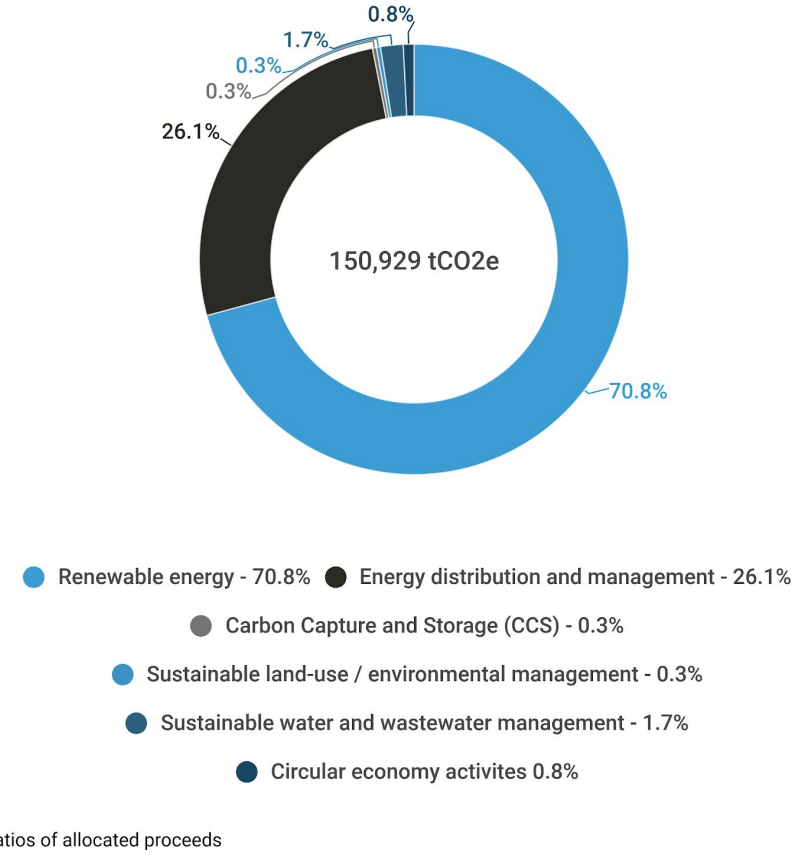
Reykjavík Energy (OR)
Green Bond Impact Report 2019



Ratios of allocated proceeds

Introduction

OR, an energy and utility company group, became the second issuer of green bonds in Icelandic krona. Its purpose is to utilize renewable resources sustainably and efficiently to service homes, businesses and institutions at a competitive price.

OR, the mother company, is combined of three subsidiaries. *ON Power* (energy generation and sales) operates two geothermal power plants, at Hellisheidi (303 MWe/133 MWth) and Nesjavellir (120 MWe/300 MWth), and one small hydro plant supplying hot water and electricity to the capital city of Reykjavík. *Veitur* (utilities and distribution) distributes electricity, hot and cold water, in addition to running sewage systems in Iceland's most densely populated areas. *Gagnaveita Reykjavíkur* (fibre networks) installs infrastructure for optical fibre networks to households and businesses.

This Annual Impact Report details the environmental impacts of OR's green bond activities for the year 2019.

Bjarni Bjarnason, CEO

Ingvar Stefánsson, CFO

OR issued its first bond under its Green Bond Framework in February 2019 and has since then completed multiple bond auctions under the Framework. As of the end of the year 2019 OR's green bond issuance comprised approximately 25% of the total sustainable bond market in Iceland.

Its Green Bond Framework received a second opinion from CICERO, a leading global provider of second opinions. OR received a 'dark green' rating on the overall framework as well as for each of the underlying project categories. In addition, OR received an 'excellent' governance rating for its green bond governance.

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7 AFFORDABLE AND CLEAN ENERGY

