with renewable energy. Lyse has indicated that large scale international service providers, are very interested in low carbon solutions for their data centers.

Categories	Description of projects	SDG mapping
Renewable Energy	Includes expenditures on: <ul style="list-style-type: none"> Rehabilitating and upgrading existing hydropower plants to ensure a high technical standard and extend the lifetime of the asset. Extension of existing hydropower plants to increase annual power generation with the existing available hydrological resources. 	 
Energy Efficiency	Includes expenditures on: <ul style="list-style-type: none"> Extension of the electricity distribution network to support electrification of economic activities and transport, as well as connecting hydropower plants to the grid Lyse will not use green finance proceeds to connect facilities and clients involved in the exploration, production, refining and transport of fossil fuels, should such a request be put forth in the future Upgrades of transformer stations in the regional network to increase their capacity and reduce losses. Assets which are part of a district-cooling systems using pumped-seawater, including temperature exchangers, pumps and pipe networks. 	  
Pollution Prevention and Control	Includes expenditures on: <ul style="list-style-type: none"> Extending the district heating network using surplus heat from waste incineration plant. <ul style="list-style-type: none"> Investments in waste-incineration facilities are excluded. 	 
Green Digital Solutions	Includes expenditures on: <ul style="list-style-type: none"> Expanding fibre-optic networks with minimal environmental impact to replace more energy intensive alternative networks. Proceeds will also partly finance the first direct fiber-optic connection between Norway and Denmark. This could be an incentive for data centres to choose Norway as a location, where their electricity and cooling demand can be met with renewable energy. 	

² Based on calculations by the Vienna University of Technology, Institute of Broadband Communications

Strategic and operational integration of environmental matters

Environmental matters have strategic and operational attention in all levels of our organisation. Our revised 2030 group strategy underlines our ambitions in this area. Lyse has committed to become climate neutral within 2030, including both Scope 1 and 2, and through our project portfolio contribute to significant emission reductions in our region and beyond. Lyse's operations and the resulting impacts on the environment are guided by a number of policies and routines on both the group level, applying to all underlying companies (e.g. power generation, grid etc.) as well as at the level of the single business units.

The district heating unit is certified under ISO 14001 for its environmental management system. Also the electricity grid unit is looking into becoming certified. Lyse currently asks all suppliers to sign a code of conduct where the supplier commits to abide by all environmental and social laws and regulations, among other commitments. Lyse is preparing to take further steps to include environmental concerns into its procurement. To this end, Lyse has started to map what other actors with a pronounced environmental profile are demanding from their suppliers. Lyse then wants to emulate and adopt policies which set high environmental demands for suppliers. Lyse may have to moderate some of these rules as they have to be applicable to all business units. Lyse is also in the process of mapping which of their suppliers are certified under the Miljøfyrtårn and ISO 14001 certifications.

Within the single business units, technology specific policies for procurement and operations have been adopted. The grid operations unit has voluntarily decided to stop the use of SF6, a gas used for its insulating qualities and with a very high global warming potential, in new transformer stations after 2022. The business unit responsible for fibre-optics networks attempts to lay new cables with as little environmental impact as possible. The business unit tries to lay cables at the same time and in the same ditch as other municipal works, such as water and sewage works. If this option is not available, the business unit prefers micro-trenching, cutting a narrow ditch into the asphalt to embed the cable in. This technique emits around 70% less greenhouse gasses than conventional digging³. Only if coordination with other works is not available, and if the owner of a road does not allow for micro-trenching for fear of permanent damages to the surface, does Lyse choose conventional ditch digging and laying.

Lyse is today recording some of its emissions, such as the use of fuel and air travel, and is currently in the process of establishing an internal sustainability reporting framework based on best practice in the field. Part of the work will be to establish a baseline for further measurement and reporting of emissions in the group. The future emission reports will be written in accordance with the GRI standard and will be an integrated part of the Group's internal and external reporting, hence be included in the Annual Report going forward. The Board follows the company's sustainability work through its ordinary work.

Regarding grid operations, Lyse receives positive evaluations from the regulator NVE for its assessment of how new grid infrastructure may impact affected communities, and for its engagement processes. Ground cables make up above 70 % of the total distribution grid in Lyse, this is a socially optimal position that amongst others is an advantage when it comes to extreme weather impacts. This also reduces the networks vulnerability to physical risk. In addition, winters are relatively mild in this South-Western part of Norway, reducing the risks from icing.

Regarding physical risk, Lyse expects that changes in weather patterns will affect its infrastructure. In order to adapt and reduce the vulnerability of the transmissions and distribution grid, projects specifications assume an increase in lightning strikes. Due to expected changes in precipitation Lyse will stop using electricity poles made of wood and instead employ materials that are less vulnerable to water. The positioning of new infrastructure is also influenced by the expectation that some areas will be vulnerable to sea-level rise and different kinds of slides, such as mud- slides caused by increased rainfall.

³ Savings are due to avoided transport of soil/stone mass in and out of the construction area with tractors or trucks, avoided paving of new asphalt, and because micro-trenching machines are smaller and use less fuel compared to diggers and earth movers.

