



ØSTFOLD  
ENERGI

# GREEN BOND FRAMEWORK

MAY 2022



# CONTENTS

About Østfold Energi .....	3
Our Business Areas .....	4
Sustainability in Østfold Energi .....	10
Østfold Energi and Green Finance.....	12
Use of Proceeds .....	12
Green Projects .....	14
Process for Project Evaluation and Selection .....	15
Management of Proceeds .....	15
Reporting .....	16
External Review .....	17
Appendix 1:.....	18
Alignment with the EU Taxonomy .....	18
Appendix 2:.....	23
The SDGs in Østfold Energi .....	23

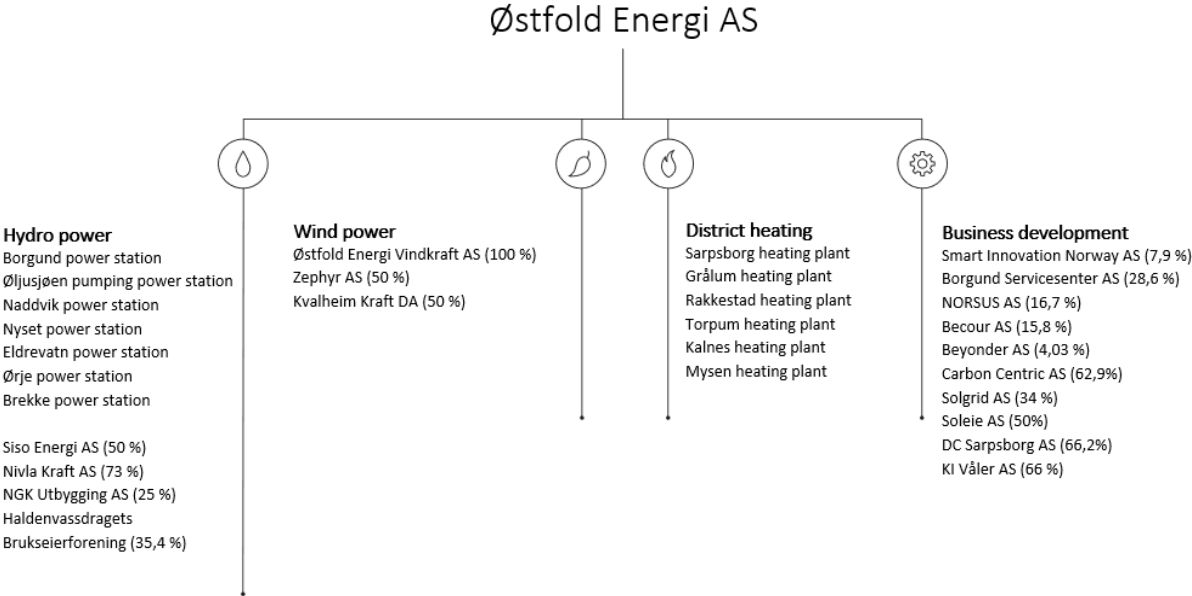
# ABOUT ØSTFOLD ENERGI

Østfold Energi was established to provide more electricity to the county of Østfold.

Østfold Energi AS is a Norwegian energy supplier with its head office in Sarpsborg and has 50 employees. We develop and produce renewable energy. Østfold Energi is owned by the municipalities in Østfold and Viken county. The company was founded in 1988, but its history goes back to 1900.

Our operations include hydropower, wind power, and district heating, where 96 per cent of the power we produce derives from our 10 wholly and partly owned hydropower plants in Lærdal, Årdal, Marker, Halden and Sørfold.

The majority of the hydropower is produced at the Borgund power plant in Lærdal in the western part of Norway. The remaining production is generated at our district heating plants and a windfarm. We have six district heating systems in the Østfold region, and we are part owner of a windfarm in Kinn municipality.



In our partly owned companies, we use our ownership share and board representation to positively influence our business operation to run in a sustainable manner. For new investments, we require a board position and that they implement formal instructions for the Board of Directors and the Chief Executive Officer. To ensure the proper separation of duties and avoid conflict of interest, Østfold Energi’s CEO takes the role as the share owner. The CEO then appoints company employees to represent Østfold Energi as board members in the different companies we are investing in.

## OUR BUSINESS AREAS

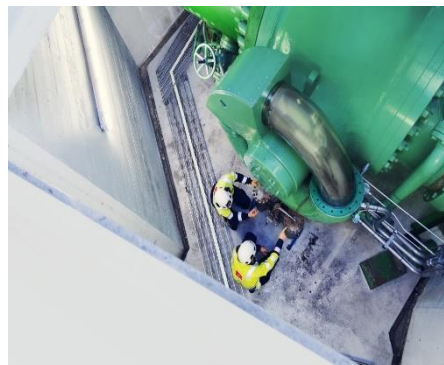
### HYDROPOWER

**Hydropower is renewable, affordable to produce and provides reliable energy year after year.**

Østfold Energi produces 2,000 GWh hydropower annually. This corresponds to the normal power consumption by around 100,000 residences.

Our hydropower production is sold on the power exchange Nord Pool. This means that Østfold Energi, like other Norwegian power producers, is part of a large international market, where power prices fluctuate from day to day.

We have ten wholly and partly owned hydropower plants. There are important licensing conditions associated with these power plants. Borgund, Eldrevatn and Øljusjøen power plants are connected to the Lærdal river, which is one of Norway's most important national salmon rivers. Safeguarding and conditions for salmon and sea trout in Lærdal river is an important part of our environmental responsibility.



