



# Green Financing Framework

November 2021



## Reykjavik Energy – Introduction and commitment to sustainability

Reykjavik Energy (in Icelandic Orkuveita Reykjavíkur or OR) is the largest energy provider in Iceland, servicing around two-thirds of the Icelandic population with electricity and hot water for heating. Furthermore, OR provides potable water, operates sewerages, and an optical fibre network. OR's youngest subsidiary focuses on carbon capture and mineralization. As Iceland's largest producer of geothermal energy and utility company providing society's basic services OR puts environmental and social issues at the forefront of its operations and has a clear commitment to continuous improvement in these matters.

OR is responsible for the management of geothermal and water resources it utilizes and is committed to ensuring that these resources are available in the present as well as for future generations, in line with the principles of Sustainable Development. OR is the parent-company of the following subsidiaries: Veitur, ON Power (Orka náttúrunnar), Reykjavik Fibre Network (Ljósleiðarinn), and Carbfix, all detailed hereafter. Orkuveita Reykjavíkur (OR) is a partnership of three municipalities which are The City of Reykjavík (~93.5%), The Township of Akranes (~5.5%), and The Municipality of Borgarbyggð (~1%).

### OR's subsidiaries

ON Power produces renewable geothermal and hydro electricity, servicing the national market, and geothermal heating that is delivered to houses and business in Reykjavik<sup>1</sup> by Veitur Utilities<sup>2</sup>. ON Power operates two cogeneration geothermal power plants, the Hellisheidi plant (303 MWe and 200 MWth) and Nesjavellir plant (120 MWe and 340 MWth)<sup>3</sup>, and one small hydro power plant (8 MWe). Both geothermal plants are located near Iceland's capital region of Reykjavik, to which they supply a large share (~65%)<sup>4</sup> the hot water demand. ON Power is further supporting the company's vision for a carbon neutral future by being a leading company deploying EV charging infrastructure around the country.

1. The emissions from ON's power plants are low in comparison to fossil fuel powered plants (estimated to be 7.5 g CO<sub>2</sub>e/kWh for electricity and 2.8 g CO<sub>2</sub>e/kWh for hot water).
2. It is worth noting that Veitur additionally generates a sizable portion of its own hot water production for district heating through the utilization of a network low-temperature boreholes throughout and near Reykjavik
3. MWth refers to megawatts of thermal energy and MWe refers to megawatts of electricity.
4. Reykjavik Energy. OR Annual Report 2020. Reykjavik Energy. 2021. Accessed at: <https://annual-report2020.or.is/>



Veitur Utilities distributes electricity, hot water for district heating (of which Veitur produces some of its own hot water from the company's geothermal low-temperature boreholes throughout Reykjavik and from various geothermal areas in south west Iceland), in addition to running sewerage and potable water systems in Iceland's most densely populated areas in the South-Western region of Iceland, some of which are outside the capital area. Veitur Utilities also provides sustainable fresh water for drinking, and as an electric distributor plays a crucial role in building infrastructure for EVs.<sup>5</sup>

Reykjavik Fibre Network installs infrastructure for optical fibre networks to households, businesses, and governmental entities and operates the network in an open-access manner for communication companies, facilitating more use of network equipment. Reykjavik Fibre Network is a key driver in achieving digitalization through the provision of fibre-optic infrastructure development in Iceland, which has further proved its worth during the Covid-19 pandemic.

Carbfix is a start-up company, established around a method for carbon capturing and storage developed at Reykjavík Energy. Carbfix provides a natural and permanent storage solution by mineralizing CO2 underground in less than two years<sup>6</sup>. ON Power and Carbfix have partnered with direct air capture company Climeworks and inaugurated the Orca plant at Hellisheidi in September 2021. They will become the first companies globally to offer the ability to permanently store CO2 from the atmosphere, a key technology needed to fight climate change.

