

Americas Business Dialogue
Energy Working Group White Paper
REGIONAL INTEGRATION AND INTERCONNECTION

Fourth Energy and Climate Partnership of the Americas (ECPA) Ministerial Meeting
Montego Bay, Jamaica, February 27 and 28, 2020

Central America Regional Electricity Market Overview

Regional Electricity Market Conformation

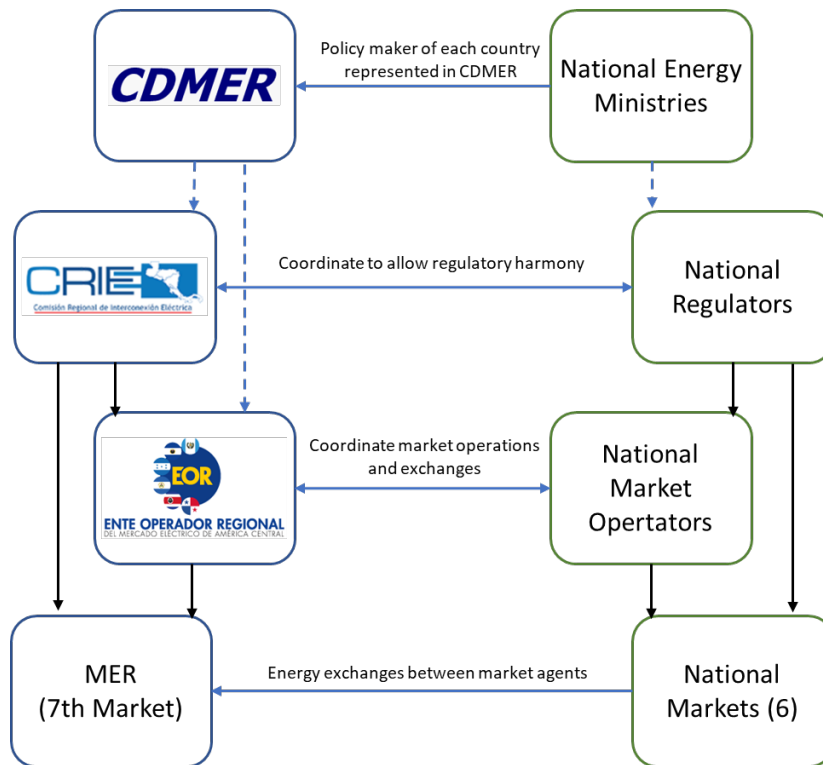
The Regional Electricity Market (MER) was born as a decision of the six countries of Central America (Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama) to initiate a process of electrical integration through the interconnection of their national electric markets. The MER is a 7th market, superimposed over the six national markets, in which agents can conduct international energy exchanges through the SIEPAC (Central American Electrical Interconnection System) interconnection line.

Regulatory and Institutional Framework

After the six Central American countries agreed to the creation of the MER, the Governments executed the Framework Treaty for the Central American Electricity Market, which establishes the regional regulatory framework to open the national markets to regional exchanges. It also created the institutions that ensure the adequate operation of the MER:

- The Regional Electricity Interconnection Commission (Comisión Regional de Interconexión Eléctrica, or CRIE) regulates the regional market operation and the relations between regional agents.
- Ente Operador Regional (EOR) directs and coordinates the technical operation of the regional market.
- The Council of Directors of the Central American Regional Electricity Market (Consejo Director del MER, CDMER) is the entity in which the Governments are represented, promotes the regional market and makes decisions to ensure the accomplishment of the objectives established in the Framework Treaty.
- The grid owner, Empresa Propietaria de la Red (EPR) is responsible for the design, financing, construction and maintenance of the SIEPAC interconnection line.

The following chart shows how these regional and national institutions interrelate:



Source: Central America Regional Electricity Market, Luis Chang, Ministry of Energy, Guatemala

In order to facilitate the interpretation of the Framework Treaty which first introduced the mechanism enabling the six participating countries to implement the project in 1996, a First and Second Protocol were later added. Also, the Regional Market Regulation (RMER) was created in order to establish the basic rules for the technical and commercial operation of the MER.

