

GREEN BOND ISSUANCE REPORT

Reventazón Hydroelectric Power Plant

Fourth Report

Period: August 1, 2024 - July 31, 2025



Instituto Costarricense de Electricidad

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Green Bond Issuance: Reventazón Hydroelectric Plant

Report for the Period: August 1, 2024, to July 31, 2025

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 2024 to July 2025, 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 is consistent with the Climate Bonds Initiative (CBI) Climate Bonds Standard Version 3.0 and the Green Bond Principles published by the International Capital Market Association (“ICMA”), which focus on four components by ICE, namely:

1. Annual External Verification for the third year of the Reventazón Green Bond,
2. Use of funds,
3. Project selection and evaluation process
4. Funds management and reporting.

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

- Available Environmental Impact Assessment (EIA) 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 were 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

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 to outline the actions necessary to prevent, reduce, mitigate, or compensate 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 commissioning 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: Plans/Programs, Performance Standard (PS), and Related Operational Policy (OP)

Plan / Program	PS (IFC)	OP (IDB)
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 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 Direction of Financial Planning of the 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 Direction 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 way (IRENA, 2009).

Plant Factor (Capacity)

It is the quotient between the actual energy generated by the power plant during a period (usually a year) and the energy generated if it had worked at full load during the same period, according to nominal values of the equipment's ID plates. It indicates the use of the plant's capacity over time.

Greenhouse Gasses (GHG)

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

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

Scope 1 and Scope 2

To calculate carbon footprints, three emission types are differentiated:

- Scope 1. Direct emissions, this type of emissions come 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

5 Methodology to Calculate Sustainability Indicators

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

Renewable Energy Production =

\sum Hydroelectric Generation (EG)+Geothermal Generation (EG)+Wind Generation (EG)+Solar Generation (EG)+Biomass Generation (EG)

Table 2 displays the renewable energy production by source of the National Electricity System (SEN), for 2021, 2022, 2023, 2024, and the recorded until October 2025.

Table 2 Year on Year Renewable Energy Generation of SEN (2021 - 2025)

Source	SEN Renewable Energy Generation									
	2021		2022		2023		2024		2025	
	GWh	%	GWh	%	GWh	%	GWh	%	GWh	%
Hydropower	9 286	74.1	9 449	75.6	8 327	73.48	8 412	74.87	8 468	76.88
Geothermal	1 602	12.8	1 619	13.0	1 479	13.05	1 498	13.33	1 217	11.05
Wind	1 573	12.5	1 369	11.0	1 461	12.90	1 239	11.03	1 251	11.36
Solar	9	0.001	8	0.001	9	0.001	26	0.23	30	0.27
Biomass	67	0.5	55	0.4	55	0.5	60	0.53	50	0.45
Total	12 537	100	12 500	100	11 332	100	11 236	100	11 016	100

Source: DOCSE: Generation and Demand, Annual Report on the Operation of the National Electricity System for the Years 2021, 2022, 2023, 2024, and 2025 (as of October)
<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3& Código Tipo Archivo=3008>
<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>
<http://sabcence04/Intranet/Pages/pSegLogin.aspx?ReturnUrl=%2fIntranet%2fPages%2fpOMTPPrincipal.aspx>

- Notes:
1. Data for October 2025 is preliminary; the final figure is expected by November 2025.
 2. Data is rounded to whole numbers without decimals, with certain exceptions.

¡Error! No se encuentra el origen de la referencia. displays renewable energy production by source of the National Electricity System (SEN) for the period August 1, 2024, to July 31, 2025.

Table 3 SEN Renewable Energy Generation Period: August 2024 - July 2025

Source	GWh	%
Hydropower	9 899	76.81
Geothermal	1 452	11.27
Wind	1 449	11.25
Solar	32	0.25
Biomass	55	0.43
Total	12 887	100

Source:
 DOCSE: Generation and Demand, Annual Report on the Operation of the National Electricity System for the Years 2024 and 2025
 Corporate Information Systems, DOCSE, 01/10/2024
<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3& Código Tipo Archivo=3008>

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

- Note:
1. Data is rounded to whole figures without decimals, with some exceptions.