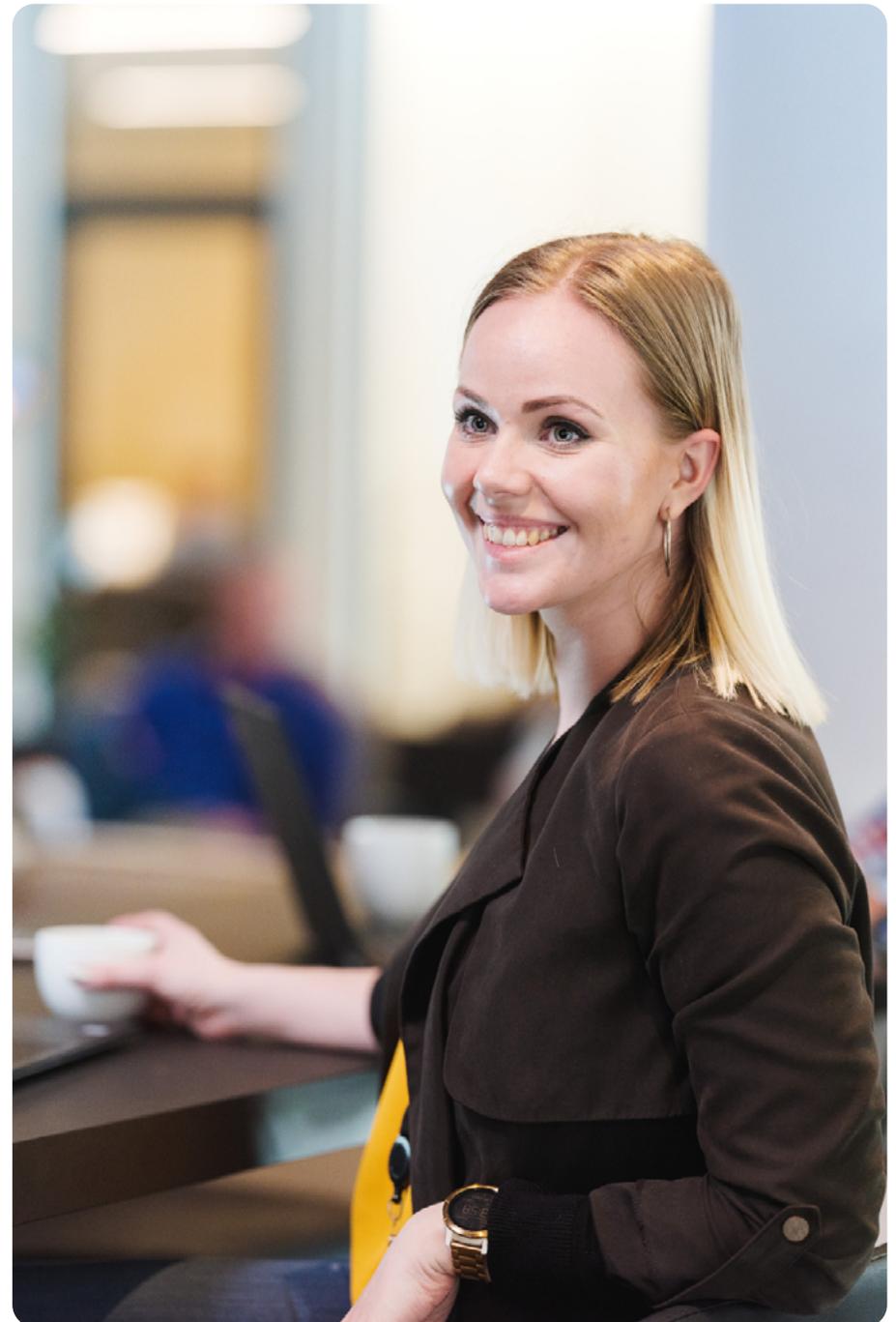
Through the activities of the company's subsidiaries, OR has established a strong environmental purpose with supporting policies<sup>7</sup> and management systems in accordance with international standards to ensure the company's continued leadership from a sustainability perspective. The effectiveness of the systems are regularly verified by audits by independent accredited bodies.<sup>8</sup> OR has additionally played a leading role alongside the National Energy Authority in Iceland in developing the Geothermal Sustainability Assessment

5. <https://www.veitur.is/en/service-area>

6. Gíslason, S. R., Sigurdardóttir, H., Aradóttir, E. S., & Oelkers, E. H. (2018). A brief history of CarbFix: Challenges and victories of the project's pilot phase. *Energy Procedia*, 146, 103-114.

