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GREEN BOND ISSUANCE REPORT

Reventazón Hydroelectric Power Plant
 Third Year Post Issuance
 Period: August 1, 2023 - July 31, 2024

Instituto Costarricense de Electricidad

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This report was prepared by the Sustainable Finance Technical Team

Adriana Arce Quirós	Director of Planning and Sustainability, Electricity Management
Andrés Vargas Villalobos	Generation Division, Electricity Management

Reviewed and approved by:


 Miguel Víquez Camacho
 ESG Sustainability Governance
 Electricity Management

Sergio Bermúdez Muñoz
 Financing for Multilateral and Bilateral Organizations
 Finance Management

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1 Objective and Scope of the Green Bond Issuance

In compliance with the Management Framework and Second Opinion Report published on the website of the *Instituto Costarricense de Electricidad* [ICE, Costa Rican Institute of Electricity, if translated] (www.grupoice.com), an annual external verification report will be prepared for the period from August 2023 to July 2024, validating the commitments made for the local green bond issuance.

In alignment with the Green Bond Principles, “Renewable Energy Projects” was selected as the sole category for Eligible Green Projects. Accordingly, the company has issued a Green Bond Management Framework to ensure transparency in the use of funds, along with integrity and quality in information disclosure to stakeholders regarding these assets. This Framework aligns with the Climate Bonds Standard Version 3.0 from the Climate Bonds Initiative (CBI) and the Green Bond Principles published by the International Capital Market Association (“ICMA”), which emphasize four key components for ICE’s Annual External Verification for the third year of the Reventazón Green Bond: use of proceeds, project selection and evaluation process, fund management, and reporting.

The debt refinancing for the construction and operation of the Reventazón Hydroelectric Project (RHP) complies with the following sustainability features:

- Environmental Impact Assessment (EIA) available and developed based on recognized best practice guidelines, addressing environmental and social risks.
- Project construction evaluated according to the criteria of the Hydropower Sustainability Protocol by the International Hydropower Association (IHA).
- Environmental and social risk mitigation measures fully implemented and awarded the highest score under the above protocol, and recognized with the IHA Blue Planet award.
- Clean energy supply for 525,000 households.

The sole purpose of the issuance was to prepay the financing debt for the RHP. This green bond was used to refinance existing bonds, settling a security issued by ICE in 2011 amounting to USD 250,000,000, which represents 18.12% of the total financing cost of the RHP, which amounted to USD 1,379,000,000.

2 Description of the Environmental and Social Management of the Reventazón Plant

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The Reventazón Hydroelectric Power Plant (RHP) represents a large-scale national project. To achieve social and environmental feasibility, an Environmental Impact Study (EIS) was conducted, in compliance with national environmental regulations, and an Environmental and Social Management Plan (ESMP) was established. This plan outlines the necessary actions to prevent, reduce, mitigate, or compensate for the environmental impacts resulting from the project’s construction. The EIS was carried out through a participatory process involving communities and other stakeholders within the areas of influence, and the ESMP actions were implemented with the involvement and oversight of community representatives.

Since this is the fourth utilization of the Reventazón River for energy production, additional environmental studies were agreed upon with the banks financing the RHP—the Inter-American Development Bank (IDB) and the International Finance Corporation (IFC) of the World Bank Group—resulting in the Environmental and Social Action Plan (ESAP).

With the operational start of the Reventazón Plant in 2016, the Operational Stage Environmental and Social Management Plan (ESMP-O) was implemented and continues to be monitored to ensure compliance. A total of 20 material issues were identified, each with corresponding plans aimed at meeting the social and environmental management commitments of the RHP in its operational stage, in accordance with the environmental and social policy frameworks established by the Banks.

The list of identified environmental and social issues, along with their alignment to the IFC Performance Standards (PS) and IDB Operational Policies (OP), is provided in Table 1: Plans/Programs, Performance Standard (PS), and Related Operational Policy (OP) Table 1.