5.2 Gross Renewable Energy Production of ICE

Renewable energy production of ICE = \sum hydroelectric generation + geothermal generation + wind generation + solar generation

Table 4 displays renewable power generation by source of ICE for 2021, 2022, 2023, 2024, and the record until October 2025.

Table 4 Year on Year Renewable Power Generation of ICE (2021 - 2025)

Source	Renewable Power Generation of ICE									
	2021		2022		2023		2024		2025	
	GWh	%	GWh	%	GWh	%	GWh	%	GWh	%
Hydropower	6 575	80.1	6 816	80.5	6 231	80.49	6 238	80.46	6 613	84.25
Geothermal	1 602	19.5	1 619	19.1	1 479	19.11	1 498	19.32	1 217	15.50
Wind	34	0.4	35	0.4	31	0.40	17	0.21	19	0.24
Solar	0.78	0.0	0.43	0.0	0.87	0.001	0.74	0.01	0.57	0.01
Total	8 212	100	8 470	100	7 741	100	7 754	100	7 849	100

Source: DOCSE, Annual Report on the operation of the national Electric System 2024 y 2025
<https://apps.grupoice.com/CenceWeb/CenceDescargaArchivos.jsf?init=true&categoria=3& código Tipo Archivo=3008>

DOCSE: Generation and Demand Monthly Report. October 2025
<http://sabcence04/intranet/Pages/pGReporte.aspx?id=rptGeneracionRenovable>
<http://sabcence04/intranet/Pages/pSeqLogin.aspx?ReturnUrl=%2fintranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

1. Data from October 2025 is preliminary, definite data will be available by November 2025
2. Data is rounded to whole figures without decimals, with some exceptions.

Table 5 displays renewable power generation of ICE by source for the period from August 2024 to July 2025

Table 5 Renewable Power Generation of ICE. Period August 2024-July 2025

Source	GWh	%
Hydropower	8 175	84
Geothermal	1 561	16
Wind	23	0.24
Solar	0.70	0.01
Total	9 759	100

Source: DOCSE, Annual Report on the Operation of the National Electricity System for the Years 2024 and 2025

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

Corporate Information Systems, DOCSE, 31/10/2025.

DOCSE: Generation and Demand. Monthly Report. October, 2025

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

<http://sabcence04/intranet/Pages/pSeqLogin.aspx?ReturnUrl=%2fintranet%2fPages%2fOMTPPrincipal.aspx>

Notes:

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

5.3 Annual Power Production of the Reventazón Hydropower Plant (RHP)

Table 6 displays the annual power production of the Reventazón Hydropower Plant for the years 2021, 2022, 2023, 2024, and 2025.

Table 6 Annual Power Production (GWh) of the RHP (2021 - 2025)

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	0.00	73.31	108.52	123	95.15	740.15
2025	85.30	68.40	52.25	73.30	123.48	132.48	118.94						653.81

Source: DOCSE, Annual Report on the Operation of the National Electricity System 2021 – 2025

DOCSE, Generation and Demand. Monthly Report. July 2025

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

<http://sabcence04/Intranet/Pages/pSeqLogin.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 figures without decimals, with some exceptions.

Table 7 displays the annual power production of Reventazón Hydropower Plant for the period from August 2024 to July 2025.

Table 7 Power Production (GWh) of RHP for the period from August 2024 to July 2025

Month	January	February	March	April	May	June	July	August	September	October	November	December	Total
2024								0.00	73.31	108.52	123	95.15	399.98
2025	85.30	68.40	52.25	73.30	123.48	132.48	118.94						654.15
Total													1 054.13

Source: DOCSE, Annual Report on the Operation of the National Electricity System 2021 – 2025

DOCSE, Generation and Demand. Monthly Report. July 2025

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

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

Notes:

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

5.4 Reventazón Plant Factor

Estimation:

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

Power (GW) * 24 hours / day * 365 days

Table 8 displays the plant factor of Reventazón HP for the years 2021, 2022, 2023, 2024 and 2025.