Facility	Capacity	Production
Borgund	210 MW	985 GWh
Eldrevatn	5 MW	24 GWh
Øljusjøen	48 MW	28 GWh
Naddvik	114 MW	437 GWh
Nyset	5 MW	12 GWh
Brekke	8 MW	30 GWh
Ørje	1.8 MW	9 GWh
Partly owned	Capacity (100% basis)	Production(100% basis)
Siso (50% owned)	180 MW	970 GWh
Lakshola (50% owned)	31 MW	116 GWh
Nivla (73% owned)	4.9 MW	11 GWh

## How we take care of the Lærdal river

### In Lærdalselva, salmon lives alongside hydropower production.

Taking care of the Lærdal river is a natural part of Østfold Energi environmental responsibility. Over the years, we have implemented several measures to ensure that the salmon have the best possible living conditions.

<p><b>Licence obligations</b></p>	<p>Our licensing obligations determine how we will run our power plants and how to manoeuvre water flow in the river. These provisions are issued on the basis of thorough environmental surveys before the power plants were built. Within the framework of these provisions, we are making further improvements to our internal routines to optimise the practice so that the negative effect of our operation on salmon and sea trout is as small as possible.</p>
<p><b>River management:</b></p>	<p>While the operating licence and manoeuvre regulations contain requirements for how the river shall be managed, for example related to the water level, we take additional steps. We work closely together with research communities and Elveeierlaget (the river owners in Lærdal) on how we can sustainably manage the river further to ensure good conditions for the salmon and sea trout.</p> <p>In 2017, and after diligent efforts for about 20 years, the Lærdal river was reported free from the parasite Gyrodactylus Salaris.</p>
<p><b>Salmon stairs:</b></p>	<p>The salmon has its natural hiking barriers approx. 25 km from the fjord. Four salmon stairs were built in the 1970s to extend the salmon-bearing stretch by 15 km. This gives salmon and sea trout more growing up areas, space for spawning and at the same time facilitates the opportunity to practise sport fishing further up the river.</p>
<p><b>Salmon hatchery:</b></p>	<p>We fully finance a salmon hatchery, and we contribute to the work of releasing about 70,000–80,000 fry into the river.</p>
<p><b>Release of mountain trout in hydropower reservoirs:</b></p>	<p>We fully finance the release of one-year-old sea trout in our hydropower reservoirs in the mountains. This also includes sample fishing and monitoring of the population.</p>
<p><b>Fish counts:</b></p>	<p>We carry out annual fish counts to follow the stock development of salmon and sea trout in the Lærdal river.</p>
<p><b>Better conditions for salmon and sea trout:</b></p>	<p>We have restored a tributary of the Lærdal River. This ensures water flow all year round and creates growing and spawning grounds for thousands of salmon and sea trout. This project has been a success and we, therefore, have plans to restore four new tributaries during 2022 which will further contribute to life in the Lærdal river.</p>

## DISTRICT HEATING

**A district heating system is a central heating system that supplies buildings with hot tap water and heating from radiator panels.**

Our district heating plants produce approximately 50-55 GWh annually, using a variety of energy sources, from waste heat from local industries, bioenergy and heat pumps.

The heat (hot water) is distributed to commercial buildings, public buildings and homes through insulated pipes. The pipes are laid in ditches, often together with other infrastructure such as water and sewage, telecommunications lines and power cables.



Østfold Energi owns and operates six district heating systems in Østfold. In Sarpsborg, heat pumps are used as a base load for district heating production. Torpum (Halden) and Mysen facilities use wood chips, while at Rakkestad heat production is based on heat from the waste-to-energy plant. The district heating systems in Sarpsborg, Rakkestad and Mysen have an operating licence from Norwegian Water Resources and Energy Directorate (NVE).

Location:	Torpum (Halden)	Mysen	Sarpsborg	Grålum	Kalnes	Rakkestad
<b>Energy source:</b>	Bio waste (wood chips)	Bio waste (wood chips)	Heat pump	Heat pump	Heat pump (geothermal)	Waste
<b>Capacity: (main source)</b>	1 x 2 MW	1 x 3 MW	1 x 2 MW 1 x 3 MW	2 x 0.44 MW	1 x 1.25 MW	1 x 4 MW
<b>Energy delivered:</b>	2.5 GWh	8.0 GWh	24.0 GWh	2.0 GWh	12.5 GWh	10.0 GWh

The wood chips derive from sustainable managed forests certified by PEFC, the world's leading forest certification system<sup>1</sup>. A PEFC certification is preventing deforestation and illegal logging while safeguarding nature, climate and human rights locally and globally.

Reuse of waste heat is considered to be an important part of the circular economy. We use waste heat from the local biorefinery Borregaard in Sarpsborg and from our waste-to-energy plant in Rakkestad.

<sup>1</sup> [What is certification? - PEFC - Programme for the Endorsement of Forest Certification](#)

## WIND POWER

**Wind power is an important part of the renewable mix in Norway. Technology is developing rapidly and wind power is an important focus area for Østfold Energi.**

We are 50 per cent owner of Kvalheim Kraft DA and 50 per cent owner of Zephyr, one of Norway's largest wind power developers.

### *Kvalheim Kraft*

Kvalheim Kraft owns Mehuken wind farm, which is located on Måløy in Kinn municipality in Vestland county. Østfold Energi owns 50 per cent of the company, and Vardar AS, which is owned by 19 municipalities in Viken county, owns the other 50 per cent<sup>2</sup>.

When the Mehuken wind farm opened in 2001, it was Norway's largest. In 2010, the wind farm expanded from five to thirteen turbines, which increased production fivefold. In 2015, Kvalheim Kraft replaced five of the oldest turbines with three new and more efficient turbines, which increased the annual production capacity from 65 to 74 GWh in a normal wind year.