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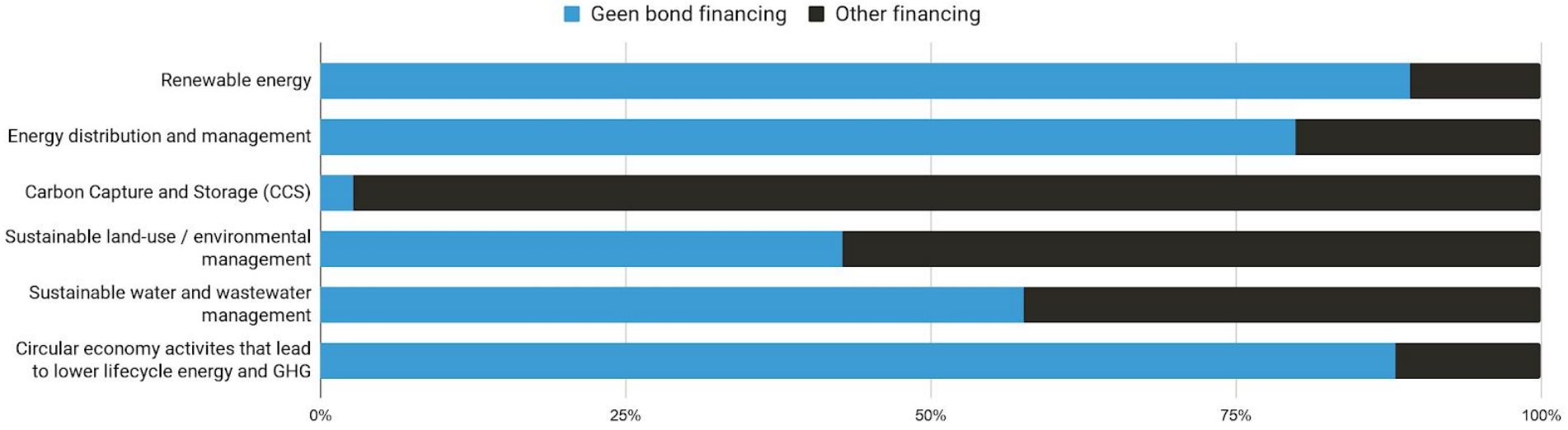
15 LIFE ON LAND

°CICERO Dark Green

Project categories / financing	Total financing ISK m	**Green bond financing ISK m**	Difference ISK m	**Geen bond financing %**	Other financing %
Renewable energy	10,401	**9,282**	1,119	**89%**	11%
Energy distribution and management	4,279	**3,415**	863	**80%**	20%
Carbon Capture and Storage (CCS)	1,457	**39**	1,417	**3%**	97%
Sustainable land-use / environmental management	104	**44**	59	**43%**	57%
Sustainable water and wastewater management	384	**221**	163	**58%**	42%
Circular economy activities that lead to lower lifecycle energy and GHG usage	119	**105**	14	**88%**	12%
Total	16,743	**13,107**	3,636	**78%**	22%



Environmental Impacts and Avoided Greenhouse Gas Emissions

Avoided greenhouse gas emissions, detailed in the table on the right, are emissions that would have been emitted if projects funded by the green bonds would not have been initiated. The funded renewable energy projects sustain capacity allowing stable electricity and heat production from renewable resources. Carbon capture decreases the emissions from the low carbon geothermal power plant, making it even more environmentally friendly.

Due to the nature of the funded projects, other environmental metrics are also used as not all funded projects result in avoided greenhouse gas emissions. These metrics, also detailed in the above table, include the volume of hot water distributed and managed, the volume of sustainable water and wastewater distributed and managed, along with the amount invested in circular economy activities and environmental management.

Project portfolio	Refinancing	New financing	**Total**	Metric
Renewable energy	150,765	0	**150,765**	tCO2e avoided
Energy distribution and management	1,503	899	**2,402**	m3/hour distributed and mgmt
Carbon Capture and Storage (CCS)	0	164	**164**	tCO2e avoided
Sustainable land-use / environmental management	0	44	**44**	ISK m invested
Sustainable water and wastewater management	0	1,299	**1,299**	m3/hour distributed and mgmt
Circular economy activities that lead to lower lifecycle energy and GHG usage	0	105	**105**	ISK m invested

Renewable energy

The funding allocated to this project category was used for the development, construction, and operation of geothermal energy facilities with GHG emissions less than 100 gCO_2e/kWh, i.e. Hellisheiði power plant (8.9 gCO_2e/kWh) and Nesjavellir power plant (4.6 gCO_2e/kWh). Examples of specific projects include the exploration and exploitation of geothermal wells to sustain capacity, development of reinjection strategies to sustain the resources, and testing for hydrogen production.

Renewable energy	Total avoided	Allocated to refinancing	Allocated to new financing	**Total allocated to green bonds**
	tCO_2e			
	150,765	150,765	0	**150,765**

Energy distribution and management

The funding allocated to this project category was used for the installation and maintenance of infrastructure to deliver electricity and hot water for district heating. Examples of specific projects include the renewal of supply to Akranes and Borgarbyggd, from Deildartunga, from Reykjavík to Mosfellsbær, and 11kV underground cables.