7. <https://www.or.is/en/about-or/organization-and-corporate-governance/corporate-strategy/>

8. <https://www.or.is/en/about-or/operations/standards-and-certification/>



Protocol (GSAP) which will act as a global first assessment of this kind of geothermal energy production.<sup>9</sup> Further, OR has developed a climate crisis action and adaptation plan for its operations, particularly for Veitur's sewerage and water works operations.<sup>10</sup> For the 2021 annual reporting cycle, OR aims to begin reporting following the TCFD recommendations, through an iterative development process.

In 2000, OR became the first Icelandic company to issue a special Environmental Report, surpassing legal requirements by several years. Since 2015, an integrated Annual Report for the Group has been issued, currently in accordance with Nasdaq ESG reporting guidelines and additionally reports on issues related to UN Sustainable Development Goals (SDGs) and has prioritized five of them. Environmental, social, and governance issues reported on in the Annual Report are audited and signed by the Chief Executive Officer and Board of Directors.

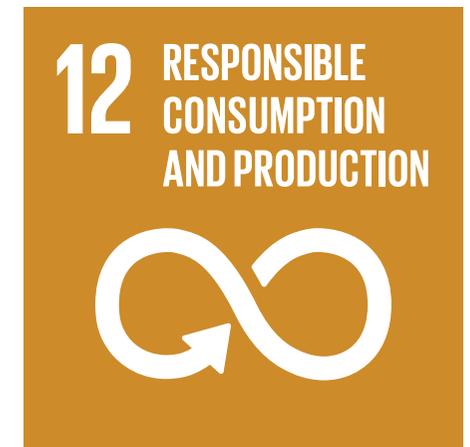
Harnessing geothermal energy from high temperature fields results in some emission of CO<sub>2</sub> due to the chemical composition of geothermal steam. Although, the emissions are minimal compared to emissions from conventional power production and the overall carbon footprint per kWh of power or heat is 7.5 gr. Additionally, approximately 99%<sup>11</sup> of the energy used in OR's operations comes from renewable sources. Even so, one of OR's environmental priorities is to become carbon neutral by 2030.<sup>12</sup> Further, to address the life cycle impacts associated with OR's operations, OR has an ongoing dialogue with suppliers to aid in the development of the market to the point where Environmental Product Declarations (EPDs) can be requested from suppliers of key products in OR's supply chain (such as pipes, cables, generators, etc.). In 2021, OR has begun setting a criteria for such documents within those key product groups in tenders. Additionally, OR has incorporated environmental criteria in their standardized tender documents for contractors. The net proceeds from bond issuances under this Framework will assist OR to fund assets that align with that goal, and to supply the population of Reykjavík with sustainable, renewable energy.

9. <https://www.veitur.is/en/service-area>

10. Gíslason, S. R., Sigurdardóttir, H., Aradóttir, E. S., & Oelkers, E. H. (2018). A brief history of CarbFix: Challenges and victories of the project's pilot phase. *Energy Procedia*, 146, 103-114.

11. <https://www.or.is/en/about-or/organization-and-corporate-governance/corporate-strategy/>

12. <https://www.or.is/en/about-or/operations/standards-and-certification/>



## Green Financing Framework

OR has now updated its 2019 Green Bond Framework with this Green Financing Framework<sup>13</sup>, intended to allow issuance of more types of debt financing, not only limited to bonds but also commercial papers, and loans (together referred to as Green Instruments), to finance Eligible Assets.

The Sustainability Instruments can be issued by OR (the parent company) or individual subsidiaries and each instrument shall refer to this Framework. This aligns with the shareholders' and the management's vision to further contribute towards sustainable development at a local and global level. By establishing this Green Financing Framework OR

offers investors the opportunity to support the transition to carbon neutrality and a climate resilient future as well as allow them further insight into its sustainability strategy.

This Framework may at times be updated to comply with future changes to green financing guidelines and taxonomies as well as to general green financing market practices and/or changes in OR's own operation. Since 2019, when the initial Green Bond Framework was issued, OR issued ISK 37.7 billion of green bonds, representing 71% of OR's total financing during that period. Further breakdown of activities during that period is represented below in Table 1.