Table 8 Plant Factor of Reventazón Hydropower Plant (2021-2025)

Variable	Unit	2021 (base year)	2022	2023	2024	2025
Power	GW	0.3069	0.3069	0.3069	0.3069	0.3069
Annual Energy	GWh	1 108	1 094	923	740	653.8
Plant Factor	%	41.2	40.7	35.7	27.56	43.07

Source: DOCSE, Annual Report on the Operation of the National Electricity System 2021 – 2025

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

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

Notes:

1. Data corresponding to October 2025 is preliminary, definite data will be ready by November 2025
2. Data is rounded to whole figures without decimals, with some exceptions.

Plant factor for the period from August 2024 to July 2025 is 38.71, see Table 9.

Table 9 Plant Factor for the period from August 2024 to July 2025

Month	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
2024								0.0	33.18	47.53	55.67	41.68	35.61
2025	37.36	33.17	22.89	33.17	53.95	59.96	52.10						41.80
Total													38.71

Source: Annual Report on the Operation of the National Electricity System 2024 – 2025

DOCSE, Generation and Demand. Monthly Report. July 2025

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

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

Notes:

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

5.5 GHG Emission Factor of the RHP Reservoir

Indicator Reservoir GHG Emission Factor:

The greenhouse gas (GHG) emission factor for the reservoir in 2024 was 16.69 TCO₂e/GWh.

Estimation:

$$\text{GHG Emission Factor for the reservoir} = \frac{\text{Scope 1 generation emissions (tCO}_2\text{e)}}{\text{Annual energy generated by the plant (GWh)}}$$

Scope 1 emissions generation input calculation is based on the following equation:

Scope 1 emissions input generation = Methane Emissions+ Biogenic Carbon Dioxide Emissions from the Reservoir

Table 10 GHG Emission Factor of Reventazón Plant Reservoir for 2021, 2022, 2023 and 2024

Emissions	Unit	2021	2022	2023	2024
Methane	TCO ₂ e	5 318	5 318	5 318	5 318
Biogenic	TCO ₂ e	7 034	7 034	7 034	7 034
Direct	TCO ₂ e	27 428	25 955	24 684	12 352
Annual Power	GWH	1 108	1 094	923	740
Emission Factor	TCO ₂ e/GWh	11.15	11.29	13.38	16.69

Source: Inventory of Greenhouse Gas Emissions and Reductions for 2021, 2022, 2023, and 2024

Reventazón Hydropower Plant:

Source numerator figures. (DOCSE, Annual Report on the Operation of the National Electricity System for 2021, 2022, 2022, 2022, 2022, 2022,2023, and 2024): Source denominator figures.

The GHG inventory updating 2024 helped to notice that the warming potential used did not correspond to the last updating **IMN**. Therefore, the historical series was recalculated to maintain comparability and consistency of the reduction goals. 2021 continues being the base year.

Since there is no data from monitoring campaigns, the GHG team from the DG applied the Level 1 (Tier1) methodology for emission estimation, according to *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, Volume 4, Chapter 7 (*Wetlands*). That procedure was developed based on the INTE ISO 14064-1, INTE B5 Standards and the *Programa País Carbono Neutralidad 2.0 (PPCN)* [country program carbon neutrality]. As a result, Reventazón Power Plant continues to be eligible to receive the Carbo Reduction Prize from the Direction of Climate Change.

See Annex 3 Inventory of 2024 Greenhouse Gases Emissions and Reductions of Reventazón Hydropower Plant and Annex 4 GHG Verification Report.

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

In 2023, reduction initiatives were planned, and monitored for execution in 2024, as outlined below.