### *Zephyr*

Through our active ownership in Zephyr, we have succeeded in building a highly competent team in Sarpsborg, Oslo, Gothenburg and Reykjavik to develop, build and operate wind power projects.

Zephyr has built 700 MW of wind farms and are operating more than 500 MW of wind farms in Norway. The power plants that have been realised so far produce more than 2.2 TWh of clean and renewable energy every year. This corresponds to the yearly power production in Østfold Energi. All of these plants are now sold so they will not appear in our total energy production.

An increasing conflict level between wind farm developers and local communities in Norway, following a large and rapid development of new wind power projects, has led to a pause in the award of new development licences. Zephyr uses this situation to focus on projects outside Norway as well as to assess the possibilities of offshore wind power projects.

## BUSINESS DEVELOPMENT AND NEW VENTURES

**Sustainable energy production and consumption is the key to solving the climate crisis. We, therefore, pursue business development projects to make ourselves less dependent on power price, create jobs in our regions, facilitate reduction of greenhouse gas emissions and increase the long-term value of the company.**

---

<sup>2</sup> [VINDKRAFT - Vardar AS](#)

We have several business development projects where the following are the most important for future growth:

- Carbon capture and storage (CCS) through Carbon Centric
- Solar power through Solgrid and Soleie
- Early development of green industry areas through DC Sarpsborg and KI Våler AS
- Improved value creation on the guarantees of origin (GOO) in Becour
- Development of a new battery technology in Beyonder, in which Østfold Energi currently owns 4.03 %

**Carbon Centric**, which spins out of Østfold Energi, will offer turnkey carbon capture plants for incineration plants, using proven technology to build affordable and modular plants. Assisted by Carbon Centric, Østfold Energi will build a full-scale carbon capture plant to reduce the greenhouse gas emissions at the Rakkestad waste-to-energy plant. Carbon Centric has already established a sizeable list of potential customers, indicating that they will have a substantial impact on the reduction of greenhouse gas emissions.

**Solgrid** was founded in 2020 with the aim of becoming a leading Nordic producer of solar energy to accelerate the transition to clean energy based on sustainable solutions. In collaboration with power producers, public authorities and grid operators, Solgrid's mission is to develop, build, operate and own large scale solar power plants. Solgrid currently has a project portfolio of more than 1000 MWp



in Norway and Sweden in various development phases. Our first solar park, Varberg Norra in Sweden, opened in 3Q 2021. By 2025, Solgrid intends to develop and build more than 500 MWp, with the ambition of developing and building more than 2000 MWp by 2030.

**Soleie** is owned 50/50 between Østfold Energi and Akershus Energi. Soleie was established to ease the usage of solar energy and support the green shift, by offering solar as a service with a lower total cost than energy from the grid without requiring any investments for selected large buildings. Soleie currently targets all suitable, large, commercial, or public buildings in south-eastern Norway including both future and existing buildings. Soleie just completed its first customer installations covering 8,000 m<sup>2</sup> with solar panels on the first site and is on track on its plan to install 50 MWp of solar within 2025.

**DC Sarpsborg and KI Våler** develops large areas in the Østfold region to facilitate the building of new green industries. We are securing landowner agreement, grid connection and all the necessary governmental approvals for a future green industry development.

**Becour** is a start-up that uses technology to increase the value of trading GOOs for consumers and producers of renewable energy<sup>3</sup>. The company has developed a "app" for renewable energy where

---

<sup>3</sup> [Becour | Who we are](#)



consumers can track the origin of their consumption to the hourly production from a renewable source. Several large customers, such as IKEA, have started using Becour’s solution.

**Beyonder**, established in 2016 with [12] employees and based in Stavanger, has developed eco-friendly and energy efficient battery solutions<sup>4</sup>. The production is based on using renewable energy ecological friendly materials such as sawdust, with high power, fast charging and long lifetime. A groundbreaking lithium capacitor (LiC) battery technology yielding 50x the power per kg compared to traditional lithium-ion batteries (LiB), a lifetime of more than 100,000 cycles (20x longer compared to LiB), thus reducing the need for the frequent replacement of batteries.

It is based on sawdust instead of nickel and cobalt increasing the sustainability footprint considerably. In sum, the LiC opens up a whole new set of use case for electrification/decarbonisation where Beyonder enables cost effective, small/light, sustainable and safe enough solutions to be a real alternative to the current fossil solutions. Furthermore, the internal resistance of Beyonder’s supercapacitors and LiC cells are significantly lower compared to conventional Li-ion batteries. This means less need for cooling, less waste of energy and, therefore, higher full cycle efficiency. Beyonder has just started its prototype production line (covering 1,000 m2) and is now aiming towards a full-scale production yielding local workplaces and new opportunities for the electrification of fossil processes.



---

<sup>4</sup> [We want to meet the global need for eco-friendly energy storage solutions for industrial use. — Beyonder.](#)

# SUSTAINABILITY IN ØSTFOLD ENERGI

**Our mission is to produce renewable energy and create sustainable development in our communities.**

Today, we contribute to a secure energy supply for society as a whole and create profitable growth in new energy solutions which contribute to increased access to renewable energy.

There is a general increase in the focus on the environment, climate and sustainability as well as how we run our businesses. As a company, we remain aware of this by meeting new requirements and expectations from the authorities, neighbours, river owners' associations, environmental organisations, banks and insurance companies. It is expected, to a greater extent than before, that we are more conscious about both our positive contributions to and negative impact on society. In addition, a high degree of openness is expected, and we have goals, plans and measures for all these areas. We welcome this attention as it helps all of us to move towards a more sustainable society.

We believe that good management of climate, environment and sustainability will be crucial in all future business activities. To be an attractive partner and employer we must take this seriously and we want to be at the forefront. For us, sustainability is about producing renewable energy to a world that needs it, to take care of the natural resources from where we produce power, how we work to cut emissions in our own production, what we give back to society and how we take care of our employees.

