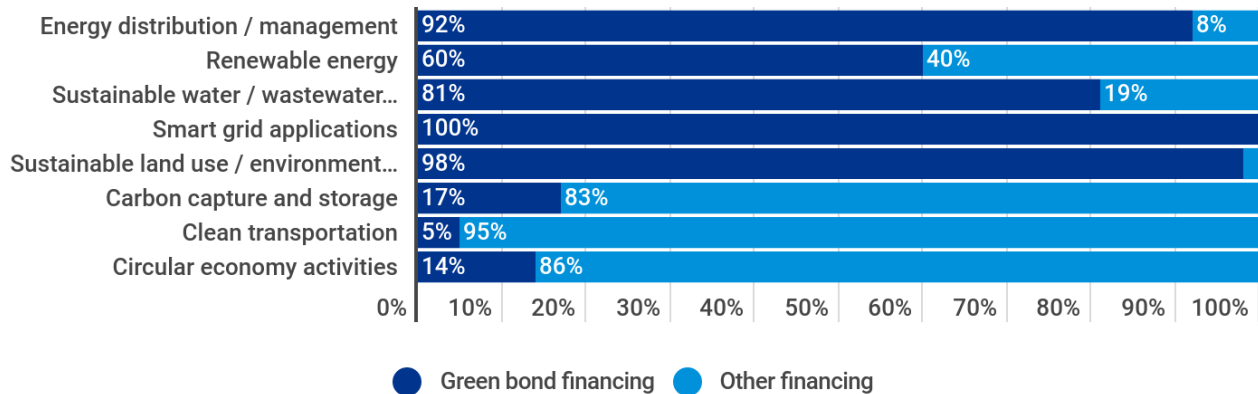
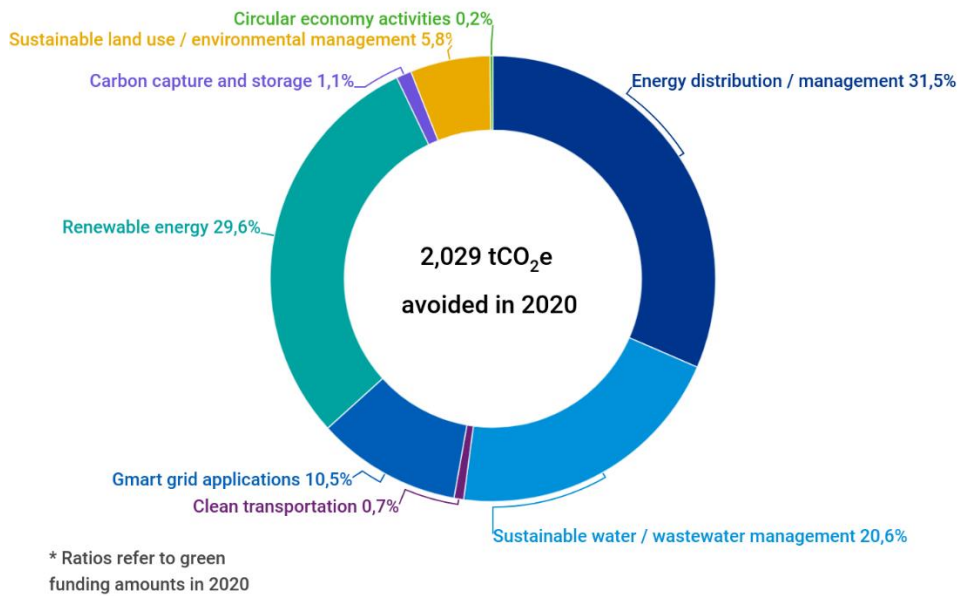




Orkuveita Reykjavíkur (Reykjavík Energy)  
 Bæjarhálsi 1  
 110 Reykjavík

## 2020 Annual Green Finance Impact Report

In 2019 Orkuveita Reykjavíkur (OR or Reykjavík Energy) issued a Green Bond Framework (Framework) under which the company can issue Green Bonds. In the year 2020 it issued a total of ISK 24,591 m of Green Bonds. This amount resulted in a total avoided emission of 2,029 tCO<sub>2</sub>e.<sup>1</sup>



