



CORRECTED REPORT ISSUED AUGUST 29<sup>TH</sup> 2022

## 2021 Green Finance Allocation and Impact Report

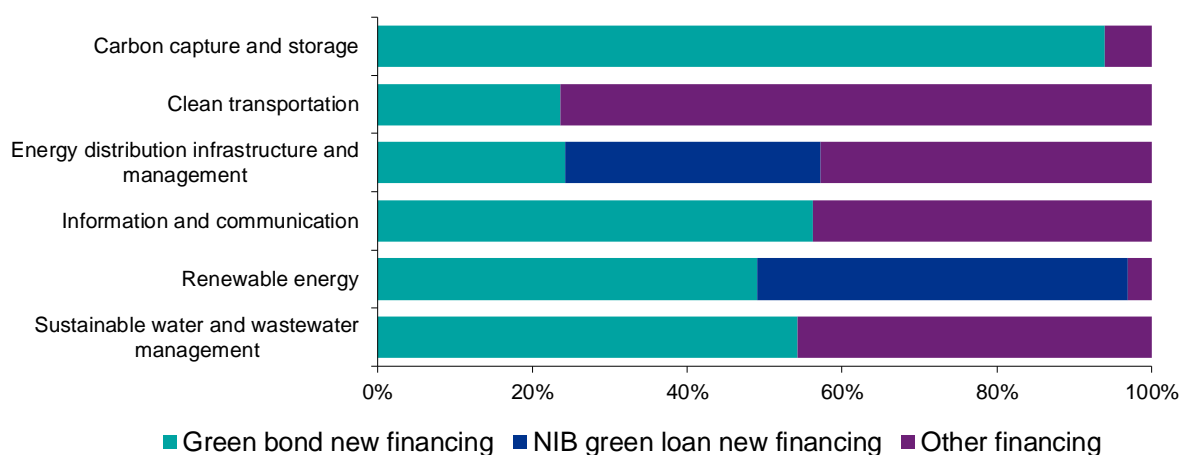
In 2019, OR published a Green Bond Framework, under which the company issued green bonds in 2019 and 2020. In 2021 OR updated its Framework to a Green Financing Framework to allow for the use of additional types of financing such green loans. Furthermore, its update reflects a 'balance sheet' approach as OR's operation is largely directly or indirectly related to green activities – see further in the updated Framework and the accompanying SPO from CICERO Shades of Green.

In the year 2021 OR issued approximately ISK 13.2 billion in green financing, of which ISK 10.3 billion was from the issuance of green bonds and ISK 2.9 from green loans. New financing represented ISK 8.5 billion while re-financing represented the remaining ISK 4.7 billion.

OR's financing has been deployed across its subsidiaries which the defined Project Categories cover, i.e.: carbon capture and storage, clean transportation, energy distribution infrastructure and management, information and communication, renewable energy, and sustainable water and wastewater management. Impacts from the funded assets and projects can be found in the below table.

Project category	Total financing ISK m	Green financing ISK m	Green financing percentage	Indicator	Total impact	Allocated impact
Carbon capture and storage	168.3	158.1	94%	Estimated sequestered CO <sub>2</sub> emissions (in tonnes) per year.	13,300	8,963
				Estimated sequestered H <sub>2</sub> S emissions (in tonnes) per year.	7,500	5,054
Clean transportation	241.2	56.8	24%	Low-emission car fleet (# vehicles purchased)	3	0.7
				Installation of public EV charging connections (# of connections)	376	89
Energy distribution infrastructure and management	6,637.0	3,795.0	57%	Renewable electricity distribution infrastructure (new km installed)	164.0	93.8
				Renewable heat distribution infrastructure (new km installed)	40.0	22.9
Information and communication	2,568.4	1,443.4	56%	Fibre optic installed or upgraded (km)	310.0	174.2
				Number of homes passed.	4,090	2,299
Renewable energy	1,488.8	1,443.8	97%	Renewable electricity production (GWh)	127.3	123.5
				Renewable heat production (GWh)	200.1	194.1
				Emissions avoided from renewable electricity production (tCO <sub>2</sub> eq. Avoided)	20,800	20,172

Sustainable water and wastewater management	3,028.9	1,643.9	54%	Sewage infrastructure (new km installed)	6	3.3
				Cold water infrastructure (new km installed)	12	6.5
<b>Total</b>	<b>14,132.6</b>	<b>5,641.0</b>	<b>40%</b>	<b>GHG emissions avoided/sequestered</b>	<b>34,100</b>	<b>29,135</b>



## Financed project categories and asset and/or project examples

### Carbon Capture and Storage

Carbfix is a global leader in the field of carbon capture and storage and sequesters carbon produced at OR's largest geothermal plant, Hellisheiði. Notable assets financed in 2021 include the Orka plant, the world's largest direct air capture and storage plant. Further projects include testing and monitoring of additional sites to implement the Carbfix method.