**Table 1**

*Allocation and impacts from green bond activities under the previous Green Bond Framework published in 2020.*

Project Categories	Total Financing ISK m	Green Bond Financing ISK M	Difference ISK m	Green Bond Financing %	Other Financing %	Avoided GHG emissions tCO <sub>2</sub> eQ
Energy distribution and management	8,410	7,737	673	92%	8%	n/a
Renewable Energy	12,042	7,225	4,817	60%	40%	n/a
Sustainable Water and Wastewater management	6,375	5,164	1,211	81%	19%	n/a
Products and technologies that support smart grid applications	2,572	2,572	-	100%	0%	n/a
Sustainable land use / environmental management	1,434	1,405	29	98%	2%	40
Carbon Capture and Storage (CCS)	1,582	269	1,313	17%	83%	1,989
Clean transportation	3,340	167	3,173	5%	95%	n/a
Circular economy activities	371	52	319	14%	86%	n/a
<b>Total</b>	<b>36,126</b>	<b>24,591</b>	<b>11,535</b>	<b>68%</b>	<b>32%</b>	<b>2,029</b>

13. This Framework has been benchmarked to: the Green Bond Principles (2021), Green Loan Principles (2020), Sustainability Bond Guidelines (2021), The Climate Bond Initiative Standard (v 3.0), and the EU Taxonomy (as a work in progress).

In this update the OR Group will change its allocation procedures from a project-based approach to a balance sheet approach, in which, due to OR's operation being directly or indirectly related to green activities (also referred to as 'Pure Play') i.e. supplying and distributing renewable geothermal electricity and heat, water, sewage services, carbon capture and storage, EV infrastructure installation, land restoration, and sustainable telecommunication services through the installation of efficient fibre optic cables, it can be considered that all projects undertaken by the OR Group outside of the exclusion criteria can be financed using green instruments. Non-green assets, capture by OR's exclusion criteria, will not be funded with green instruments.

Table 2 shows the connection of the OR Group's subsidiary and respective assets related to the core operations of each subsidiary and the associated subsidiary's alignment with Green Bond Principles/E.U. taxonomy project categories, explaining its qualification as a green company which can take a balance sheet approach.

### **Use of Proceeds - Eligible Assets**

An amount equal to the net proceeds of the Green Instruments will be used to finance or refinance, investments, and expenditures, in whole or in part, for Eligible Assets. Table 2 shows the Eligible Green Assets on OR's balance sheet of per subsidiary related to the core operations of each subsidiary and the associated subsidiary's alignment with Green Bond Principles/E.U. taxonomy project categories. These project categories explain its qualification as a green company which can take a balance sheet approach. While these asset categories reflect the core operations of each subsidiary, with the interrelation of their operations, each subsidiary can utilize all assets categories listed here as part of the parent company, OR.

Net proceeds can finance both existing and new Eligible Expenditures. New financing refers to expenditures disbursed to activities and/or projects initiated in the same year as financing has taken place, or later. Refinancing refers to activities and/or projects initiated in the previous calendar year or earlier. Net proceeds will not be placed in assets, projects, or in entities related to the following activities focused on fossil energy generation or use, nuclear energy generation, research and/or development within weapons and defense, environmentally negative resource extraction (such as rare-earth elements or fossil fuels), gambling, or tobacco.