The SIEPAC Project

SIEPAC's key objectives were to support the formation and consolidation of the Regional Market through the creation of legal, institutional and technical mechanisms to facilitate the participation of the private sector in the development of power generation and to establish transmission infrastructure to enable energy exchanges between the countries participating in the Regional Market.

With a length of 1.800 km, SIEPAC consists of a 230-kV line with a 300 MW capacity circuit and the potential for a future second circuit with the same capacity. The line started operating in October 2014. Guatemala is interconnected to Mexico under a bilateral agreement and studies are underway for the interconnection between Panama and Colombia.



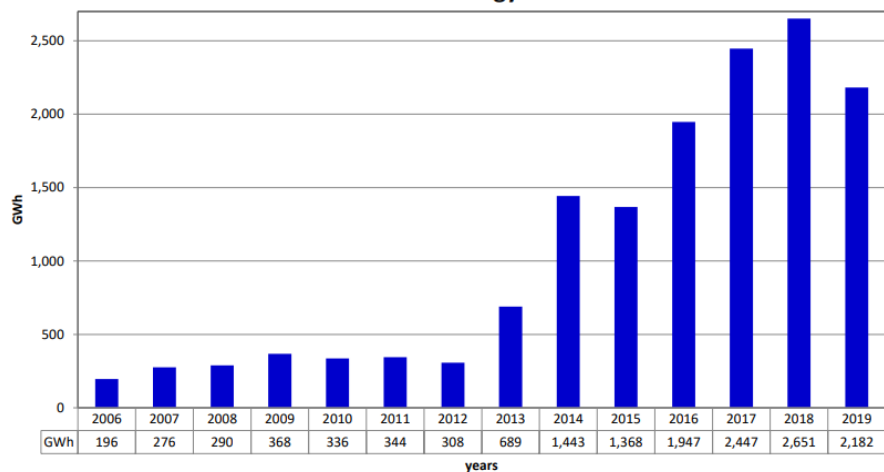
Source: Comisión Regional de Interconexión Eléctrica (CRIE)

Regional Energy Exchanges

Since the implementation of the Regional Market Regulation in 2013, regional exchanges increased significantly from less than 500 GWh (2012) to more than 3,172 GWh (2019). Currently, exchanges can be done via a:

- Non-Firm Contract
- Regional Opportunity Market
- Firm Contract, associated to a Firm Transmission Right

Annual energy transactions



CENTRAL AMERICA (2018)

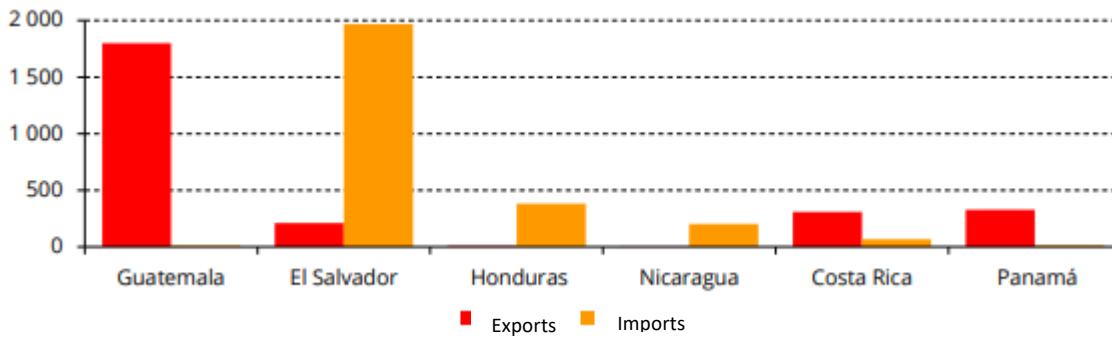
Installed capacity:
18,039 MW

Demand: 8,509 MW

Generation: 53 TWh

Source: Central America Regional Electricity Market, Luis Chang, Ministry of Energy, Guatemala

