THE INTERNATIONAL REC STANDARD

Country Assessment Report

Country/Region Name- Nicaragua: Nicaragua is situated in Central America; bordered by Costa Rica and Honduras. It has a population over 6.9 million and GDP valued at $**15.7 billion**, with a growing rate of 3.8% and electricity access coverage of 86%. (World Bank and IRENA 2022)
Economic structure and activity: Nicaragua's economy can be characterised as traditional, with its GDP based on agriculture, followed by exports and remittances from emigrants (mainly living in the US). The economy has contracted since political turmoil in 2018, and further exacerbated by the COVID crisis, but rebounded in 2021 to pre-2018 levels. Nicaragua remains one of Latin America's least developed countries, where access to basic services is a daily challenge for its small population. Remittances expanded sharply during 2022, reaching about 22 percent of GDP due to a spike in emigration. (World Bank 2023)
Top private companies with RE commitments: Some global companies with operations in Nicaragua have set renewable energy goals and create efforts to offset their carbon footprint, such as CMI Energia, Coca Cola, InBEv, Pepsi co, CEMEX, among others.
Generation and demand: (e.g.**,** type, MW, TWh) In 2021, 4,212 GWh of electricity was generated over the country. With an installed capacity of 1,615 MW, distributed by technology as shown in Fig. 1.

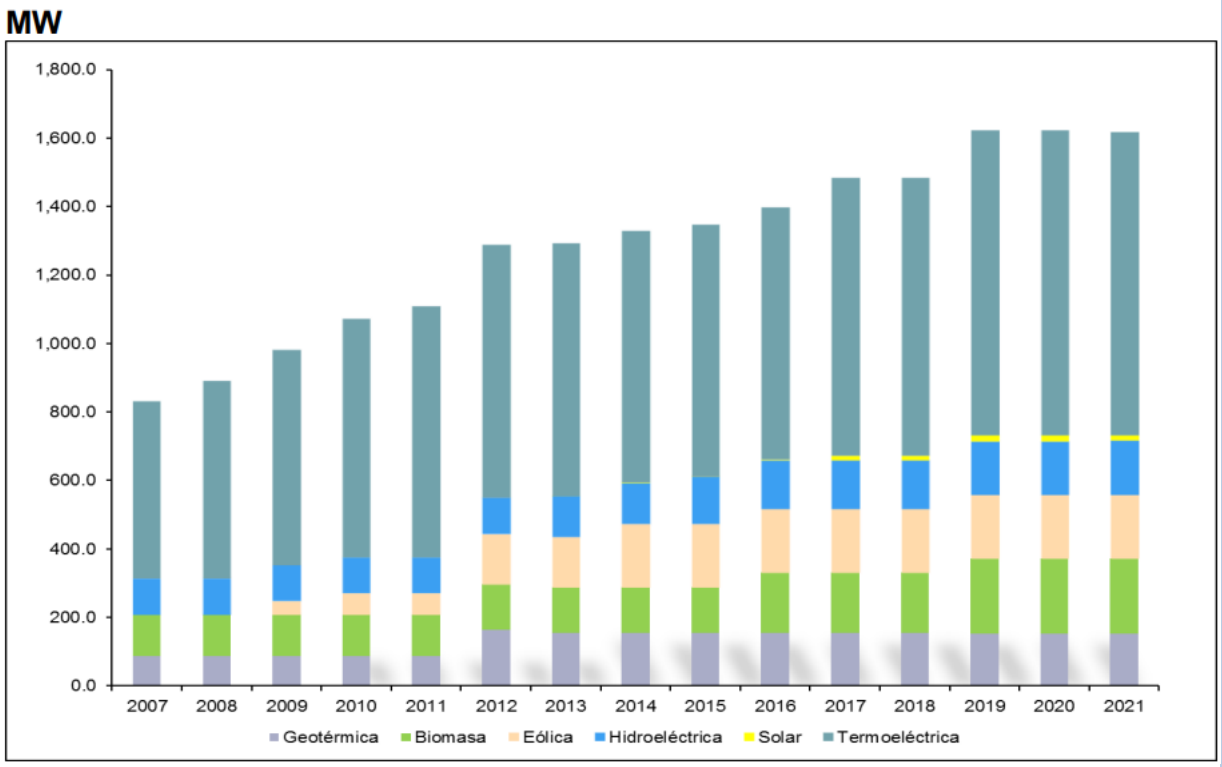

Figure 1. Installed capacity (MW) by technology (MEM, 2022)