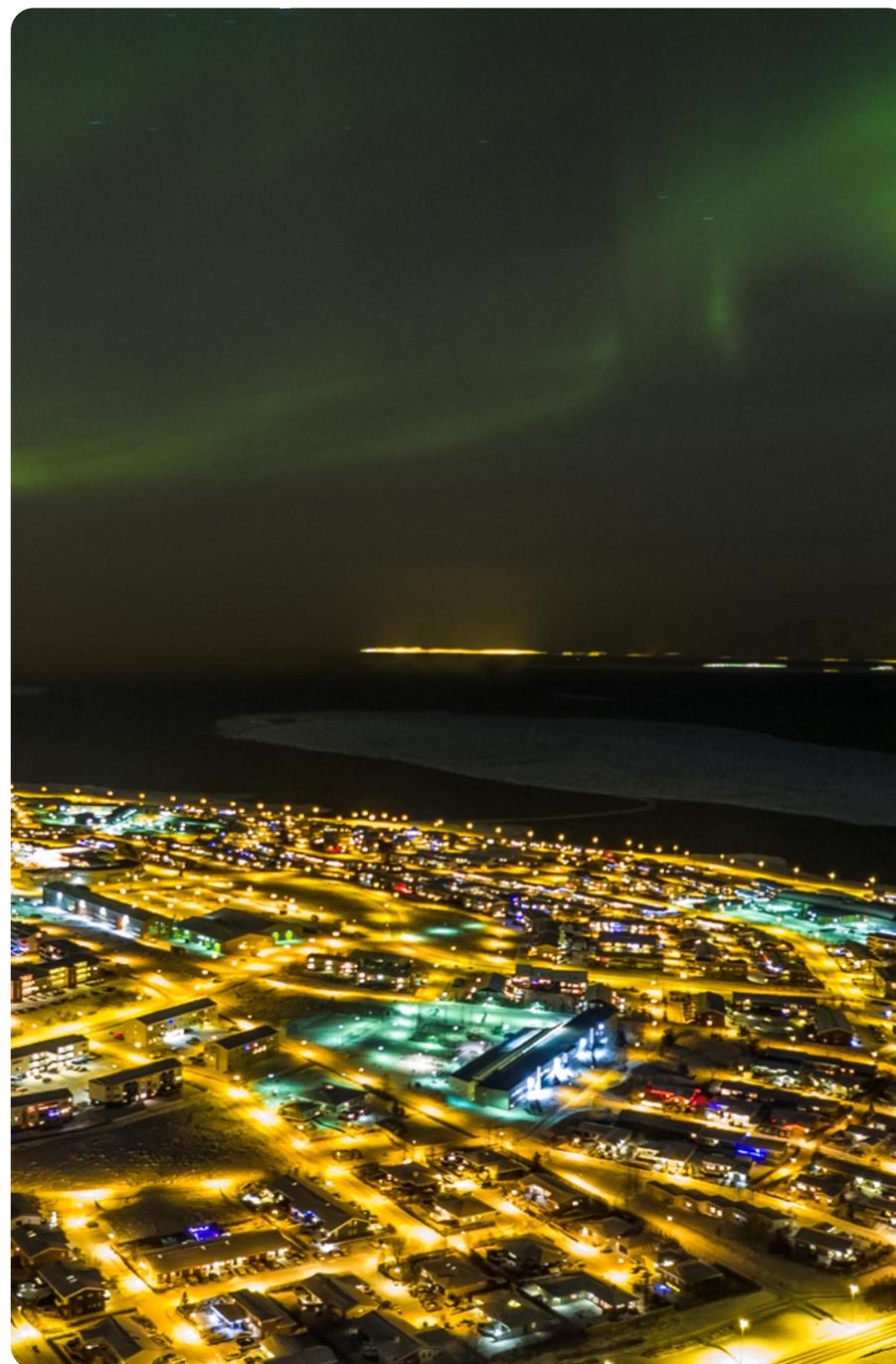


Table 2

Eligible Green Assets on the balance sheet of OR

Assets	SDGs	Green Bond Principles Categories and Criteria	Indicators
 <p>OR (referring to specific activities of the parent-company):</p> <p>OR's investments in green assets from its and all of its subsidiaries' balance sheets are inclusive of the following:</p> <ul style="list-style-type: none"> <li>• Property, plant and equipment</li> <li>• Projects under construction</li> <li>• Development costs</li> <li>• Intangible assets</li> <li>• Financial assets (partly)</li> <li>• Current assets (partly)</li> </ul>	  	<p><b>Sustainable Land Use / Environmental management</b></p> <ul style="list-style-type: none"> <li>• Research and development such as geomonitoring of various activity in the areas surrounding the OR Group operations such as reservoir health<sup>14</sup>, H2S emissions, restoration of disturbed areas and earthquake activity.</li> <li>• GPS monitoring of areas affected by operations</li> <li>• Restoration and land recovery from disturbed areas</li> <li>• Terrestrial and aquatic biodiversity conservation.</li> </ul> <p><b>Clean transportation</b></p> <ul style="list-style-type: none"> <li>• (a) for vehicles of category M1 and N1, both falling under the scope of Regulation (EC) No 715/2007: <ul style="list-style-type: none"> <li>(i) until 31 December 2025, specific emissions of CO<sub>2</sub>, as defined in Article 3(1), point (h), of Regulation (EU) 2019/631, are lower than 50gCO<sub>2</sub>/km (low- and zero-emission light-duty vehicles);</li> <li>(ii) from 1 January 2026, specific emissions of CO<sub>2</sub>, as defined in Article 3(1), point (h), of Regulation (EU) 2019/631, are zero.</li> </ul> </li> <li>• (b) for vehicles of category L, the tailpipe CO<sub>2</sub> emissions equal to 0g CO<sub>2</sub>e/km calculated in accordance with the emission test laid down in Regulation (EU) 168/2013. <ul style="list-style-type: none"> <li>• OR is supporting the transition of the parent company's and all of its subsidiaries' car fleet to become a zero-emission car fleet.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Hectares of disturbed land restored</li> <li>• Area covered by sustainable land and water resources management practices</li> </ul>
	  	<p><b>Renewable energy</b></p> <ul style="list-style-type: none"> <li>• All expenses supporting the production and sales of electricity and heat from renewable energy sources emitting below 100gCO<sub>2</sub>e/kWh. <ul style="list-style-type: none"> <li>• Average emissions from the company is 9.8 gCO<sub>2</sub>e/kWh electric and 7.7 gCO<sub>2</sub>e/kWh thermal in 2020.</li> </ul> </li> <li>• All expenses supporting the development of industrial symbiosis with renewable electricity and heat production at its center.</li> </ul> <p><b>Clean transportation</b></p> <ul style="list-style-type: none"> <li>• Infrastructure: Installation of charging stations for EV's on national highways, in populated areas, and for homes and businesses across the country. <ul style="list-style-type: none"> <li>• ON has established the first EV charging infrastructure across the primary national highway across Iceland.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Estimated avoided GHG emissions (tons CO<sub>2</sub>e) per year.</li> <li>• H<sub>2</sub>S emissions from power-plants</li> <li>• Annual electricity and thermal energy produced by renewable energy per year</li> <li>• Number of clean vehicles and/or infrastructure deployed (categorized e.g. electric, plug in hybrid) per year.</li> </ul>