Energy distribution and management	Total distributed or managed	Allocated to refinancing	Allocated to new financing	**Total allocated to green bonds**
	m3/hour supply renewal			
	3,163	1,503	641	**2,144**
	m3/hour new pump capacity			
	664	0	206	**206**
	m3/hour increased production			
	83	0	52	**52**

Carbon capture and storage (CCS)

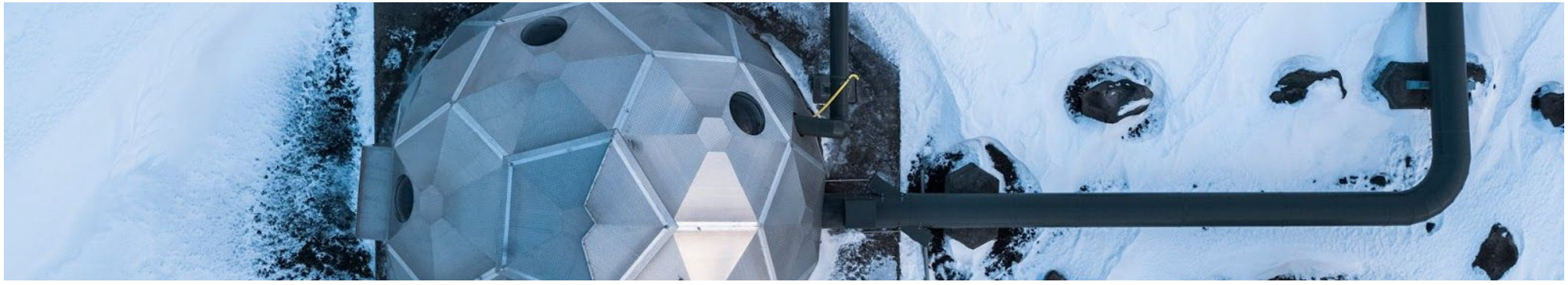
The funding allocated to this project category was used for mineralization of CO_2 and H_2S from power plant operations. These are direct emissions from the geothermal power plant at Hellisheiði which are captured and mineralized deep underground in basalt rocks. Examples of specific projects include gas abatement separation station (CO_2 and H_2S), CO_2 production for various waste to value projects, and the development of SulFix III, abatement method for H_2S. Based on the below table, about 26% of all CO_2 emissions at Hellisheiði was captured and 53% of all H_2S emissions at Hellisheiði.

Carbon Capture and Storage (CCS)	Total avoided	Allocated to refinancing	Allocated to new financing	**Total allocated to green bonds**
	tCO_2e			
	9,700	0	164	**164**

Sustainable land-use / environmental management

The funding allocated to this project category was used for geo-monitoring of various activities in the areas surrounding OR operations such as H_2S emissions, restoration of disturbed areas and earthquake activity, as well as GPS monitoring of areas affected by OR's operations. Examples of projects include tracer testing to map the flow of reinjected effluent from Nesjavellir power plant and earthquake monitoring at Hellisheiði power plant.

Sustainable land-use / environmental management	Total invested	Refinancing	New financing	**Total allocated to green bonds**
	ISK m			
	104	0	44	**44**



Sustainable water and wastewater management

The funding allocated to this project category was used for the development and operation of systems to deliver potable water and to handle wastewater, along with water conservation to ensure the future quality of wholesome and untreated water. Examples of specific projects include the renewal of water supplies and the design and development of wastewater facilities.

	Total distributed and managed	Allocated to refinancing	Allocated to new financing	**Total allocated to green bonds**
Water and wastewater management	m3/hour supply renewal			
	2,313	0	1,295	**1,295**
	m3/hour new pump capacity			
	6	0	4	**4**

Circular economy activities

The funding allocated to this project category was used to develop opportunities for industrial symbiosis by utilizing waste streams from geothermal production, such as geothermal gases and warm geothermal effluent, to create value from waste to further contribute to the circular economy. The platform for these projects is the development of ON's Geothermal Park (Jarðhitagarður ON), whose objective is increasing the efficiency of natural resource utilization. The first business to enter the Geothermal Park is Algaennovation, producing microalgae using electricity, hot water and, in the future, CO_2 from Hellisheiði power plant.

	Total invested	Refinancing	New financing	**Total allocated to green bonds**
Circular economy activities	ISK m			
	119	0	105	**105**

Methodology

To calculate the avoided impact of sustained electricity production, the electricity users in Iceland have been divided into two types, type 1 and type 2, as further detailed below. Both types contribute to the EU's 2030 emission reduction targets defined in the Paris Agreement but will have different roles in the EU's 2030 climate & energy framework. Methodologies used for these impact calculations are based on relevant international guidelines and standards[1].

Type 1: Industry operating within the European Union (EU) Emission Trading System (ETS), representing about 78% of total use in Iceland (estimated for the year 2019). The benchmark emission factor for this group was calculated using a methodology from the International Financial Institutions (IFI) using the combined margin method and the IFI (Interim) Dataset of Harmonized Grid Factors V02. The EU ETS benchmark emission factor for the year 2019 is estimated to be 256 gCO_2e/kWh.

Type 2: Other Industries and households in Iceland, representing about 22% of total consumption in Iceland (estimated for the year 2019). 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 2019 is estimated to be 43 gCO_2e/kWh.