The National Interconnected System (SIN) covers more than 98% of the national installed capacity, with more than 85% privately owned power plants. The regional interconnection line SIEPAC passes through the country and serves for regional transactions. The country generated electricity 31% from fossil thermal sources, 21% from biomass, 17% from geothermal, wind 16%, hydro 14% and less than 1% from solar PV in 2021.

(Centro Nacional de Despacho de Carga)

RE market potential:

Sugar cane-based bioenergy contributes the largest share to Nicaragua´s renewable electricity generation. However, the 2019-2033 indicative generation expansion plan expects new capacity additions from hydro (436 MW), wind (207 MW), solar (162 MW), geothermal (85 MW), and biomass (54 MW) developments.

(MEM 2018)

Electrical Interconnection and import/export:

The Central American countries (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica**,** and Panama) share a regional market called Mercado Eléctrico Regional (MER), illustrated in Figure 2. Governed by a supra-national commission (CRIE) and administered by an independent operator (Ente Operador Regional, EOR), the MER is

used by these countries for import/export energy transactions. They are integrally connected through SIEPAC.

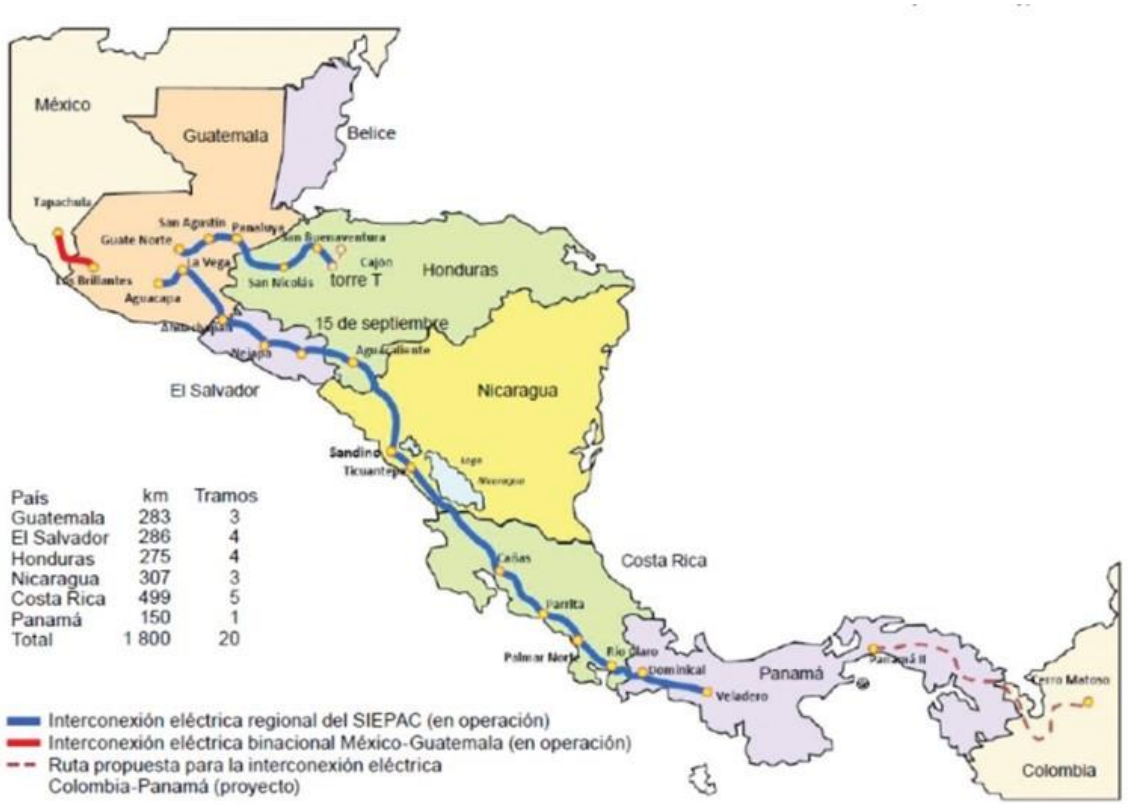

Figure 2. Regional Interconnected system, highlighting Nicaragua's interconnections with neighbouring countries.

Nicaragua has been importing energy, principally from Costa Rica and Honduras due to hydro generation deficits. The country is a net importer of Energy.

The Figure 3 shows the main transmission assets of the country and utility concession zones.