14. Reservoir health refers to the ability to sustainably utilize the resource taking into account to the system's ability to replenish itself through natural geothermal processes.

Table 2 continued

Eligible Green Assets on the balance sheet of OR

Assets	SDGs	Green Bond Principles Categories and Criteria	Indicators
	   	<p><b>Energy distribution infrastructure and management</b></p> <ul style="list-style-type: none"> <li>All expenses supporting the distribution of electricity and hot water from renewable energy sources emitting below 100gCO<sub>2</sub>e/kWh.                             <ul style="list-style-type: none"> <li>Average emissions from the company is 9.8 gCO<sub>2</sub>e/kWh electric and 7.7 gCO<sub>2</sub>e/kWh thermal in 2020.</li> </ul> </li> <li>All expenditures supporting installation and maintenance of infrastructure to deliver information for smart grid applications.</li> </ul> <p><b>Sustainable water and wastewater management</b></p> <ul style="list-style-type: none"> <li>All expenses supporting the development and operation of systems to deliver potable water and to handle wastewater, along with water conservation. car fleet to become a zero-emission car fleet.</li> </ul>	<ul style="list-style-type: none"> <li>Meters of electricity/hot water infrastructure newly installed/maintained</li> <li>Meters of water/wastewater infrastructure newly installed/maintained</li> <li>Energy use (in kWh) per cubic meter water supply.</li> <li>Volume of sewage/wastewater treated</li> </ul>
		<p><b>Carbon Capture and Storage</b></p> <ul style="list-style-type: none"> <li>All expenses supporting the development, construction, installation and maintenance of projects to sequester and mineralize of CO<sub>2</sub> and anthropogenic emissions.                             <ul style="list-style-type: none"> <li>Emissions are either direct capture from air or from industrial activity like geothermal power plants. CarbFix focuses on the sequestration of the captured CO<sub>2</sub></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Estimated sequestered CO<sub>2</sub> emissions (in tonnes) per year.</li> <li>Estimated sequestered H<sub>2</sub>S emissions (in tonnes) per year.</li> </ul>
	 	<p><b>Information and communication</b></p> <ul style="list-style-type: none"> <li>All expenditures supporting the construction, installation, improvement, operation, repair, and maintenance of fiber optic telecommunication networks enable energy efficient, digitalised, and electrified solutions for smart cities.</li> </ul>	<ul style="list-style-type: none"> <li>Number of homes passed.</li> <li>Meters of fibre optic cables placed.</li> </ul>