Table 1: Plans/Programs, Performance Standard (PS), and Related Operational Policy (OP)

Plan / program	PS (IFC)	OP (IDB)
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A. Stakeholder Engagement and Communication Plan	PS 1	703, 710, 761
B. Local Hiring Plan	PS 2	703, 710, 761
C. Community Health and Safety Plan for the Reventazón Hydroelectric Plant	PS 4	703
D. Mitigation Plan for Potential Impacts of RHP on Rafting Activities in the Reventazón River	PS 1	703
E. Reservoir Management Plan for the Reventazón Hydroelectric Plant	PS 3	703, 704
F. Water Hyacinth Control Plan in the Reservoir of the Reventazón Hydroelectric Plant	PS 3	703
G. Greenhouse Gas (GHG) Emission Monitoring Program in the Reventazón Reservoir	PS 3	703
H. Complaint and Request Handling Protocol	PS 1	703.710
H.1 Community Complaint and Request Handling Protocol	PS 1	703.710
H.2 Internal Complaint and Request Handling Protocol	PS 1	703.710
I. Security Forces Protocol for the Reventazón Hydroelectric Plant	PS 4	
J. Archaeological Information Center Management Protocol	PS 8	703
K. Land Acquisition and Livelihood Restoration Protocol	PS 5	703, 710
L. Reservoir Access Protocol	PS 3	703, 704
M. Management Plan for the Parismina River Compensation Site	PS 6	703
N. Master Plan to Mitigate the Effects of RHP on the Barbilla Destierro Biological Sub-Corridor (SBBD)	PS 6	703
O. Management Plan for the Middle and Lower Reventazón Watershed	PS 6	703
P. Adaptive Sediment Management and Water Quality Management Plan (ASMP-WQMP) for the RPT System	PS 1	703
Q. Early Warning System (EWS) and Natural Disaster Management Plan (NDMP)	PS 4	704
R. Integrated Management System (ISO 9001, ISO 14001, and OHSAS 18001)	PS 1	703, 704
S. Occupational Health and Safety Plan in Operation (OHS-MS) (OHSAS 18001)	PS 2	703
T. Reventazón Plant Emergency Plan	PS 4	703, 704

Source: Document - PAAS -18-18.1-1-v5, Generation Division

The implementation and development of the above-mentioned plans are managed by the Social-Environmental Management Support area of the Huetar Region within the Generation Division of Electricity Management. This work is supported by professional and technical personnel in biology, agronomy, forestry, social sciences, environmental education, and watershed management, along with technical support from specialized ICE personnel in departments like Hydrology and the Chemical Laboratory. Additionally, contracted administrative services are utilized for tasks such as water quality analysis, coastal studies, and biological water analysis, among others.

The Sustainability Governance Area (ESG) monitors compliance with the actions outlined in the Operational Environmental and Social Management Plan (ESMP-O) and prepares the annual results report for creditors.

3 Fund Allocation

The Budget Process of the Financial Planning Directorate within Finance Management requested that CRC 84,700 million be included in the extraordinary budget No.1-2021 for the issuance of long-term domestic securities. Of this amount, CRC 15,977 million was allocated to green bond issuance, as recorded in the document.

This extraordinary budget was approved by the ICE Board of Directors on September 21, 2021, during session 6475, article 1,

chapter III, and subsequently ratified by the Office of the Comptroller General of the Republic via document DFOE-CIU-0344, dated October 15, 2021 (see Annex 1).

On November 8, 2021, the Treasury Directorate of the Finance Management confirmed that a credit of CRC 14,627,973,605 was received in ICE's current account No. 4145184 at Banco Popular y Desarrollo Comunal (BP), documented with receipts FT21312ZB7Y6 and FT21312Y3K4V. This amount corresponds to green bond issuance proceeds.

The funds received in the account were entirely allocated as reserves to meet the maturity obligations of the Eurobonds issued in 2011, which refinanced part of the existing debt associated with the Reventazón Hydroelectric Plant (RHP). Consequently, there are no net funds from the green bond issuance remaining unassigned in the account. (see Annex 2).

4 Definitions

Renewable energy

All forms of energy produced from renewable sources in a sustainable manner. (IRENA, 2009).

Plant capacity factor

The ratio of the actual energy generated by the power plant over a period (usually annually) to the energy that would have been generated if the plant had operated at full capacity during that period, based on the nominal values on the equipment's nameplates. It indicates the plant's capacity utilization over time.

Greenhouse gases (GHG)

Gaseous components of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the infrared spectrum emitted by Earth's surface, atmosphere, and clouds (INTE-ISO 14064-1:2019).

The greenhouse gases included in inventories per Costa Rica's Ministry of Environment and Energy (MINAE) guidelines are: Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxides (N₂O), Perfluorocarbons (PFCs), Hydrofluorocarbons (HFCs), Sulfur hexafluoride (SF₆), Nitrogen trifluoride (NF₃), Hydrochlorofluorocarbons (HCFCs), Chlorofluorocarbons (CFCs).