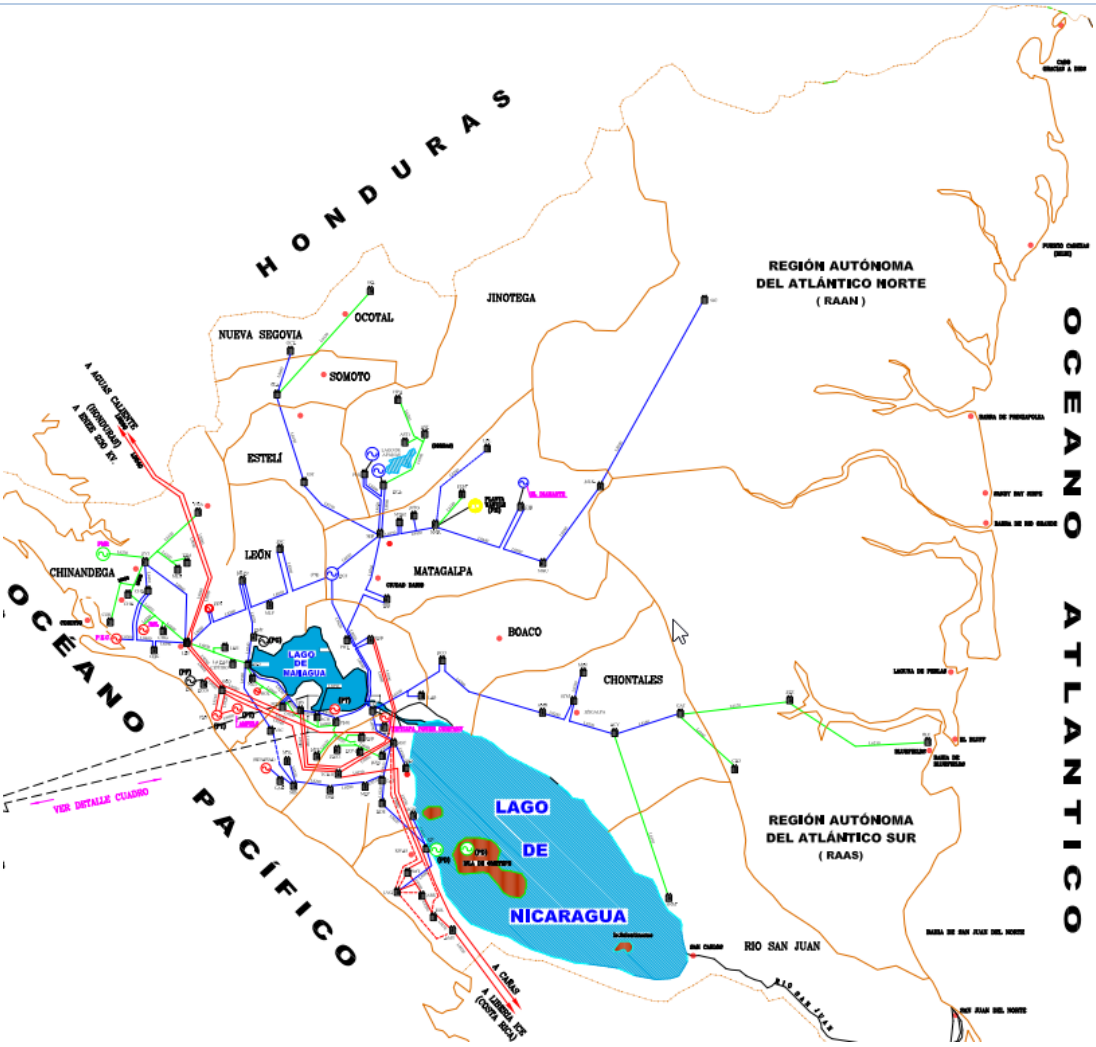

Figure 3. Transmission and distribution system in Nicaragua (CNDC 2020).

Historical support or development of renewables in the country/region:

The GoN (Government of Nicaragua) recognises the promotion of the renewable energy market is in the country's national interest.

In 2005, Law N°. 532 was introduced to promote electricity production from renewable resources through economics incentivises (exoneration of specific taxes) and priority rights (purchase obligations). This suite of incentives expired in 2015 and the GoN is currently developing a new proposal to continues its legacy for supporting renewables in the country.

Source: IDB (2015) "Renewable Energy Experiences in Nicaragua to Generate Electricity, Knowledge Sharing Forum on Development Experiences: Comparative Experiences of Korea and Latin America and the Caribbean", Discussion Paper N° IDB-DP-396, Inter-American Development Bank: Washington, D.C.

Electricity Market Structure:

The Nicaraguan market involves different players and three core business segments classified as follows:

1. *Generators*: companies that produce energy exclusively to be sold to the wholesale electricity market, and companies that produce electricity for their own consumption.
2. *Transmission*: there is one government owned transmission agent, **Empresa Nacional de Transmisión Eléctrica** (ENATREL), responsible for the operation, maintenance, and planning of the entire transmission system.
3. ***Distribution:*** there is 1 regulated utility company (Disnorte/Dissur) that is privately owned with state participation (less than 10%).

Utility Power Purchase Agreements (PPAs) are assigned through bilateral private negotiations held by Disnorte/Dissur and generators. Large consumers (over 1 MW of installed capacity) are allowed to have PPAs with generators.