Our core business - the production of renewable energy - is our most important environmental contribution. In 2020, Østfold Energi produced about 1.4 per cent of Norway's renewable energy production. 99.9 per cent of our total energy production in 2020 came from renewable energy sources. The small share of non-renewable energy came from the oil and propane used to peak loads in heat production and emissions related to one share of waste-to-energy plant in Rakkestad.

In 2020, we commenced extensive work to raise our sustainability ambitions. An internal interdisciplinary project group was established, which together with the management group and the Board, decided on clear guidelines for the work going forward.

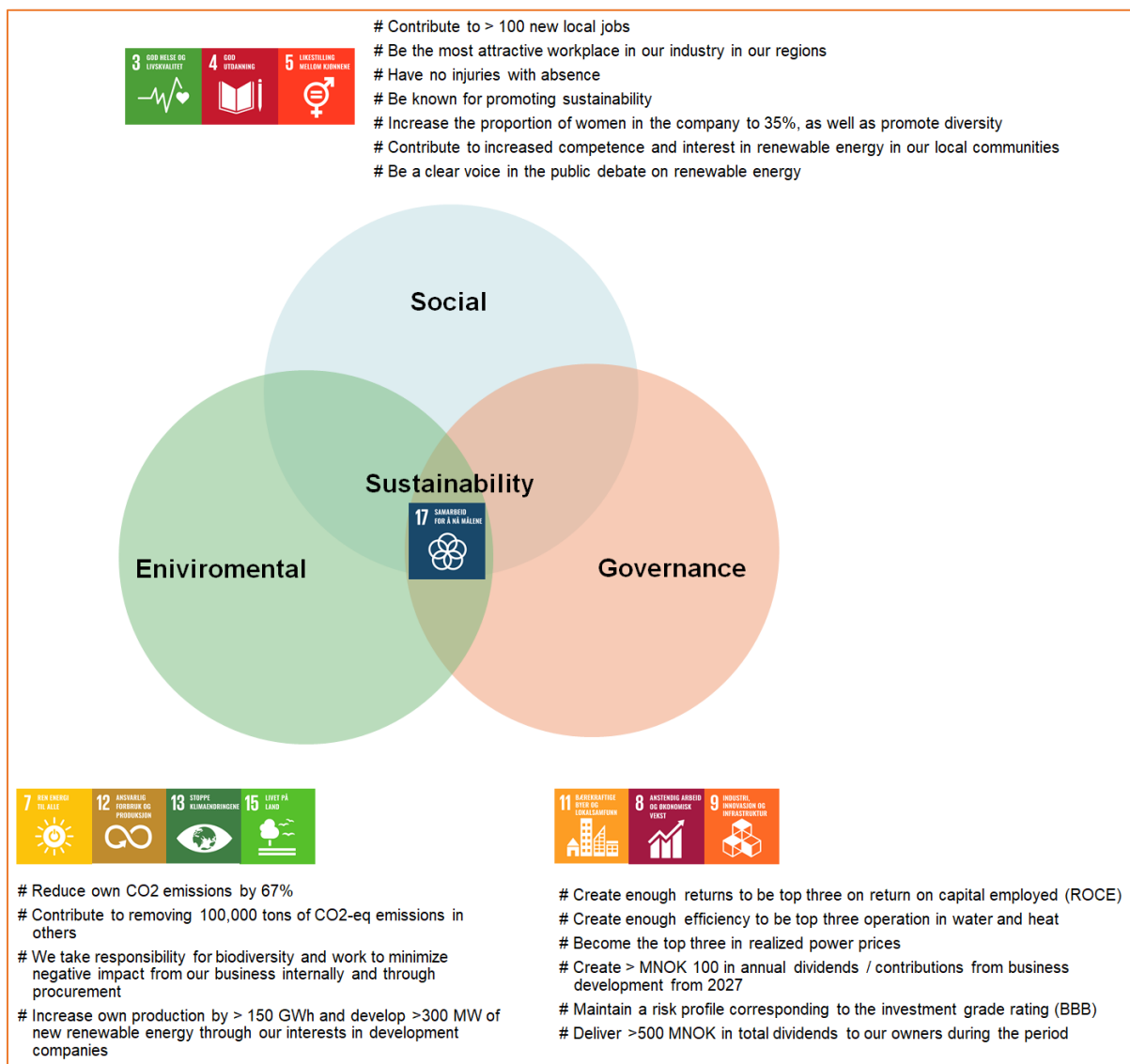
We consider our business to be sustainable if we meet certain environmental, societal and financial targets. We have made a road map on how to achieve our sustainability targets within these three dimensions.

## STRATEGY AND MAIN GOALS

We established a new strategy Q4 2021, which will run from 2022 -2027. In our strategy we have five focus areas:

- (1) Develop more renewable energy
- (2) Develop new businesses
- (3) Building teams and expertise
- (4) Sustainability in everything we do
- (5) Industrial development of our business

The strategy is based on the three pillars **Economic**, **Social** and **Environmental**, and linked to the UN Sustainability Development Goals (SDGs) in this way:



In appendix 2 we have made a more detailed list over our response to the different SDG targets.

# ØSTFOLD ENERGI AND GREEN FINANCE

**To deliver on our goal to increase the supply of renewable power to society and contribute towards climate change mitigation, we are committed to making investments into additional generation capacity and new technology.**

Østfold Energi wants to take part in the green bond market with the purpose of financing our commitments towards environmentally sustainable and climate resilient development.

This Green Bond Framework (the “Framework”) is aligned with the ICMA Green Bond Principles, issued in 2021.