Scope 1 and Scope 2

Three types of emissions are differentiated for calculating carbon footprints:

- Scope 1. Direct emissions, which occur from sources owned or controlled by the company.
- Scope 2. Emissions from the generation of electricity purchased and consumed by the company. "Acquired electricity" refers to electricity that is bought or brought within the company's organizational boundary.
- Scope 3. An optional reporting category for other indirect emissions. Scope 3 emissions are a consequence of the company's activities but occur from sources not owned or controlled by the company.

Source: (GHG Protocol: Corporate Accounting and Reporting Standard) https://ghgprotocol.org/sites/default/files/standards/protocolo_spanish.pdf

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5 Methodology for Calculating Sustainability Indicators

5.1 Gross Renewable Energy Production of the National Electricity System (SEN)

$$\text{Renewable Energy Production} = \sum \text{Hydroelectric Generation (EG)} + \text{Geothermal Generation (EG)} + \text{Wind Generation (EG)} + \text{Solar Generation (EG)} + \text{Biomass Generation (EG)}$$

Table 2 below shows renewable energy production by source for the National Electricity System (SEN) for the years 2021, 2022, 2023, and up to September 2024.

Table 2: Yearly Renewable Energy Generation of the SEN (2021 - 2024)

Source	Renewable Energy Generation of the SEN			
	2021	2022	2023	2024

	GWh	%	GWh	%	GWh	%	GWh	%
Hydroelectric	9,286	74.1	9,449	75.6	8,327	73.48	5,791	72.50
Geothermal	1,602	12.8	1,619	13.0	1,479	13.05	1,164	14.57
Wind	1,573	12.5	1,369	11.0	1,461	12.90	959	12.01
Solar	9	0.001	8	0.001	9	0.001	19	0.24
Biomass	67	0.5	55	0.4	55	0.5	54	0.68
Total	12,537	100	12,500	100	11,332	100	7,987	100

Source: DOCSE: Generation and Demand, Annual Report on the Operation of the National Electricity System for the Years 2021, 2022, 2023, and 2024 (as of September)

<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3&CodigoTipoArchivo=3008>

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. The data for September 2024 is preliminary; the final figure is expected in November 2024.
2. Data is rounded to whole numbers without decimals, with certain exceptions.

Table 3 below shows renewable energy production by source for the National Electricity System (SEN) for the period August 1, 2023 to July 31, 2024.

Table 3 Renewable Energy Generation of the SEN Period: August 2023 - July 2024

Source	GWh	%
Hydroelectric	8,097.85	74.04
Geothermal	1,419.67	12.98
Wind	1,338.47	12.24
Solar	18.89	0.17
Biomass	62.01	0.57
Total	10,936.88	100

Source:

DOCSE: Generation and Demand, Annual Report on the Operation of the National Electricity System for the Years 2023 and 2024

Corporate Information Systems, DOCSE, 01/10/2024

<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3&CodigoTipoArchivo=3008>

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Notes:

1. Data is rounded to whole numbers without decimals, with certain exceptions.

5.2 Gross Renewable Electric Energy Production by ICE

Renewable Energy Production by ICE = \sum Hydroelectric Generation + Geothermal Generation + Wind Generation + Solar Generation

Table 4 below shows renewable energy production by source of ICE for the years 2021, 2022, 2023, and up to September 2024.

Table 4: Interannual Renewable Energy Generation of the ICE (2021 - 2024)

Source	Renewable Energy Generation by ICE							
	2021		2022		2023		2024	
	GWh	%	GWh	%	GWh	%	GWh	%
Hydroelectric	6,575	80.1	6,816	80.5	6,231	80.49	4,399	78.89
Geothermal	1,602	19.5	1,619	19.1	1,479	19.11	1,164	20.87
Wind	34	0.4	35	0.4	31	0.40	12.14	0.23
Solar	0.78	0.0	0.43	0.0	0.87	0.001	0.61	0.011
Total	8,212	100	8,470	100	7,741	100	5,576	100

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2023 and 2024

<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3& código Tipo Archivo=3008>

DOCSE: Generation and Demand. Monthly Report. September 2024

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. The data for September 2024 is preliminary; the final figure is expected in November 2024.
2. Data is rounded to whole numbers without decimals, with certain exceptions.

Table 5 below shows ICE's renewable energy production by source for the period from August 2023 to July 2024.