Preliminary assessment of project categories against the EU taxonomy

Regarding the EU's regulation of our activities from an environmental perspective, we are taking the first steps to examine what the EU taxonomy would mean for Lyse. A statement on alignment with the EU taxonomy requires an assessment of the *Technical Screening Criteria, Do No Significant Harm, Environmental Objectives and Minimum Safeguards*. As we lack data and clarity on methods at this point, we have focused on the technical screening criteria Based on the metrics & thresholds for hydropower in the latest version of the Taxonomy Report – Technical Annex from March 2020 – we have on a best-effort basis calculated that 80% of our installed hydropower production capacity has a power density of between 5.8 - 20 W/m². The taxonomy stipulates that “Hydropower facilities with a power density above 5 W/m² are currently derogated from conducting the PCF or GHG Lifecycle Assessment (subject to regular review in accordance with the declining threshold)”. We therefore assume that at least 80% of our production capacity and the related revenues are aligned with this specific threshold.⁵ Our preliminary assessment also suggests that investments in distribution and transmission grids, investments in district cooling as well as investments in the district heating network are aligned with the relevant metrics & thresholds. The taxonomy does in its current form not detail metrics and thresholds for investments in fibre-optic networks. However, Lyse's focus on energy efficiency of such networks seems to correspond to the preliminary considerations by the TEG. Our assessments as to taxonomy alignment are preliminary and are subject to changes in the taxonomy and the methods used to calculating the indicators.

2. SELECTION AND EVALUATION OF ELIGIBLE PROJECTS

Lyse has designed and implemented a process to ensure that only projects aligned with the criteria set out above will be selected as Eligible Assets and Projects for financing under the framework. To oversee this process, a green financing committee has been established with members from Group Treasury, Group ESG and Business Units. Decisions require unanimous consent. The representatives from the business units have both experience and expertise in safeguarding environmental and social regulations, both national and Lyse specific ones.

The green/sustainable bond committee follows the below process when selecting and evaluating projects for the Eligible Projects.

1. Lyse business units or group treasury will propose potential projects
2. Lyse business units or group treasury evaluates eligibility of proposals according to eligibility criteria in above table and removes projects that do not meet the criteria
3. Lyse Green Finance Committee reviews and verifies the eligibility of the projects and gives final approval.

3. MANAGEMENT OF PROCEEDS

Lyse will establish a green finance register to monitor the Eligible Assets and Projects and the allocation of the net proceeds from green financing to eligible assets and projects.

Lyse will over the duration of the outstanding green financing build up and maintain an aggregate amount of assets and projects in the Green Finance Register that is at least equal to the aggregate net proceeds of all outstanding Lyse green financing.

⁴ Installed capacity divided by reservoir surface, based on data from the Norwegian water and energy regulator <https://atlas.nve.no/Html5Viewer/index.html?viewer=nveatlas#>. Calculation does not include hydropower plants from the transaction with Hydro.

⁵ Calculation based on wholly owned facilities as of September 30th 2020.

There may be periods when the total outstanding net proceeds of green financing exceed the value of the Eligible Assets and Projects in the Green Finance Register. Any such portion will be held in accordance with Lyse's Finance Strategy. Proceeds that are temporarily not allocated will not be invested in assets or financial instruments connected to fossil energy.

The Green Finance Register will form the basis for the impact reporting.

4. REPORTING

For bonds issued under this framework, Lyse will annually publish a report on the allocation and impact of such green bonds. For green loans secured under this framework, Lyse will provide allocation and impact reporting to those institutions participating in the loan. This non-public reporting for green loans is due to the confidential nature of loan agreements and follows the Green Loan Principles. Lyse will seek to provide the same type of allocation and impact reporting to green bond investors and green loan lenders.

Where relevant Lyse will seek to align the reporting with the latest standards and practices as identified by ICMA and the guidelines in the Nordic Public Sector Issuer's Position Paper on Green Bond Impact Reporting. The impact report will, to the extent feasible, also include a section on methodology, baselines and assumptions used in impact calculations.

Allocation Report

The allocation report will, to the extent feasible, include the following components:

- A list of all Eligible Assets and Projects funded including amounts allocated
- Detailed descriptions and case studies of selected Eligible Assets and Projects financed
- Amounts invested in each category as defined in the Use of Proceeds section and the relative share of new financing versus refinancing

Impact Report

Lyse will strive to report on the actual environmental impact of the investments financed by their green bonds and loans. If/when actual impact for some reason is not observable, or unreasonably difficult to source, estimated impact will be reported.

The impact indicators may vary with investment category, as defined in this financing framework. The impact metrics selected may include the following:

- Renewable Energy
 - Number of power plants, installed capacity and type of investments that were carried out to ensure safe and stable production of renewable energy
 - Efficiency improvements in existing hydropower plants (%)
- Energy Efficiency
 - Capacity expansion in existing regional network (GWh)
 - Extension of distribution capacity (GWh)
 - Grid losses reduced (% at sites where this can be measured)
 - GWh saved by providing pumped seawater cooling⁶
 - Cooling-effect (MW) as an indicator for freed-up capacity in the grid
- Pollution prevention and control
 - GWh of additional district heating delivered
 - Warming-effect (MW) as an indicator for freed-up capacity in the grid.

⁶ Calculation method: Electricity demand of conventional air conditioning systems minus the electricity demand for pumped seawater cooling per unit of heat energy removed from buildings (measured in kWh)

- Green Digital Services
 - Km of energy saving fibre optic networks laid
 - Share of fibre optic network laid with micro-trenching or alongside other municipal works

5. EXTERNAL REVIEW

Lyse has engaged CICERO Shades of Green to act as an external reviewer of this green financing framework and the eligible assets and projects. The Second Party Opinion is publicly available on Lyse website.

Lyse will also have the Green Bond Allocation Report verified by a 3rd party on an annual basis, until full allocation has been achieved.