National Electricity Institute (INE) acts as the market regulator.

Description of renewables support mechanism:

Responsible Government Department: (include key contacts)

The Ministry of Energy and Mines (MEM) sets the policies for the sector and oversees permitting for electricity and mining industry.

National electricity Institute (INE) is an executive branch of the government and is responsible for the regulation and compliance of the country's energy policy, with the aim to reduce costs, avoid social and environmental externalities of energy projects and oversee sector's compliance.

The *Centro Nacional de Despacho de Carga (CNDC)*, a dependency of ENATREL, is responsible for the economical and reliable operation of the (SIN) National Interconnected System and the coordination of all transactions within the wholesale/regional Electricity Market.

The Ministerio de Ambiente y recursos naturales (MARENA), determines and enforces the environmental regulations. MARENA approves the environmental impact assessment of all energy projects and grants the corresponding environmental permits and authorizations.

Existing/Planned Energy Legislation: (is there a CPO)

Law No. 1037, reformed Law No. 532, created for promoting electricity generation with renewable sources, was published in La Gaceta, Official Gazette No. 171, on September 11, 2020, establishes (articles 16 and 19):

- The power of the Ministry of Energy and Mines (MEM) to ensure a voluntary negotiation process with current renewable energy generators to achieve a reduction in their Contracts prices with Distribution Companies, impacting the final tariff of energy consumers.