Table 5 Renewable Energy Generation of the ICE Period: August 2023 - July 2024

Source	GWh	%
Hydroelectric	6,085	80.86
Geothermal	1,420	18.87
Wind	19.5	0.26
Solar	0.84	0.011
Total	7,525	100

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2023 and 2024

<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3& código Tipo Archivo=3008>

Corporate Information Systems, DOCSE, 18/01/2024.

DOCSE: Generation and Demand. Monthly Report. September 2024

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. Data is rounded to whole numbers without decimals, with certain exceptions.

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5.3 Annual Electricity Production of the Reventazón Hydroelectric Plant (RHP)

The annual electricity production of the Reventazón Hydroelectric Plant for the years 2021, 2022, 2023, and 2024 is presented in the table below. Table 6:

Table 6: Annual Electricity Production (GWh) of the RHP (2021 - 2024)

Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
2021	66	55	59	106	139	102	86	123	124	90	76	84	1,108
2022	52	40	51	78	140	126	118	113	129	122	48	77	1,094
2023	57	45	57	62	44	96	109	79	90	87	113	84	923
2024	49.96	51.22	49.78	42.94	47.86	98.41	0.00						340

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2021– 2024
DOCSE, Generation and Demand. Monthly Report. September 2024

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. The electricity production for the month of July is 0 due to general maintenance of the plant.
2. Data is rounded to whole numbers without decimals, with certain exceptions.

The annual electricity production of the Reventazón Hydroelectric Plant for the period from August 2023 to July 2024 is reported in Table 7.

Table 77: Electricity Production (GWh) of the RHP for the Period August 2023 to July 2024

Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
2023								79.36	90.45	86.81	113.11	83.69	453.42
2024	49.96	51.22	49.78	42.94	47.86	98.41	0.00						340.17
Total													793.59

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2021– 2024
DOCSE, Generation and Demand. Monthly Report. September 2024

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. The electricity production for the month of July is zero due to general maintenance of the plant.
2. Data is rounded to two significant figures.

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5.4 Reventazón Plant Capacity Factor

Estimation:

Plant Capacity Factor (%) = $\frac{\text{Annual energy generation (GWh)}}{\text{Power (GW)} * 24 \text{ hours / day} * 365 \text{ days}}$

$$\text{Power (GW)} * 24 \text{ hours / day} * 365 \text{ days}$$

The Table 8: below shows the capacity factor of the Reventazón Hydroelectric Plant for the years 2021, 2022, 2023, and 2024.

Table 8: Capacity Factor of the Reventazón Hydroelectric Plant (2021–2024)

Variable	Unit	2021 (Base year)	2022	2023	2024
Power	GW	0.3069	0.3069	0.3069	0.3069
Annual energy	GWh	1,108	1,094	923	340
Capacity Factor	%	41.2	40.7	35.7	12.6

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2022–2023

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fpOMTPPrincipal.aspx>

Notes:

1. The data for September 2024 is preliminary; the final figure is expected in November 2024.
2. Data is rounded to whole numbers without decimals, with certain exceptions.

The plant capacity factor for the period from August 2023 to July 2024 is 31.05; see Table 9.

Table 9: Plant capacity factor for the period August 2023 to July 2024

Month	January	February	March	April	May	June	July	August	September	October	November	December	Average
2023								34.76	40.93	38.02	51.19	36.65	40.31
2024	21.88	23.98	21.80	19.43	20.96	44.54	0.00						21.80
Total													31.05

Source: Annual Report on the Operation of the National Electricity System for the Years 2023–2024
DOCSE, Generation and Demand. Monthly Report. July 2024.

<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>

<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fpOMTPPrincipal.aspx>

Notes:

1. Data is rounded to two significant figures.
2. The plant capacity factor for the month of July is zero due to general maintenance of the plant.

5.5 GHG Emission Factor of the RHP Reservoir

Indicator: GHG Emission Factor for the Reservoir

The greenhouse gas (GHG) emission factor for the reservoir in 2023 was 26.74 tCO₂e/GWh.

