



First Pan-Arab Energy Trade Conference

Towards an effective regional cooperation in
electricity and gas trade among the Arab countries

THE NILE RITZ-CARLTON • CAIRO
NOVEMBER 6-7, 2019

Central America Regional Electricity Market

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CDMER

Central America Regional Electricity Market

(In spanish: Mercado Eléctrico Regional, MER)

Background



Central America

6 countries at strategic region

Installed Capacity: 16,897 MW

Generation 13,756 GWh

Cepal, 2017

Since 1976 the region began intra regional electricity exchange

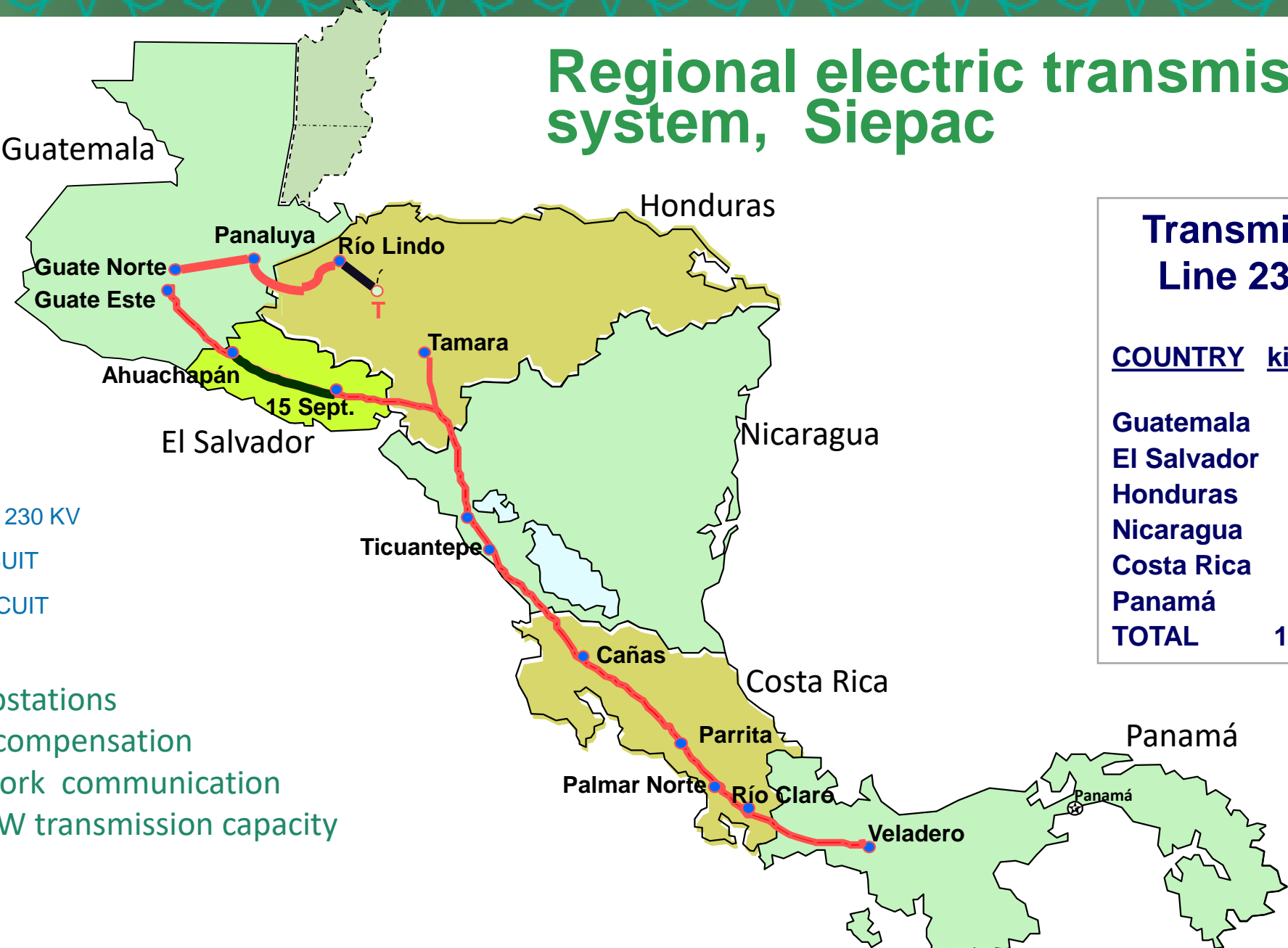
In 1996 , the 6 countries of Central America (Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica y Panamá), decide to initiate a gradual process of electric integration, through the interconection of their national electric networks, **and subscribed a Treaty with objectives to reach:**

- **Promote the development of the electrical industry.**
- **Satisfy the electricity needs of the region with sustainable development.**

The Central America Electric Market Treaty Frame, establishes:

- A 7th market to make regional electricity transactions between agents (state and private electricity companies of each country)
- Coexistence between the 6 markets and this regional market
- Created 3 regional organism as institution
- Created a Company to construct and operate the first transmission infrastructure line, denominated: Siepac