The Framework defines the assets and projects that can be financed by Green Bonds (“Green Projects”), and it also outlines the process to evaluate, select, track and report on such investments.

This Framework may over time be updated, but new versions of the Framework shall have no implications for the Green Bonds already issued under this version of the Framework.

## USE OF PROCEEDS

An amount equal to the net proceeds from Green Bonds issued under this Framework will be used to finance a portfolio of assets and projects, in whole or in part, that contribute towards climate change mitigation and increased electrification.

Only such assets and projects that comply with the list of Green Projects below are deemed eligible to be financed by Green Bonds. Net proceeds from Green Bonds can be used for the financing of new assets and projects as well

as for refinancing purposes. New assets and projects are defined as ongoing Green Projects and those taken into operation after the issuance of a Green Bond.

For the avoidance of doubt, proceeds from Green Bonds will not be used to finance investments linked to fossil energy generation, nuclear energy generation, research and/or development within weapons and defence, potentially environmentally negative resource extraction, gambling or tobacco.

## ALIGNMENT WITH THE RELEVANT STANDARDS AND GUIDELINES

With this Framework, our aim is to meet best market practices by adhering to relevant standards and guidelines in the green finance market. Each Green Project category has, therefore, been mapped against the different

categories of the ICMA Green Bond Principles (“ICMA GBPs”), the relevant UN Sustainable Development Goals (“UN SDGs”) as well as the relevant economic activities included in the EU Taxonomy.

### *The EU Taxonomy*

**The EU Taxonomy** provides a classification system for identifying environmentally sustainable economic activities. The Taxonomy

Regulation, which entered into force in July 2020, states that to qualify as environmentally sustainable, an activity should 1) make a substantial contribution to the achievement of

one or several of EU's six overarching environmental objectives, 2) do no significant harm to the achievement of any of the other environmental objectives, and 3) meet minimum social safeguards.

In April 2021, the first set of delegated acts providing technical screening criteria for two of the environmental objectives – Climate Change Mitigation and Climate Change Adaptation – were published.

We believe the Green Projects financed under this Framework align with the metrics and thresholds of the EU Taxonomy and have the potential to make a significant contribution to the EU's environmental objective of Climate Change Mitigation. The Second Party Opinion provider Cicero has, as part of their Second Party Opinion, commented on the Taxonomy alignment of our Green Projects.

We acknowledge that metrics and thresholds in the EU Taxonomy may change over time. It is our aim to monitor the development, and when deemed necessary by Østfold Energi, this Framework may be updated to further harmonise with the EU Taxonomy. In our annual Green Finance Report, we aim to provide additional information around EU Taxonomy developments deemed to be of relevance to this Framework and possible implications for our Green Project criteria and activities.



Mapping against the relevant economic activities in the EU Taxonomy can be found in the table below, while further details regarding alignment with relevant technical screening criteria can be found in the Appendix.



# GREEN PROJECTS

Green Bonds issued under this Framework will finance and refinance capital expenditures and operating expenditures within the following Green Project categories. For operating expenditures, we will use a maximum look-back period of three years. Green Bonds can also finance and refinance acquisitions of

Green Projects as well as investments in share capital of companies with such assets and where the use of proceeds should be directly linked to the book value of the eligible assets owned by the acquired company, adjusted for the share of equity acquired.

GREEN PROJECT CATEGORY	ICMA GBPs	EU TAXONOMY	UN SDGs
<p><b>Renewable energy</b> Development, construction, installation, operation, improvement, repair and maintenance of facilities, as well as the related infrastructure, connected to the generation of electricity from wind power, solar power and hydro power projects subject to a power density above 5W/m<sup>2</sup> or life-cycle emissions below 100 g CO<sub>2</sub>e/kWh, or run-of-river plants without artificial reservoirs.</p>	Renewable energy	<p>Electricity generation from solar power</p> <p>Electricity generation from wind power</p> <p>Electricity generation from hydropower</p>	
<p><b>District heating and cooling</b> Development, construction, installation, operation, improvement, repair and maintenance of facilities, as well as the related infrastructure, connected to district heating and cooling where at least 95 per cent of the fuel comes from renewable sources such as wood chips from sustainably certified forest, geothermal heat and waste heat from nearby industries.</p> <p><b>Exclusion:</b> Waste-to-energy facilities which are mainly fuelled by residues from households and/or commercial activities will not be included.</p>	Energy efficiency	<p>District heating/cooling distribution</p> <p>Production of heat/cool from geothermal energy</p> <p>Production of heat/cool from bioenergy</p> <p>Production of heat/cool using waste heat</p>	

## PROCESS FOR PROJECT EVALUATION AND SELECTION

To ensure the transparency and accountability around the selection of Green Projects, Østfold Energi's internal Investment Committee consisting of the executive management team is responsible for the evaluation and selection process.

Every investment must answer a set of criteria focusing on different aspect of sustainability.

The following list of questions is required to be reviewed for each investment opportunity:

1. *Strategic fit – how does this investment correspond to our strategic targets?*
2. *Environment – how does this investment contribute to our ambitions to reduce greenhouse gas emissions, reduce environmental impacts and sustain biodiversity?*
3. *Social – how does this investment contribute to our ambitions to strengthen diversity, create sustainable local jobs, strengthen HSEQ in our processes and create value for our regions?*
4. *Economical – how does this investment contribute to our financial targets?*
5. *Risk – which risk does this investment entail?*
6. *Commitments – which commitments does this investment entail?*
7. *Exit – how can we get out of our commitments if we'd like to?*
8. *Portfolio – why should we prioritize this investment above the other opportunities we are seeing?*

All decisions related to the inclusion of assets and projects as Green Projects will be made in consensus.