Estimation:

GHG Emission Factor for the reservoir = $\frac{\text{Direct emissions (tCO}_2\text{e)}}{\text{Annual energy generated by the plant (GWh)}}$

Annual energy generated by the plant (GWh)

For the direct emissions from energy generation, the calculation applies the following equation:

Direct Emissions from Energy Generation = Methane Emissions + Biogenic Carbon Dioxide Emissions from the Reservoir

Table 10 GHG Emission Factor of the Reventazón Hydroelectric Plant Reservoir for 2021, 2022, and 2023

Emissions	Unit	2021	2022	2023
Methane	tCO ₂ e	23,321	23,383	23,079
Biogenic	tCO ₂ e	4,107	3,790	3,790
Direct	tCO ₂ e	27,428	25,955	24,684
Annual energy	GWh	1,108	1,094	923
Emission factor	tCO ₂ e/GWh	24.84	24.84	26.74

Source: Inventory of Greenhouse Gas Emissions and Reductions for 2021, 2022, and 2023 Reventazón Hydroelectric Power Plant:

Source of Numerator Data. (DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2021, 2022, 2023): Source of Denominator Data.

Emissions from the reservoir are measured monthly and are included in the GHG Report prepared by the Generation Division, following ISO 14064-1, INTE B5 standards, and the Carbon Neutral Country Program 2.0. As a result, the Huetar Region has received the Carbon Reduction recognition awarded by the Country Program of the Climate Change Directorate.

Refer to Annex 3 for the 2023 Greenhouse Gas Emissions and Reductions Inventory of the Reventazón Hydroelectric Plant, and Annex 4. GHG Verification Report.

5.6 Annual Reduction of Greenhouse Gas (GHG) Emissions at RHP Facilities (Scope 1 and 2)

In 2022, reduction initiatives were planned, and their implementation was monitored for execution in 2023, as outlined below.

Reduction = $(\text{Direct emissions (tCO}_2\text{ e)} + \text{Indirect emissions (tCO}_2\text{ e)})_{n-1} - (\text{Direct emissions (tCO}_2\text{ e)} + \text{Indirect emissions (tCO}_2\text{ e)})_{n+1}$

Table 11 Reduction of GHG at Reventazón HP 2023

Action	Source of reduced emission	CO ₂ e ton	
		Planned	Executed
Implementation of the Telework Program	Consumption of fuel - indirect emissions from transportation (scope 3)	32.23	32.23
Installation of automatic shutdown systems	Electricity consumption (scope 2)	0.47	0
Replacement of low-energy lighting	Electricity consumption (scope 2)	1.28	0
Total		33.98	32.23

The discrepancies between planned and executed reductions are due to challenges in implementing the planned purchases for 2023, related to changes in legislation affecting administrative procurement, as well as internal personnel shifts. This reduction action will be included in the PGR 2024–2025.

Updated reduction initiatives for 2024 and 2025 are detailed in the following table.

Table 12 Reduction initiatives for 2024 and 2025

Action	Source of reduced emission	CO ₂ e ton		
		2024	2025	Total
Telework Program	Consumption of fuel - indirect emissions from transportation (scope 3)	32.23	0	32.23
Installation of automatic shutdown systems	Electricity consumption (scope 2)	0.41	0.41	0.82
Replacement of low-energy lighting	Electricity consumption (scope 2)	0.76	3.81	4.57

6 Sustainability Indicators Results for 2023

6.1 Gross Renewable Energy Production of the National Electricity System (SEN)

For the period from August 2023 to July 2024, the National Electricity System (SEN) recorded a 7.35% decrease in renewable energy generation compared to the same period in 2022–2023, according to data from the Electrical System Operation and Control Division (DOCSE). This decline is due to the predominantly hydroelectric nature of the energy matrix (74.04%) and reduced rainfall, linked to the El Niño climatic phenomenon, which has impacted water flows and, consequently, renewable energy generation.

Preliminary data indicates that renewable sources accounted for 88.22% of the SEN's total energy production from August 2023 to July 2024.

Fossil fuel-based energy is considered a backup for the system. Thermal generation increased significantly, with 1,470.82 GWh produced in the period from August 2023 to July 2024, compared to 333.31 GWh in the previous period—an increase of 4.41 times, directly due to reduced water flows. Data from the Electrical System Operation and Control Division (DOCSE)

As of July 2024, hydroelectric power (from run-of-river and reservoir plants) remains the main source in Costa Rica's energy matrix, representing 65.26%. Geothermal and wind power contribute 11.44% and 10.79%, respectively, while biomass and solar combined provide 0.65%. Thermal sources account for 11.85%.

6.2 Gross Renewable Energy Production of the National Electricity System (ICE)

ICE's gross renewable energy production for the period from August 2023 to July 2024 was 7,525 GWh, equivalent to 85.52% of the SEN's gross production for the same period.