## Governance: evaluation and selection

Following the Pure Play approach, all projects and assets undertaken and invested in by OR are considered green (except for those captured by the exclusion criteria). OR will therefore maintain a green registry of green assets on the balance sheet categorized by the Green Bond Principle project categories to allow for impact reporting.

OR's CEO is responsible for sustainability in the company's general operations. OR's Executive Management Committee (Committee) will be responsible for reviewing the Sustainability Registry and validating and categorizing the Assets listed in it. Evaluation and selection of Eligible Green Assets will be overseen by the Environmental and Finance departments. All Eligible Green Assets are subject to robust environmental impact assessment processes.

In evaluating and selecting Eligible Assets and allocating Sustainable Financing, the Environmental and Finance departments will also consider aspects such as human and labour rights and the avoidance of significant harm to the other environmental objectives as defined in the EU Taxonomy, international and local environmental and social standards, and with local laws and regulations to the greatest extent possible.

## Management of proceeds

OR intends to fully allocate the proceeds from any financing within 36 months of the date of funding. OR strives to achieve a level of allocation of the fair market value for the Eligible Green Asset Portfolio which matches or exceeds the balance of net proceeds from its outstanding instruments. Unallocated net proceeds may temporarily be placed in cash, cash equivalents, or other liquid marketable instruments.

## Reporting & Transparency

OR will provide an Annual Allocation and Impact Report to its investors and other stakeholders as a part of its Annual Report until net proceeds are fully allocated. In the Annual Impact Reports, the allocation of financing to Eligible Assets will be categorized by project categories in order to maintain consistency and measure the impact indicators. The report will be publicly available. The reporting will be conducted in line with best market practice and international guidelines and protocols at an aggregated level and on a portfolio basis and will include at least the below information:

Project Categories	Impact reporting
<ul style="list-style-type: none"><li>• Summary of financing activities</li><li>• Types of financing instruments</li><li>• Outstanding amounts</li><li>• Balance of unallocated proceeds</li><li>• New vs. refinancing ratio</li><li>• Project category allocation</li><li>• An example list of projects financed</li></ul>	<ul style="list-style-type: none"><li>• Methodologies</li><li>• Impact indicator results</li></ul>

15. This may include alignment with: E.U. Green Bond Standard developments, Multilateral Development Banks's Proposal for a harmonized framework for impact reporting on Renewable Energy/Energy Efficiency projects (2015), International Capital Markets Association's Handbook on Harmonized Framework for Impact Reporting (2020) and Nordic public sector green bond issuers' Position Paper on Green Bonds Impact Reporting (2020).

16. The impact assessment is provided subject to the availability of information and baseline data. This may also be subject to confidentiality agreements, competitive considerations, and other such factors, which may limit the scope of impact reporting



## External parties

To ensure alignment with international guidelines and best practices this Green Financing Framework followed the most relevant green bond standard developments such as The Green Bond Principles (2018), Green Loan Principles (2021), Climate Bonds Standard (v. 3.0 2019). It has also been benchmarked, to the extent possible, to the EU Sustainable Finance Taxonomy, a draft of EU's Green Bond Standard to the extent possible and according to the data available, as well as benchmarked to other Green Financing Frameworks.

A pre-issuance independent external second-party opinion has been obtained on this Framework from CICERO Shades of Green which is publicly available. OR intends to request an independent external party to provide limited assurance, verification, and/or consulting to prepare and/or assure, verify, or confirm its post-issuance Allocation and Impact Reporting.

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