- Renewable energy generators which, as a result of the above negotiation process, reduce the price of their contracts, or which contracts are in accordance with the price band approved by the MEM (stated in article 13 of Law Nº. 554, Energy Stability Law), are eligible to an exemption from both ISR (Impuesto sobre la Renta or income tax) and the definitive minimum payment of ISR established in Law Nº. 822, Tax Agreement, for a maximum additional period of 5 years. In the case of geothermal generators, this maximum additional exemption period will be 2 years. This exemption only applies if the above-mentioned contract prices are still in force after December 31, 2023.

Relevant Laws

Environmental Legislation for RE:

Law 217: The law establishes the norms for the conservation, protection, improvement and restoration of the environment and the natural resources that comprise it, ensuring their rational and sustainable use, in accordance with the provisions of the Political Constitution. It also establishes a general framework on information, participation, and ways to appeal in Nicaragua.

Decree No. 20-2017, Environmental Assessment System for permits and authorizations for the sustainable use of natural resources. This decree establishes the administrative provisions that regulate the granting of permits, authorizations, certificates, guarantees and letters of no objection, issued by MARENA (Ministry of Environment and Natural Resources) for the sustainable use of natural resources.

Existing/Planned Certificate Systems: (purpose, extent)

Currently, there is no EAC system operating or planned in the country. The I-REC standard will be implemented to operate without restrictions because the regulation allows it. The central issuer, the Green Certificate Company (GCC) could operate as local issuer until a private company or ISO can function as I-RECs local issuer for Nicaragua or the region in the future.

The information to verify the registration and the generated volumes of the devices is publicly provided by CNDC through the following link: **http://www.cndc.org.ni/**

Market risks and challenges:

The political and investment environment need to stabilize for Nicaragua to be an attractive country for foreign investment in renewables.

Power system operations in Nicaragua still reflect the "old paradigm" of centralised, dispatchable generation units. Given the unique physical conditions of VRE sources, challenges emerge for system operation with high shares of variable renewables. These can be classified as: flexibility, system adequacy and system stability challenges. As such, reliably integrating large shares of wind and solar generation requires modifications to the CNDC's operational practices and equipment as well as the identification of necessary flexibility mechanisms.

(IRENA 2018)

Extent of Engagement with Government: (brief summary of any contact already made with the national government regarding certification in general and I-REC)

The last week of August 2023, the IREC Standard Foundation (LATAM Regional Director) met with the Ministry of Energy and Mines and Secretariat of Climate Change to present the Standard and receive feedback from the local authorities.

Expected response from Government:

According to I-REC representatives, in meetings with the Government authorities, the proposed structure operates as a voluntary mechanism without interfering with the existing regulation.

Demand-side market potential or strategic nature of market development:

Nicaragua is the last remaining Central American country yet to have I-RECs introduced as a renewable support and tracking mechanism. Nicaragua have set ambitious renewable energy targets, with a goal of producing 91% of its electricity needs from renewable resources by 2027, which is achievable given its abundant clean energy resources but require further incentivisation. I-RECs can harness consumer demand for renewable energy in Nicaragua and the wider MER to stimulate the development of new renewable infrastructure and convert these ambitions into

reality. The nation is well positioned in the centre of Central America, enabling it to provide electricity to neighbouring countries more competitively than others. Source: IRENA (2015) Renewables Readiness Assessment: Nicaragua, Abu Dhabi: International Renewable Energy Agency).
Analysis of regulatory risks including linkages with carbon markets and support systems: N/A
Current Environmental Reporting in Energy: The following are the reports related to the Electricity Market: Monthly Market Report issued by CNDC, National Energy Plan issued by INE and National Interconnected System Expansion Plan issued by ENATREL.
Mechanisms in place to the support the reliable verification and issuance of I-RECs: Monthly settlement data can be found in the public site from CDNC following the route: Descargas/Comercial/SIMEC/Informes Oficiales/BalanceMensual/Year/Month
Local organizations of importance and their opinion on local I-REC market development: The I-REC Standard Foundation has received several requests from generators and end-users about the country's incorporation to the standard.
Any other Relevant Information: The IREC Standard recommendation is to begin operating with GCC as the default issuer until a suitable local entity is appointed.

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Code Manager Observation