6.3 Annual Electricity Production of the Plant

From August 2023 to July 2024, the Reventazón Plant generated a total of 793 GWh, representing 10.55% of ICE's electricity production and 6.39% of the SEN's production during this period.

6.4 Reventazón Plant Capacity Factor

The Reventazón Plant recorded a capacity factor of 31.05 for the period from August 2023 to July 2024.

6.5 GHG Emission Factor of the RHP Reservoir

The GHG emission factor for the RHP reservoir in 2023 was 26.74 tCO₂e/GWh, a 7.8% increase from 24.84 tCO₂e/GWh in

2022.

6.6 Intensity of Avoided Emissions per Energy Produced

In 2023, the avoided GHG emissions per unit of energy produced were 0.0347 tons CO₂e/GWh.

7 Remarks

Reservoir emissions comprised 89.8% of the emissions reported in the 2023 GHG Inventory Report for the RHP. According to PPCN guidelines, the electricity consumer is responsible for reducing and offsetting these emissions.

- Emissions from the decomposition of organic waste extracted from the Reventazón reservoir (e.g., water hyacinth, wood, and other vegetation) made up 9.52% of the plant's 2023 GHG inventory, highlighting the need to explore reservoir waste management methods to reduce these emissions.
- Emissions from the Reventazón reservoir have shown a downward trend, likely due to the stabilization of organic material decomposition from the initial filling stage. However, the reservoir is exposed to additional organic material carried by tributaries, especially during heavy rainfall events, and changes in watershed land use could increase sediment and organic waste.
- These were the third-largest emission source in the 2023 RHP GHG Inventory. Despite reduction initiatives, emissions from electricity consumption rose by 44.96% compared to the previous year.
- In 2023, emissions from reservoir waste decomposition decreased by 40.91%, and emissions from major and minor equipment fuel consumption dropped by 47.01%.
- The consumption of chemicals such as aerosols, greases, oils, lubricants, fertilizers, and gases rose in 2023, leading to higher emissions. However, these sources constitute only 0.003% of the total RHP inventory, so their impact is minimal.
- The RHP's emission factor decreased from the baseline year, with total emissions down by 33.2%, mainly due to reductions in two primary sources: reservoir waste management emissions and fuel consumption for major and minor equipment.
- Indirect emissions were identified, with only "use of company products" emissions—specifically transmission and distribution losses—quantified.
- The 2023 reductions associated with the telework program resulted in a reduction of 32.23 tCO₂e. Some planned reductions were impacted by challenges in executing the year's procurement, due to changes in applicable administrative procurement legislation and internal staff movements.
- For 2024, the target is a reduction of 33.4 tCO₂e, which includes the Telework Program, installation of energy-efficient lighting, and automated lighting systems (motion sensors).

8 Annual Reduction of Greenhouse Gas (GHG) Emissions at RHP Facilities (Scope 1 and 2)

- The planned reduction initiatives from 2022 were implemented in 2023, achieving a total reduction of 32.23 tCO₂e (Table 11). For 2024, projected reduction measures could achieve up to 33.4 tCO₂e (Table 12), as documented in the Verification Opinion: (Annex).

9 Bibliographical References

- DOCSE. (2024) Monthly Report on Production and Demand of the National Electricity System, July 2024. San José, Costa Rica.
- DOCSE. (2023) DOCSE, Annual Report on the Operation of the National Electricity System 2023. San José, Costa Rica.
- DOCSE (2023) Report on Demand Management and Renewable Energy Production 2023. San José, Costa Rica.
- Generation Division. (2023). Greenhouse Gas Emissions and Reductions Inventory for the Reventazón Hydroelectric Plant 2023. Limón, Costa Rica.

10.1 Annex 1. Certification from the Budget Process on incoming resources

INSTITUTO COSTARRICENSE DE ELECTRICIDAD

Corporate card number 400004213902

FINANCIAL PLANNING DIRECTORATE – BUDGET PROCESS

Tel. (506) 2000-6973

The undersigned, Errol Muñoz Cortés, in his capacity as Coordinator of the Budget Process for the Financial Planning Directorate of the Costa Rican Institute of Electricity, certifies that:

- The Treasury Directorate requested the inclusion of CRC 84,700 million in extraordinary budget No.1-2021 for the issuance of long-term domestic securities. Of this amount, CRC 15,977 million was allocated to green bond issuance, as documented.
- This extraordinary budget was approved by the ICE Board of Directors on September 21, 2021, during session 6475, article 1, chapter III, and subsequently ratified by the Office of the Comptroller General of the Republic via document DFOE-CIU-0344, dated October 15, 2021
- According to records maintained by the Asset and Liability Management Process within the Treasury Directorate, reflected in the Fund Management (FM) Budget Module, an income budget execution of CRC 14,443 million was recorded on November 8 under SAP document No. 670002849. This amount corresponds to the green bond issuance, as indicated by the aforementioned process.