Only such assets and projects that comply with the Green Project criteria defined in the Use of Proceeds section of this Framework can be approved by the Investment Committee and become eligible to be financed with Green Bonds.

The Investment Committee will keep a register of all Green Projects, and to ensure traceability,

all decisions made by the committee will be documented and filed. The committee also holds the right to exclude any Green Project already funded by Green Bonds, which is further described below under Management of Proceeds.

The Investment Committee is responsible for potential future oversight and updates of this Framework. Potential future updates of this Framework will have no impact on the Green Bonds issued hereunder.

## MANAGEMENT OF PROCEEDS

An amount equal to the net proceeds from issued Green Bonds will be earmarked for financing and refinancing of Green Projects as defined in this Green Bond Framework.

The Investment Committee will endeavour to ensure that the value of Green Projects always exceeds the total nominal amount of Green Bond outstanding.

If a Green Project already funded by Green Bonds is sold, or for other reasons loses its

eligibility in line with the criteria in this Framework, it will be replaced by another qualifying Green Project as soon as practically possible. Net proceeds from Green Bonds awaiting allocation to Green Projects will be held as cash and short-term money market instruments. To the extent possible the exclusions listed in the Use of Proceeds section of this Framework also apply for such temporary holdings of net proceeds.

## REPORTING

To enable investors and other stakeholders to follow the developments of our Green Projects funded by Green Bonds, a Green Bond Report will be made available on our website. The

Green Bond Report will include an **Allocation Report** and an **Impact Report** and will be published annually if there are Green Bonds outstanding or until full allocation.

### ALLOCATION REPORT

The allocation report will include the following information:

- Amounts invested in each of the Green Project categories defined in this Green Bond Framework and the share of new financing versus refinancing.
- Capex / opex share.
- Green Projects that have been funded by Green Bonds.
- The nominal amount of Green Bonds outstanding.
- The amount of net proceeds awaiting allocation to Green Projects (if any).
- Information on the possible changes/developments in the EU Taxonomy regulation and delegated acts criteria that may be of relevance for our Green Project criteria.

### IMPACT REPORT

The impact report aims to disclose the environmental impact of the Green Projects financed under this Framework.

Impact reporting will, on a best effort basis, align with the portfolio approach described in “Handbook – Harmonized Framework for Impact Reporting” (April 2020) where impact will be aggregated for each project category, and depending on data availability, calculations made on a best effort basis with transparency on the assumptions being applied. For projects under construction, calculations may be based on preliminary estimates.

The impact assessment maybe based on the metrics listed in the table below:

Metric:	Renewable energy	District heating and cooling
Energy generation capacity	MW	MW
Actual annual energy generation	GWh	GWh
Annual reduction and/or avoidance of GHG emissions <sup>5</sup>	Kg CO2e	Kg CO2e

<sup>5</sup> Baseline grid factor will be based on recommendation set out in Nordic Position Paper for Green Bonds Impact Reporting (link: [NPSI Position paper 2020 final.pdf \(kuntarahoitus.fi\)](#))



## EXTERNAL REVIEW

### SECOND-PARTY OPINION

Østfold Energi has obtained a pre-issuance Second-Party Opinion from Cicero Shades of Green to confirm the transparency of this Green Bond Framework and its alignment with the ICMA Green Bond Principles, published in 2021. The Second-Party Opinion also includes an assessment of the alignment of our Green Project categories with the criteria in the EU Taxonomy.

The Second-Party Opinion will be made available on our website, together with this Green Bond Framework.

### POST-ISSUANCE VERIFICATION

An independent auditor appointed by Østfold Energi will provide a limited assurance report confirming that an amount equal to the net proceeds from issued Green Bonds has been allocated to Green Projects as defined in this Green Bond Framework.

This report will be made available on our website.

# APPENDIX 1:

## ALIGNMENT WITH THE EU TAXONOMY

Based on our mapping of Green Project categories in this Green Finance Framework against economic activities in the EU Taxonomy, we are here elaborating on the alignment of our Green Projects with the technical screening criteria in the EU Taxonomy delegated act for Climate Change Mitigation published in April 2021.

### 4.1 ELECTRICITY GENERATION USING SOLAR PV TECHNOLOGY

**Environmental Objective:** Climate Change Mitigation

#### *1) Arguments for ensuring a substantial contribution to Climate Change Mitigation*

Solar PV technology is an eligible energy source according to the EU Taxonomy.

#### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, use of equipment and components of high durability and recyclability, and minimise impact on biodiversity and ecosystems.

**For all solar PV projects, we perform environmental impact assessments, and we implement plans to ensure minimal negative impact throughout the asset's life cycle. We follow the national laws and regulations, where the environmental impact as well as the impact on biodiversity and the surrounding areas are important requirements for attaining the necessary licences. We also explore opportunities for the more efficient use of land, together with relevant partners, for example where solar parks could be combined with agriculture.**

### 4.3 ELECTRICITY GENERATION FROM WIND POWER

**Environmental Objective:** Climate Change Mitigation

#### *1) Arguments for ensuring substantial contribution to Climate Change Mitigation*

Wind power is an eligible energy source according to the EU Taxonomy.

#### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, whereas specifically for offshore wind, the particular care paid to having a good environmental status should be considered, use of equipment and components of high durability and recyclability, and minimise the impact on biodiversity and ecosystems.

**For all wind energy projects, we perform environmental impact assessments, and we implement plans to ensure the minimal negative impact throughout the asset's life cycle. We follow the national laws and regulations, where the environmental impact as well as the impact on the biodiversity and surrounding areas are important requirements for attaining the necessary concessions, as detailed**

by the Norwegian Water Resources and Energy Directorate (NVE). This includes requirements on the construction and operational phases as well as having concrete plans for decommissioning, including possible recycling and reuse of components and the restoration of land.