The avoided CO_2 emissions from carbon capture storage (CCS) are found by estimated mineralization of carbon in CO_2 to basaltic rocks. For other project categories, the impact is given in terms of funding to important projects that either support environmental activities or are developing projects that will contribute to avoided impacts in the future. For the water and wastewater management and energy distribution and management, the metric chosen represents the development of sustainable infrastructure for heat supply, water supply and wastewater.

[1] The International Financial Institution; Green Bonds: Working Towards a Harmonized Framework for Impact Reporting. And, International Financial Institution; Approach to GHG Accounting for Renewable Energy Projects (2015), International Capital Market Association's & Green Bond Principles' Handbook on Harmonized Framework for Impact Reporting (June 2019), the European Union's Technical Expert Group on Sustainable Finance Report on EU Green Bond Standard (June 2019), and the Nordic Public Sector Issuers: Position Paper on Green Bonds Impact Reporting (February 2020).

Impact Assurance Review[2]

CIRCULAR Solutions was appointed by Reykjavik Energy (OR) to conduct this Annual Impact Assurance Review. CIRCULAR's assurance review details (1) the compliance of the funded projects to the Eligible Projects criteria, and (2) the reported environmental factors, i.e. the avoided greenhouse gas emissions from the funded projects.

All projects funded by the proceeds of bond issuances in 2019, by OR under its Green Bond Framework comply with the Eligible Project criteria detailed in the Framework. The funded projects comply with the appropriate project categories listed in the Framework.

Based on the methodologies mentioned above, the funded projects demonstrate a positive environmental impact, e.g. facilitate avoided greenhouse and hydrogen sulfide gas emissions. The total avoided greenhouse gas emissions for the project portfolio amount to 160 thousand tCO_2e, of which 151 thousand tCO_2e are assigned to the proceeds from green bonds issued in 2019 under OR's Green Bond Framework.

Dr. Hafthór Aegir Sigurjónsson
Dr. Reynir Smári Atlason
Bjarni Herrera Thorisson, CEO

CIRCULAR Solutions ehf.
www.circularsolutions.is
www.circularbonds.com

[2] *Disclaimer by CIRCULAR*: CIRCULAR is an independent and leading provider of green bond and sustainability consulting in Iceland. OR was responsible for providing CIRCULAR accurate documentation and information relating to the details of the funded projects. CIRCULAR made all efforts to ensure the highest quality and rigour during its assurance process. CIRCULAR will not accept any form of liability and/or any liability for damage arising from the use and/or decisions, financial or otherwise, based on the information provided in this document.

Independent Auditor's Assurance Report

To the Board of Directors of Orkuveita Reykjavíkur and Green Bond holders

Assurance scope

The scope of our work was limited to verifying that the proceeds of the Green Bond issue were used for funding selected eligible projects as reported in the Annual Green Bond Impact Report for 2019.

Responsibilities of The City of Reykjavik

The net proceeds from the Green Bond issue is managed by the Financial Department of Orkuveitu Reykjavíkur. It is the responsibility of Orkuveitu Reykjavíkur to allocate the proceed to the eligible projects selected by a Selection Committee and approved by the Board of Directors of Orkuveitu Reykjavíkur. The Financial Department of Orkuveitu Reykjavíkur is also responsible for preparation of the Annual Green Bond Impact Report which is free from material misstatements, whether due to fraud or error, in accordance with the Green Bond Framework from 2019.

Responsibility of the auditor

Our responsibility is to express an assurance conclusion for the subject matter at hand and which is included in the Annual Green Bond Impact Report, based on the procedures we have performed and the evidence we have obtained.

We conducted our assurance engagement in accordance with *ISAE 3000 Assurance Engagements Other than Audits or Reviews of Historical Financial information* issued by the IASB.

Our independence and quality control

We have complied with independence and other ethical requirements of the Code of Ethics for professional Accountants issued by the International Ethics Standards Boards for Accountants which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

We apply *ISQC 1 International Standard on Quality Control* and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Work performed

During our assurance engagement we reconciled the list of funded projects to the selected eligible projects. We performed assurance procedures on accounting transactions and capital movements in the Green Account. We have also reviewed the Annual Green Bond Impact Report for 2019 and performed assurance procedures on the completeness and accuracy of reported information as described on the Green Bond Framework.

Conclusion

Based on the assurance procedures we have performed and the evidence we have obtained, we conclude, in all material aspects, that the proceeds of the Green Bond issue has been used to fund the selected eligible projects as reported in the annual Green Bond Impact Report for 2019.

Reykjavík, 16. March 2020

On behalf of Grant Thornton endurskoðun ehf

Davíð Arnar Einarsson

State Authorized Public Accountant