<sup>1</sup> For projects funded by financing activities in the year 2019, according to OR's 2019 Green Bond Impact Report, resulted in avoided emissions of 129 thousand tCO<sub>2</sub>e in the year 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> e
Energy distribution and management	8,409	7,737	673	92%	8%	n/a
Renewable energy	12,042	7,225	4,817	60%	40%	n/a
Sustainable water and wastewater management	6,376	5,164	1,211	81%	19%	n/a
Products and technologies that support smart grid applications	2,572	2,572	0	100%	0%	n/a
Sustainable land use / environmental management	1,434	1,405	29	98%	2%	40
Carbon capture and storage	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>

## About OR

OR, an energy and utility company group, became the second issuer of green bonds in Icelandic krona. OR issued its first bond under its Green Bond Framework in February 2019 and has since completed multiple bond auctions under the Framework. As of the writing of this report, OR's green bond issuance comprised approximately 15% of the total sustainable bond market in Iceland. Its Green Bond Framework received a 'dark green' and 'excellent governance' rating from CICERO Shades of Green.

OR, the mother company, is combined of four subsidiaries, and which purpose is to utilize renewable resources sustainably and efficiently to service homes, businesses and institutions at a competitive price. *ON* (energy generation and sales, heat production for wholesale) operates two geothermal power plants, at Hellisheidi (303 MWe/200 MWth) and Nesjavellir (120 MWe/300 MWth), and one small hydro plant (Andakill). Electricity is sold for homes, businesses and industries all around the country, while hot water is supplied to the capital area of Reykjavík. *Veitur* (utilities and distribution) distributes electricity, produces and distributes 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. *Carbfix* (carbon capture and mineral storage), provides a natural and permanent storage solution by turning CO<sub>2</sub> into stone underground.

## Financed project categories and project examples

### 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 district heating supply at Ártúnsholt from the boreholes at Reykjar and search for geothermal resource for the district heating grid in South Iceland.



Energy distribution and management	Piping/conduit laid, upgraded or replaced	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	km			
	56	18	29	47

### **Renewable energy**

The funding allocated to this project category was used for the development and construction of geothermal energy facilities with GHG emissions less than 100 gCO<sub>2</sub>e/kWh. Those facilities were Hellisheidi power plant (carbon intensity of 9.8 gCO<sub>2</sub>e/kWh<sup>2</sup>) and Nesjavellir power plant (carbon intensity of 5.2 gCO<sub>2</sub>e/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 increase generation of electricity and heat supply. As the financed projects in the year 2020 did not increase electricity production and/or efficiency in that year, but will likely do so in the future, avoided emissions for this project category are therefore not accounted for in this report.

Renewable energy	Increase in district heating capacity	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	MW			
	157	20	74	94

### **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.

Sustainable water and wastewater management	Piping laid, upgraded or replaced	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	km			
	35	15	13	27
Population equivalent				
	15,000 – 20,000	14,250 – 19,000	0	14,250 - 19,000

<sup>2</sup> These numbers are from OR and are based on activities in the year 2020. This applies to both Hellisheidi and Nesjavellir.



### **Products and technologies that support smart grid applications**

The funding allocated to this project category was used for the installation and maintenance of infrastructure to deliver information for smart grid applications. Example projects include, smart metering of electricity, heat supply and water for residents in the capital region.

Products and technologies that support smart grid applications	Total invested	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	ISK m			
	2.572	2.103	469	2.572

### **Sustainable land-use and environmental management**

The funding allocated to this project category was used for the monitoring of various activities in the areas surrounding OR operations such as H<sub>2</sub>S emissions, geo-monitoring of earthquake activity, and GPS monitoring of areas affected by OR's operations. In addition, sustainable land-use projects such as afforestation, restoration of disturbed areas, and soil reclamation were included in this category. Examples of such projects included tracer testing to map the flow of reinjected effluent from the Nesjavellir power plant and earthquake monitoring at the Hellisheidi power plant.