Energy Transactions by Market – 2018 (GWh)



Source: Estadísticas de producción de electricidad de los países del Sistema de la Integración 2018, CEPAL

The following charts briefly describe each of the six markets:



Net Energy Flow

- Seller

Annual Energy Volumes (MER)

- Sales: 1.8 TWh
- Purchases: 9 GWh

Market Description

- Competitive wholesale market, cost based



Net Energy Flow

- Buyer

Annual Energy Volumes

- Sales: 209 GWh
- Purchases: 2 TWh

Market Description

- Competitive wholesale market, cost based



Net Energy Flow

- Buyer

Annual Energy Volumes

- Sales: 8 GWh
- Purchases: 381 GWh

Market Description

- Integrated, controlled by state-owned company (ENEE) until 2014
- Creation of competitive wholesale market underway
- Cost based



Net Energy Flow

- Buyer

Annual Energy Volumes

- Sales: 0.2 GWh
- Purchases: 201 GWh

Market Description

- Competitive wholesale market, cost based
- Only the demand can purchase energy in MER



Net Energy Flow

- Seller

Annual Energy Volumes

- Sales: 307 GWh
- Purchases: 66 GWh

Market Description

- Integrated, controlled by state-owned company (ICE)
- Cost based



Net Energy Flow

- Seller

Annual Energy Volumes

- Sales: 327 GWh
- Purchases: 15 GWh

Market Description

- Competitive wholesale market, cost based

Benefits of Regional Integration

The implementation of MER has brought several benefits to the region, including:

- Optimization of the national electricity markets by using the most economic energy sources;
- Increased security and reliability of electricity supply;
- Enables countries to take advantage of non-coincidental peak loads, and different climatic conditions and electricity consumption patterns.

Current Challenges of the Regional Electricity Market

Significant advances have been made. Nonetheless, in order to fully capitalize the opportunities that derive from MER, the challenges listed below should be addressed:

- Lack of investment in transmission infrastructure due to uncertainty in the remuneration of the transmission service, incompatibility of national and regional regulation and wrong prices and remuneration signals for transmission owners;
- Absence of long term Financial Transmission Rights (FTRs), which hinders the execution of equal term regional contracts and the development of regional generation projects;
- Paradigm of “national energy autonomy”;
- Legal uncertainty due to constant regulatory changes;
- Approval of new subjective and “patch” regulations to clearly benefit and affect specific countries/market;
- Lack of access to extra-regional markets for all countries;
- Lack of harmonization between national expansion plans and the regional expansion plan, which would allow to fully utilize SIEPAC’s benefits;
- Lack of coordination between regional entities (CRIE/EOR/CDMER);
- FTRs action currently suspended for El Salvador due to regulation inconsistencies.

Proposed Solutions

The Americas Business Dialogue has identified recommendations to help remediate some of the challenges including:

- Institutional strengthening to comply with commitments acquired in the Framework Treaty, particularly in the Northern Triangle where SIEPAC can provide substantial benefits;
- Creation of a regional institution responsible for conflict resolutions above CRIE, which could appeal CRIE’s decisions when necessary. The Third Protocol of the Framework Treaty has proposed a dispute resolution authority but it has not yet been approved.
- Developing a mechanism for private sector and inter-government coordination on regulatory cooperation projects that helps the different markets implement a shared set of Good Regulatory Practices (GRPs), to develop competitive sectors;
- Developing a certification in best practices for issuance of permits and make it available via a Massively Open Online Course (MOOC) to any government and current or prospective public servant who wishes to qualify, coordinated by a public-private multilateral partnership.
- Complete the reengineering of the transmission rights methodology, including tender mechanisms, prices and terms.
- Regulation for access to extra regional interconnections (Mexico and Colombia) for all countries.