Issued in San José, Costa Rica, on February 10, 2022, at the request of the Treasury Directorate.

Sincerely, Budget Process

Financial Planning Directorate, Finance Management

ERROL ENRIQUE MUÑOZ CORTES (SIGNATURE)

Digitally signed by ERROL ENRIQUE MUÑOZ CORTES (SIGNATURE) Date: 2022.02.10 -15:12:13 -06'00'

Errol Muñoz Cortés Coordinator

Management File

Mr. Randall Hume Salas, Director, Financial Planning Directorate

Mrs. Lizbeth Hernández Castillo, Director, Accounting Directorate

10.2 Annex 2. Certification from the Treasury Directorate on the use of resources

February 04, 2022

5401-52-2022

INSTITUTO COSTARRICENSE DE ELECTRICIDAD

Corporate card number 400004213902

TREASURY DIRECTORATE

Tel. (506) 2000-2664

The undersigned, Wilson Alvarado Rodríguez, in his capacity as Director of Treasury within the Finance Management of the

Costa Rican Institute of Electricity (ICE), hereby certifies that:

- On November 8, 2021, a credit of CRC 14,627,973,605 was received in ICE's current account No. 4145184 at Banco Popular¹, documented with receipts FT21312ZB7Y6 and FT21312Y3K4V. This amount corresponds to green bond issuance proceeds.
- The funds received in the account were entirely allocated as reserves to meet the maturity obligations of the Eurobonds issued in 2011, which refinanced part of the existing debt associated with the Reventazón Hydroelectric Plant (RHP).
- Consequently, there are no net funds from the green bond issuance remaining unassigned in the account.

Issued in San José, Costa Rica, on February 4, 2022. Sincerely,

Treasury Directorate
Finance Management
Wilson Alvarado Rodríguez, Director

WAR/AHM/lsc

1:

Mrs. María Martínez Fonseca, Coordinator, Financial Assets and Liabilities Management Process

Mrs. Silvia Mora Arias, Finance Management

Mrs. Andrea Hernández Murillo, Coordinator, Revenue Process, Management File

1 Account designated exclusively for reserve funds allocated to the servicing/repayment of Eurobonds maturing in November 2021.

Telephones: 2000-2664 / 2000-5052

Fax: 2003-0109

walvarado@ice.go.cr

10.3 Annex 3. Greenhouse Gas Emissions and Reductions Inventory - Reventazón Hydroelectric Plant

10.4 Annex 4. Annex. Verification Opinion.

Translator's note: in compliance with article 19 of the Regulations to the Official Translators and Interpreters Act, N° 40824 RE, I hereby certify that the revenue stamps pertaining to this certification were duly paid by means of tax receipt **540481009**, document number **577714090**, in the Bank of Costa Rica, on **September 25th, 2024**, copy of which I have attached hereunto.

Banco de Costa Rica	
Oficina:616 AGENCIA BANCARIA INS MORA	
Fecha:25/09/2024 Hora:08:56:54	
Detalle de Tasacion	
Tasacion:540481009 Entero:577714090	
Pagado	
TIMBRE FISCAL	125.00
	
----- 25 SEP 2024 -----	
Moneda de Transaccion:	COLONES
Sub Tot. Timbres:	125.00
Desp. Garro Gomez	7.50
Total Timbre Servicio al Cliente	117.50

-----LAST LINE OF TRANSLATION-----

In witness whereof I hereby issue this Spanish to English Certified Translation comprising 15 page(s), and hereunto set my hand and affix my seal in San José, Costa Rica, on November 12, 2024. Revenue Stamps have been paid and are affixed hereto.

Translator's note: This document has been digitally signed through the Central Directo website, Certifying Authority of Costa Rica. You can validate this digital signature at the following website:

<https://www.centradirecto.fi.cr/spa/Bccr.Firma.InformacionPublica.CD.SPA/#/>