	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
<b>Carbon Capture and Storage</b>	168.3	158.1	94%	Estimated sequestered CO <sub>2</sub> emissions (in tonnes) per year.	13,300	8,963.0	tCO <sub>2</sub> eq. sequestered
				Estimated sequestered H <sub>2</sub> S emissions (in tonnes) per year.	7,500	5,054.3	tH <sub>2</sub> Seq. sequestered

## **Clean Transportation**

OR interacts with the Clean Transportation project categories in two ways. First, OR aims to develop car fleet to be fully non-emitting of GHG by 2030, and is thus working to replace its current vehicle fleet with zero emissions vehicles as well. Second, through its subsidiary ON Power, OR is playing an important role in Iceland's energy transition to a low-carbon society by, for example, provide the installation of public charging stations. In 2021, three low-emission vehicles were purchased, making OR's car fleet composed of now 40% of green vehicles. and 376 EV charging connections were installed across Iceland.

	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
<b>Clean Transportation</b>	273.5	56.8	21%	Low-emission car fleet	3	0.7	Low-emission vehicles purchased
				Installation of public EV charging stations	376	89	Charging stations installed

## **Energy distribution infrastructure and management**

OR's subsidiary, Veitur Utilities, manages the electricity and heat distribution infrastructure in the Reykjavik capital area and in parts of West and South Iceland. In 2021 it installed 164 km of electricity distribution infrastructure (where the total network length is 5,100 km) and 40 km of heat distribution infrastructure (where the total network length is 3,250 km). Example of cost associated with this infrastructure is cables, pipes, and distribution stations.

	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
<b>Energy distribution infrastructure and management</b>	6,637.0	3,795.0	57%	Renewable electricity distribution infrastructure	164.0	93.8	km
				Renewable heat distribution infrastructure	40.0	22.9	km

## **Information and communication**

OR's subsidiary, Reykjavík Fibre Network (Ljósleiðarinn), manages fibre optic infrastructure in Iceland, and in 2021 installed 174 kilometres of efficient fibre optic cables, reaching 4,090 homes, respectively. Example projects include the purchase of fibre optic cables and the installation of them.

Information and communication	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
	2,568.4	1,443.4	56%	Fibre optic installed or upgraded	310.0	174.2	km
				Number of homes passed.	4,090	2,299	homes

### **Renewable Energy**

OR's subsidiary, ON Power, manages its geothermal power plants and a small hydropower plant which supply a large portion of Reykjavik's electricity and district heating. It was estimated that in 2021, the amount of renewable electricity and heat that could be attributed to the new investments was 127.3 GWh of geothermal and 200.1 GWh of hydropower energy. Example assets and projects in this category include engine renovations, gas management system improvements, and efficiency improvements at the power plants.

Renewable energy	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
	1,488.8	1,443.8	97%	Renewable electricity production	127.3	123.5	GWh
				Renewable heat production	200.1	194.1	GWh
				Emissions avoided from renewable electricity production	20,800	20,172	tCO <sub>2</sub> eq. Avoided

### **Sustainable water and wastewater management**

OR's subsidiary, Veitur Utilities, manages the coldwater and sewage infrastructure in the Reykjavik capital area and in West Iceland. In 2021 it installed 12 km of water infrastructure and 6 km of sewage infrastructure. Example assets and projects include the purchase of water collection equipment and sewer pumping and treatment plants.

Sustainable water and wastewater management	Total financing m ISK	Green financing m ISK	Green financing percentage	Indicator	Total impact	Allocated impact	Unit
	3,028.9	1,643.9	54%	Sewage infrastructure	6.0	3.3	km
				Cold water infrastructure	12.0	6.5	km

## Methodology

The impacts which are detailed in this report, are impacts representing the positive impacts enabled by OR's green financing. Methodologies used for avoided emissions and other impact calculations are based on relevant international guidelines and standards.