## 4.5 ELECTRICITY GENERATION FROM HYDROPOWER

**Environmental Objective:** Climate Change Mitigation

### *1) Arguments for ensuring a substantial contribution to Climate Change Mitigation*

The EU Taxonomy requires that hydropower facilities have a power density above 5 W/m<sup>2</sup>, or life-cycle emissions below 100 g CO<sub>2</sub>e/kWh or are run-of-river plants without artificial reservoirs.

The Green Project criteria for hydropower mirrors those in the EU Taxonomy. According to a report from the IPCC, CO<sub>2</sub> emissions from hydropower vary greatly depending on project and location, with a global median around 20 g CO<sub>2</sub>e/kWh<sup>6</sup>. A study performed in 2019 by the Norwegian Institute for Sustainability Research (NORSUS) on Norwegian hydropower indicates average life-cycle emissions of around 3.3 g CO<sub>2</sub>e/kWh<sup>7</sup>. In addition, the study notes that hydropower plants in Norway tend to be located at high altitudes where there is little vegetation as well as a colder climate, which leads to limited extra methane emissions from algae growth which could develop in the water storage basin where the climate is warmer.

### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, ensure that all technically feasible and ecologically relevant mitigation measures have been implemented to reduce adverse impacts on water as well as on protected habitats and species directly dependent on water, and minimise the impact on biodiversity and ecosystems.

For all hydropower projects, we perform environmental impact assessments in the planning process and we implement plans to ensure the minimal negative impact throughout the asset's life cycle. During operation, we perform a range of necessary mitigating measures to safeguard the environmental values in the surrounding watercourse. These measures include, but are not limited to, the implementation of physical environmental measures in rivers and reservoirs such as habitat improvement measures for trout and salmon, improved methods for fish passage past hydropower plants and voluntary increased release of water (m<sup>3</sup>/s) in regulated rivers. All our facilities are also regularly subject to environmental supervision by qualified co-workers to ensure good environmental conditions and to assess the need for implementing new mitigating measures. We adhere to the EU Water Framework Directive and we follow the national laws and regulations. Environmental impact as well as impact on biodiversity and surrounding areas, are important requirements for attaining necessary licences, as detailed by the Norwegian Water Resources and Energy Directorate (NVE).

---

<sup>6</sup> [ipcc\\_wg3\\_ar5\\_chapter7.pdf](#)

<sup>7</sup> [AR-01.19-The-inventory-and-life-cycle-data-for-Norwegian-hydroelectricity.pdf \(norsus.no\)](#)

## 4.15 DISTRICT HEATING/COOLING DISTRIBUTION

**Environmental Objective:** Climate Change Mitigation

### *1) Arguments for ensuring substantial contribution to Climate Change Mitigation*

The Taxonomy states that construction and operation of pipelines and associated infrastructure for distributing heating and cooling is eligible, if the system uses at least 50% renewable energy, 50% waste heat, 75% cogenerated heat or 50% of a combination of such energy and heat.

**Our district heating and cooling systems is typical between 70% and 90% of the energy used which should come from renewable sources, such as waste energy from local industries, bioenergy and heat pumps.**

### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, preserve water quality and avoiding water stress, use equipment that represent best available technology, and minimise the impact on biodiversity and ecosystems.

**Østfold Energi follows the national laws and regulations, where the environmental impact as well as impact on the biodiversity and surrounding areas are important requirements for attaining necessary licences. We do not operate in areas with water scarcity.**

## 4.22 PRODUCTION OF HEAT/COOL FROM GEOTHERMAL ENERGY

**Environmental Objective:** Climate Change Mitigation

### *1) Arguments for ensuring substantial contribution to Climate Change Mitigation*

The EU Taxonomy criteria states that life-cycle GHG emissions from the generation of heat/cool from geothermal energy are lower than 100 gCO<sub>2</sub>e/kWh.

**At the Kalnes heating plant, we have a geothermal energy system with 100 boreholes, every one of them is approximately 250 metres deep. The main ammonia heating pump delivers both heating and cooling. We are participating in a study together with Sintef to ensure the good utilisation of geothermal systems.**

### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, use equipment and components of high durability and recyclability and that represent best available technology, and minimise impact on biodiversity and ecosystems. For the operation of high-enthalpy geothermal energy systems, adequate abatement systems are in place to reduce emission levels in order not to hamper the achievement of air quality limit values.

Østfold Energi follows the national laws and regulations, where the environmental impact as well as the impact on biodiversity and the surrounding areas are important requirements for attaining the necessary licences. We do not operate in areas with water scarcity.

## 4.24 PRODUCTION OF HEAT/COOL FROM BIOENERGY

**Environmental Objective:** Climate Change Mitigation

### *1) Arguments for ensuring substantial contribution to Climate Change Mitigation*

The EU Taxonomy criteria focus on ensuring that forest biomass is not derived from unsustainable production.

District Heating and Cooling ensures that forest biomass is using renewable sources, where the Norwegian standards and regulations for forest management apply, ensuring sustainable sourcing.

The wood chips derive from sustainable managed forests according to PEFC, the world's leading forest certification system. PEFC is preventing deforestation and illegal logging while safeguarding nature, climate and human rights locally and globally.

### *2) Arguments for ensuring no significant harm towards other environmental objectives*

To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, preserve water quality and avoiding water stress, ensure emissions no higher than those associated with best available techniques, and minimise impact on biodiversity and ecosystems. For pollution prevention and control, the EU Taxonomy refers to emission limits available in EU Directive 2010/75 for large plants (>50 MW) and EU Directive 2015/2193 for smaller plants (1-50 MW).