Reduction = (Scope 1 emissions (tCO₂ e) + Scope 2 emissions (tCO₂ e)) n - (Scope 1 emissions (tCO₂ e) + Scope 2 emissions (tCO₂ e)) n + 1

Table 11 GHGs Reduction of Reventazón HP 2024

Action	Source of reduced emission	CO ₂ e ton	
		Planned	Executed
Installation of automatic shutdown systems	Electricity consumption (scope 2)	0,59	0,59
Replacement of low-energy lighting	Electricity consumption (scope 2)	0,50	0,50
Total		1,09	1,09

Reduction initiatives 2024 & 2025 were updated as shown in the following table.

Table 12 Reduction initiatives 2024 y 2025

Action	Source of reduced emission	CO ₂ e ton		
		2024	2025	Total
Installation of automatic shutdown systems	Electricity consumption (scope 2)	0,59	0,59	1,18
Replacement of low-energy lighting	Electricity consumption (scope 2)	0,50	0,50	1

6 Results of Sustainability Indicators for 2024

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

The National Electricity System (SEN) recorded an 18% increase in generation from renewable sources for the period from August 2024 to July 2025 compared to the period from August 2023 to July 2024, according to data from the Electrical System Operation

Division (DOCSE in Spanish). Since the electric matrix is predominantly hydroelectric (76.81 %), sustainable power generation was directly affected this year by increased rainfall and flow rates due to climate effects.

According to preliminary data, SEN's energy production, from its five renewable sources, reached a renewability average of 97.74% from August 2024 to July 2025.

Fossil fuel-based energy is considered a backup for the system. Thermal generation decreased 5.3 times compared to the previous period, with 278.03 GWh produced in the period from August 2024 to July 2025, compared to 1 470.82 GWh due to the above-mentioned conditions 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 75%. Both geothermal and wind represent 11% each, while biomass and solar combined provide 0.66%. Thermal sources represent 2.11% of the power matrix.

6.2 Gross Renewable Power Production of ICE

ICE's gross renewable production for the period from August 2024 to July 2025, was 9 759.22 GWh, which represents 76% of the SEN's gross production for the same period.

6.3 Annual Power Production of the Plant

From August 2024 to July 2025, Reventazón Power Plant generated a total of 1 054.13 GWh, which means 10.8% of ICE's power generation and 8.18 % of SEN's generation.

6.4 Reventazón Plant Factor

The Reventazón Plant records a plant factor of 38.71, from August 2024 to July 2025.

6.5 GHG Emission Factor of the RHP Reservoir

The GHG emission factor of the RHP in 2024 was 16.69 tCO_{2e}/GWh, 76,41% lower than 2023 which was 29.44 tCO_{2e}/GWh.

6.6 Intensity of Avoided Emissions per Amount of Energy Produced

In 2024, the avoided GHG tons per amount of energy produced were 84 382.8 CO_{2e}.

7 Conclusions

93.33 % of emissions reported in the GHG Inventory Report of the RHP are produced in

the reservoir. According to the PPCN Guidelines, the power consumer is responsible for reducing and offsetting these emissions.