For the **carbon capture and storage** project category, the total CO<sub>2</sub> and H<sub>2</sub>S sequestered is measured according to monitoring systems both during the capture and storage phase. During the capture phase, the CO<sub>2</sub> and H<sub>2</sub>S is a percent of capture of the non-condensable gasses emitted at the Hellisheidi power station. Capture data is collected from monitors in this stage. The rate of sequestration is then measured and sequestration rates at this site been academically published.<sup>1</sup> To allocate the additionality impacts from investment in the year 2021, the amount invested in 2021 was constructed as a ratio of the end of year balance sheet value of the Carbfix subsidiary (where new investments represented 67% of the total balance sheet).

For the **clean transportation** project category, the number of eco-friendly vehicles purchased and charging stations installed are sourced from internal asset system data.

For the **energy distribution infrastructure and management** project category, the length of infrastructure installed is sourced from Veitur Utilities' GIS based infrastructure management system, where all infrastructure laid during the year is updated into this system.

For the **information and communication** project category, the length of infrastructure installed is sourced from the Fibre Network's GIS based infrastructure management system, where all infrastructure laid during the year is updated into this system.

For the **renewable energy** project category, the amount of renewable electricity and heat produced is measured per production facility, where meters measure this production.

OR supplies renewable electricity to users in Iceland. For the avoided emissions calculations, this is relevant because the electricity users in Iceland have been divided into two types as shown below. Both will contribute to the EU's 2030 emission reduction targets defined in the Paris Agreement but will have a different role in the EU's 2030 climate & energy framework. Methodologies used for avoided emission calculations are based on relevant international guidelines and standards.

Type 1: Industry operating within the European Union (EU) Guarantee of Origin (GO) market, representing ~60-65% of OR's sold electricity.

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<sup>1</sup> Matter, J. M., Stute, M., Snæbjörnsdóttir, S. Ó., Oelkers, E. H., Gislason, S. R., Aradóttir, E. S., ... & Broecker, W. S. (2016). Rapid carbon mineralization for permanent disposal of anthropogenic carbon dioxide emissions. *Science*, 352(6291), 1312-1314.

- The benchmark emission factor for this group was calculated using a methodology from the International Financial Institutions (IFI) <sup>2</sup> using the combined margin method and the Harmonized IFI Default Grid Factors 2021 v3.1.
- The EU GO benchmark emission factor for the year 2021 for firm energy production (which is the relevant description for geothermal energy) is estimated to be 337.4 gCO<sub>2</sub>e/kWh.

Type 2: Other Industries and households in Iceland, representing ~35-40% of OR's sold electricity.

- The benchmark emission factor for Type 2 users was calculated using the same methodology as used for Type 1 users.
- The Icelandic benchmark emission factor for the year 2021 is estimated to be 0 gCO<sub>2</sub>e/kWh.

Using the above methodology, the comparative weighted average benchmark was estimated to be 205.7 gCO<sub>2</sub>eq./kWh, is the average displaced electricity emission factor. Using OR's reported carbon footprint of 7.4 gCO<sub>2</sub>eq./kWh<sup>3</sup>, comparing this value to the benchmark to calculate, the avoided impact is estimated to be 198.3 gCO<sub>2</sub>eq. per kWh produced.

Since it is difficult to measure the additionality of impacts associated with the investments made in 2021, to allocate the impacts from investment in that year, the amount invested was constructed as a ratio of the end of year balance sheet value of the ON Power subsidiary (where new investments represented 3.6% of the total balance sheet).

For the **Sustainable water and wastewater management** project category, the length of infrastructure installed is sourced from Veitur Utilities' GIS based infrastructure management system, where all infrastructure laid during the year is updated into this system.

*KPMG ehf. was appointed as an external advisor to help prepare this report. It provided advice on setup, methodology, and calculations of environmental/climate change impact. KPMG's engagement was not bound by any assurance standards nor did it provide an opinion. The ultimate responsibility for this report and the accuracy of the information lies with OR.*

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<sup>2</sup> International Finance Institution (2022). *Methodological Approach for the Common Default Grid Emission Factor Dataset*. IFI TWG - AHG-001.

<sup>3</sup> Reykjavik Energy. *Annual Report 2021*. Reykjavik Energy. Reykjavik.