Sustainable land use / environmental management	Carbon sequestered	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	tCO <sub>2</sub> e			
	41	38	2	40

### **Carbon capture and storage (CCS)**

The funding allocated to this project category was used for mineralization of CO<sub>2</sub> and H<sub>2</sub>S from OR's power plant operations. These are direct emissions from the geothermal power plant at Hellisheidi which are captured and mineralized deep underground in basaltic rocks. Examples of specific projects include gas abatement separation station with the Carbfix technology (CO<sub>2</sub> and H<sub>2</sub>S), CO<sub>2</sub> production for various waste to value projects. Based on the below table, about 25% of all CO<sub>2</sub> emissions at Hellisheidi was captured and 58% of all H<sub>2</sub>S emissions at Hellisheidi.

Carbon capture and storage	Avoided emissions	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	tCO <sub>2</sub> e			
	11,700	0	1,989	1,989
Carbon capture and storage	tH <sub>2</sub> S			
	5,800	0	986	986



### **Clean transportation**

The funding allocated to this project category was used for the development of clean transportation infrastructure for electric vehicles, i.e. bicycles and walking paths. Example projects include the refurbishment of walking and biking paths at Sudurgata in Reykjavik.

Clean transportation	Walking/cycling paths laid	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	m			
	500	3	25	27

### **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 (Jardhitagardur ON) whose objective is to increase the efficiency of natural resource utilization.

Circular economy activities	Total invested	Allocated to refinancing	Allocated to new financing	Total allocated to green bonds
	ISK m			
	372	0	52	52

### **Methodology**

Avoided greenhouse gas emissions, detailed in this report, are emissions that would have been emitted if the projects funded by OR's green bonds would not have been initiated. Methodologies used for these impact calculations are based on relevant international guidelines and standards.<sup>3</sup>

With reference to footnote no. 1, in order 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.

- 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 2020). 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

<sup>3</sup> International Capital Market Association's Green Bond Principles' Handbook on Harmonized Framework for Impact Reporting (June 2019)



Harmonized Grid Factors V02. The EU ETS benchmark emission factor for the year 2020 is estimated to be 256 gCO<sub>2</sub>e/kWh.

- Type 2: Other Industries and households in Iceland, representing about 22% of total consumption in Iceland (estimated for the year 2020). 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 2020 is estimated to be 43 gCO<sub>2</sub>e/kWh.

The avoided CO<sub>2</sub> emissions from carbon capture storage (CCS) are found by estimated mineralization of carbon in CO<sub>2</sub> to basaltic rocks<sup>4</sup>. Relevant emission factors were then used for afforestation and land reclamation project based on the Icelandic National Inventory report and a report by Owona (2019) about the impact of afforestation in Iceland<sup>5</sup>.

For other project categories, the indicator provided is the funding to important projects that either support environmental activities or developing projects that will contribute to avoided impacts in the future for that project category. 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.

## **Assessment**

KPMG ehf. was appointed by OR to advise on calculation methodology and calculate the positive environmental and/or climate change impact of Eligible Projects. All Eligible Projects are aligned with the Eligible Project Categorization in the Framework. All data was provided by OR. KPMG's engagement was not bound by any assurance standards.

10 March 2021

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<sup>4</sup> Snæbjörnsdóttir, Sandra Ó., et al. "CO<sub>2</sub> storage potential of basaltic rocks in Iceland and the oceanic ridges." Energy Procedia 63 (2014): 4585-4600.

<sup>5</sup> National Inventory Report 2008, [https://www.ust.is/library/Skrar/Atvinnulif/Loftslagsbreytingar/ICELAND\\_NIR\\_2010.pdf](https://www.ust.is/library/Skrar/Atvinnulif/Loftslagsbreytingar/ICELAND_NIR_2010.pdf), Joel Chales Owona 2019. Áhrif nýskógræktar á kolefnisbindingu í jarðvegi á Íslandi. <https://skemman.is/handle/1946/34470>



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## **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 2020.

### **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 2020.

Reykjavík, 12. March 2021

On behalf of Grant Thornton endurskoðun ehf

A handwritten signature in blue ink, reading "Davíð Arnar Einarsson", written over a horizontal line.

Davíð Arnar Einarsson

State Authorized Public Accountant