- Emissions from Reventazón reservoir have shown a general downward trend since 2021. The assessed period shows a more significant reduction due to the absence of direct measurement of gases during monitoring campaigns. Therefore, it was necessary to calculate emissions from theoretical information, using the methodology included in the PPCN Guidelines, following the INTE ISO 14064-1:2019 and PPCN Standards, which were evaluated and approved by the Verification and Validation Organism (*Organismo de Verificación y Validación (OVV)*).
- Scope 2 emissions that correspond to imported electric energy diminished 85.88% compared to 2023. This reduction is a result of using actual billing data recorded from customer service meters and the calculation of energy related to owned service while the plant remained inactive.
- In 2024, the scope 1 sources that showed the most significant reduction compared to 2023 were: emissions for consumption of chemicals like aerosols (87.83%); emissions for consumption of refrigerants (92.80%); related to organic waste management (48.07%), derived from reservoir waste management (94.16%), and those derived directly from the reservoir (54.55%).
- Scope 1 sources that increased their impact in the 2024 Inventory were: emissions from transportation fuel consumption (24.57%); emissions from major and minor equipment fuel consumption (114.62%); emissions for chemical products such as greases and oils (191.11%), and emissions for ordinary wastewater generation (33.01%).
- Even though total emissions experienced a 192,33% reduction in this period, the emission factor of RHP increased this year compared to base year. This variation is a result of a decrease in energy generation during the assessed period and a recalculation of base year according to regulations and justified by a change in methodologies to estimate emissions related to the generation input.
- Scope 3) sources were identified and evaluated, of which were significant: those related to technical losses from transmission and distribution of electric energy; those generated by private and contracted transportation of workers from and to their workplaces; these sources reached a total of 1.329,37 tCO₂e.
- During 2024, the RHP experienced a reduction of 1,09 tCO₂e without deviations from the original plan, thanks to the implementation of the actions included in the reduction plan, specifically those related to work from home programs.
- As a summary, the Greenhouse Gas Inventory 2024 of Reventazón Hydropower Plant shows a positive environmental performance, showing a general reduction of emissions and strengthening of controlling and data monitoring mechanisms. Even though the reservoir's emissions continue representing the most significant of the reported total, their downward trend together with the

reduction in diverse scopes 1 and 2 sources is an example of this organization commitment with a responsible management of impacts.

Applying the IPCC methodologies according to INTE ISO 14064-1:2019 and PPCN 2.0 Standards, guarantees technical soundness and transparency in the quantification process. Even when the emission factor showed a relative increase due to less power generation, the results obtained demonstrate advance towards continuous improvement and mitigation of emissions, restating the institutional commitment with sustainability and climate action.

- **Annual Reduction of Greenhouse Gas (GHG) Emissions at RHP Facilities (Scope 1 and 2)**
- In 2024, the reduction measures planned in 2023 were implemented to achieve a total reduction of 1.09 tCO_{2e}. For 2025 2 reduction measures to reduce up to 1.09 tCO_{2e} are projected to optimize power consumption related to illumination.

8 References

- DOCSE. (2024). *Informe mensual Producción y demanda del Sistema Eléctrico Nacional* [Monthly Report on Production and Demand of the National Electricity System, July 2024]. San José, Costa Rica.
- DOCSE. (2023). *Informe anual de la operación del Sistema Eléctrico Nacional 2023* [Annual Report on the Operation of the National Electricity System]. San José, Costa Rica.
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- Generación, D. (2024). *Inventario de emisiones y reducciones de gases de efecto invernadero Planta Hidroeléctrica Reventazón periodo 2024* [Inventory of GHG Emissions and Reductions Reventazón Hydropower Plant]. Limón, Costa Rica.

9 Annexes

9.1 Annex 1. Certification from the Budget Process on Incoming Resources

INSTITUTO COSTARRICENSE DE ELECTRICIDAD

Corporate ID Number 400004213902

DIRECTORATE OF FINANCIAL PLANNING – BUDGET PROCESS

Phone. (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. 6700002849. 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(FIRMA)

Firmado digitalmente por ERROL ENRIQUE MUÑOZ CORTES (FIRMA)Fecha: 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

Note: Translation for informative purposes, it does not substitute the original document.

9.2 Annex 2. Certification from the Treasury Directorate on the Use of Resources

2022-02-04

5401-52-2022

INSTITUTO COSTARRICENSE DE ELECTRICIDAD

Corporate ID Number 400004213902

TREASURY DIRECTORATE

Phone. (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

□:

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

Ms. Silvia Mora Arias, Finance Management

Ms. 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.

Phone numbers: 2000-2664 / 2000-5052

Fax: 2003-0109

walvarado@ice.go.cr

Note: Translation for informative purposes, it does not substitute the original document.

9.3 Annex 3. Inventory of Emissions and Reductions of Green House Gases Reventazón Hydropower Plant: See File from GHG 2024

9.4 Annex 4. Verification Opinion. See attached File.