Østfold Energi follows the national laws and regulations, where the environmental impact as well as the impact on biodiversity and the surrounding areas are important requirements for attaining the necessary licences. We do not operate in areas with water scarcity.

In Norway, combustion plants above 50 MW are subject to emission limits set by the Norwegian Environment Agency (Miljødirektoratet). The emission limits from the Environment Agency for NOX and dust are aligned with those in the EU Directive 2010/75, but they do not include a limit for SO2.

The plants financed under this Framework are below 50 MW in size and are subject to the Norwegian pollution regulation (Forurensningsforskriften in Norwegian, Chapter 27a). For plants 5-50 MW, emission limits for NOX and dust are in line with the EU Directive 2015/2193, but the Norwegian requirements do not include limits for SO2. For plants below 5 MW, the Norwegian regulation does not include emission limits for NOX. There is currently a proposal in place to adjust the Norwegian pollution regulation in line with EU requirements and, therefore, we expect emission levels to harmonise over time.

## 4.25 PRODUCTION OF HEAT/COOL USING WASTE HEAT

**Environmental Objective:** Climate Change Mitigation

### *1) Arguments for ensuring a substantial contribution to Climate Change Mitigation*

Waste heat is an eligible fuel source according to the EU Taxonomy.

### *2) Arguments for ensuring no significant harm towards other environmental objectives*






To avoid potential significant harm to other environmental objectives, the Taxonomy highlights the need to consider climate-related risks, use equipment and components of high durability and recyclability and that represent the best available technology, and minimise the impact on biodiversity and ecosystems.






**We always demand the best available options from our suppliers, both in terms of technology as well as quality. We perform environmental impact assessments, and we implement plans to ensure the minimal negative impact. We follow the national laws and regulations, where the environmental impact as well as the impact on biodiversity and the surrounding areas, are important requirements for attaining the necessary licences. When we use electricity, we have guarantees of origin on this use.**

# APPENDIX 2:


## THE SDGs IN ØSTFOLD ENERGI

Østfold Energi sees the following SDGs to be particularly relevant for our company:

UN Sustainability Development Goal	Relevance for Østfold Energi
 <p><b>Target 3.d:</b> Strengthen the capacity for early warning, risk reduction and management of health risks.</p>	<p>We focus on a psychosocial working environment through working with mental health and physics. We have clear guidelines regarding alcohol and drug abuse, and offer individual programs to help, stop and prevent further abuse.</p> <p>It is important in our business that our employees are in good health, and we make individual adjustments to achieve this.</p>
 <p><b>Target 4.4:</b> Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.</p>	<p>Østfold Energi is a science ambassador for local schools. We are a mentor in Young Entrepreneurship. Sponsor of Science Center Sarpsborg.</p>
 <p><b>Target 5.1:</b> End all forms of discrimination against all women and girls everywhere. <b>Target 5.5:</b> Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.</p>	<p>Our share of women is 23% in 2021. Our 2027 goal is to increase the share to 35%.</p>
 <p><b>Target 7.1:</b> Ensure access to affordable, reliable and modern energy services. <b>Target 7.2:</b> Increase the share of renewable energy.</p>	<p>7.1 Maintaining and upgrading the existing facilities. 7.2 Our 2027 goal is increasing our production with 150 GWh, an increase of 300 MW new renewable energy in our new investments.</p>
 <p><b>Target 8.2:</b> Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.</p>	<p>8.2 Through our technology development in our investments.</p>

	<p><b>Target 8.8:</b> Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.</p>	<p>8.8 Our goal is to have no injuries with absence. We have a health environment and safety system where we work continuously with injuries. We have a Health-Environmental-Safety system that ensures safety in the workplace.</p>
	<p><b>Target 9.4:</b> Upgrade the infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.</p>	<p>In our increase in district heating, we offload the mains and reuse energy from industries.</p> <p>Carbon Centric will through carbon capture reduce our emissions, and through their business model reduce emissions in others.</p>
	<p><b>Target 11.6:</b> Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.</p>	<p>We operate a waste incineration plant, and it is important that we handle the waste properly through, for example, air filtration and storage of hazardous waste.</p>
	<p><b>Target 12.2:</b> Sustainable management and efficient use of natural resources.</p> <p><b>Sub-target 12.2.1:</b> Material footprint, material footprint per capita and material footprint per GDP.</p>	<p>12.2 By producing clean energy from water, wind and solar, we make use of natural resources in a sustainable way.</p> <p>12.2.1 Østfold Energi works with improving internal guidelines for achieving green procurement. This will help us get lower emissions in scope 3.</p>
	<p><b>Target 13.1:</b> Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters.</p> <p><b>Target 13.2:</b> Integrate climate change measures into policies, strategies and planning.</p>	<p>13.1 To combat the climate crisis, we must replace fossil energy sources with renewable ones. Our business area is renewable energy and with our goal of increasing production we are helping to combat the climate crisis.</p> <p>13.2 Our own strategy is built around sustainability. Through our cooperation in SDG 17, we contribute to political influence with others.</p>
	<p><b>Target 15.1:</b> Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.</p> <p><b>Target 15.4:</b> Ensure the conservation of mountain ecosystems, including</p>	<p>15.1 Securing the biodiversity in rivers and areas we build renewable energy has satisfactory biodiversity measures. Our measures are combined with own strategy, national and European laws and concessions related to our facilities.</p> <p>15.4 Same as 15.1.</p>



<p>their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development.</p> <p><b>Target 15.5:</b> Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species.</p>	<p>15.5 See fact box page 5.</p>
 <p><b>Target 17.16:</b> Enhance the partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals.</p>	<p>Through networks, investments and expertise Østfold Energi, together with partners, mobilise a national impact on politics and industry.</p>