Regional electric transmission system, Siepac



Transmission Line 230 KV	
<u>COUNTRY</u>	<u>kilometres</u>
Guatemala	282
El Salvador	287
Honduras	270
Nicaragua	309
Costa Rica	489
Panamá	151
TOTAL	1,788

SIMBOLS

- SUBSTATION 230 KV
- SINGLE CIRCUIT
- DOUBLE CIRCUIT

- 15 electricity substations
- Reactive power compensation
- Fiber-optic network communication
- Designed 300 MW transmission capacity

MERs Components

Legal Framework

- **International Treaty**, and its amendments issued by protocol
 - * Central America Electric Market Treaty signed by the 6 countries.
 - * Spanish: *Tratado Marco del Mercado eléctrico de América Central*
- Regulatory Rules, issued by the regional regulatory organism
- Regulatory harmonization

Regional Organisms

- **CDMER - Policy coordinator**
- Director Council
 - * Formed by Energy Ministry/Secretary of each country.
 - * Spanish: *Consejo director del MER - CDMER*
- **CRIE - Regulatory Organism**
 - * Commission of Regional Electric Interconnection
 - * Market rules maker and set tariffs
 - * Formed by 1 delegate from each country
 - * Spanish: *Comisión Regional de Interconexión Eléctrica -CRIE-*
- **EOR – Regional Market and System Operator**
 - * formed by 2 delegates from each country
 - * Spanish: *Ente Operador Regional -EOR-*

Infrastructure and finance

SIEPAC transmission line was constructed and is operated by a Company: *Empresa Propietaria de la Red -EPR-*

EPR is formed by state electricity companies from each country, and extra region partners companies from Spain, Colombia and Mexico.

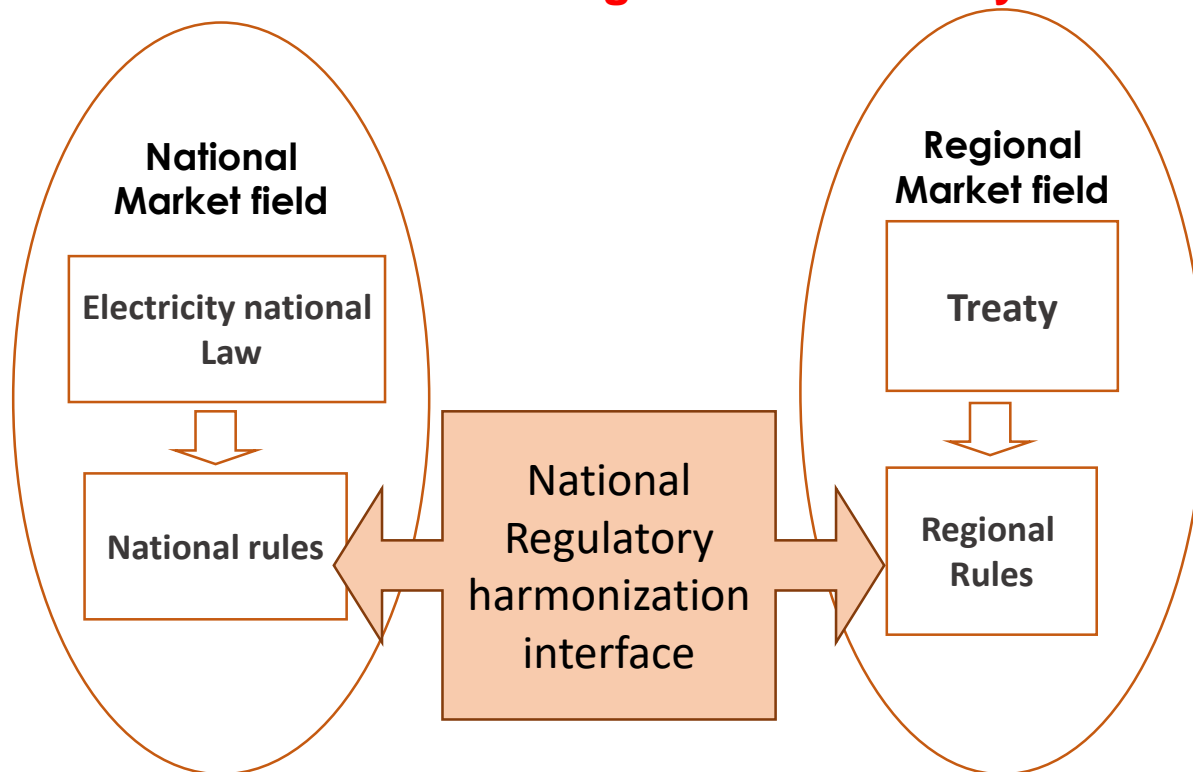
The infrastructure is financed by a tariff, charged to electricity demand tariff of each country.

CRIE and EOR are financed by a tariff, charged to electricity demand tariff of each country.

Fulfilment of regional market rules and coexistence with national regulations

Diferents Fields – Diferent Regulation

Coexistence: Rules on each field have to coexist together in harmony

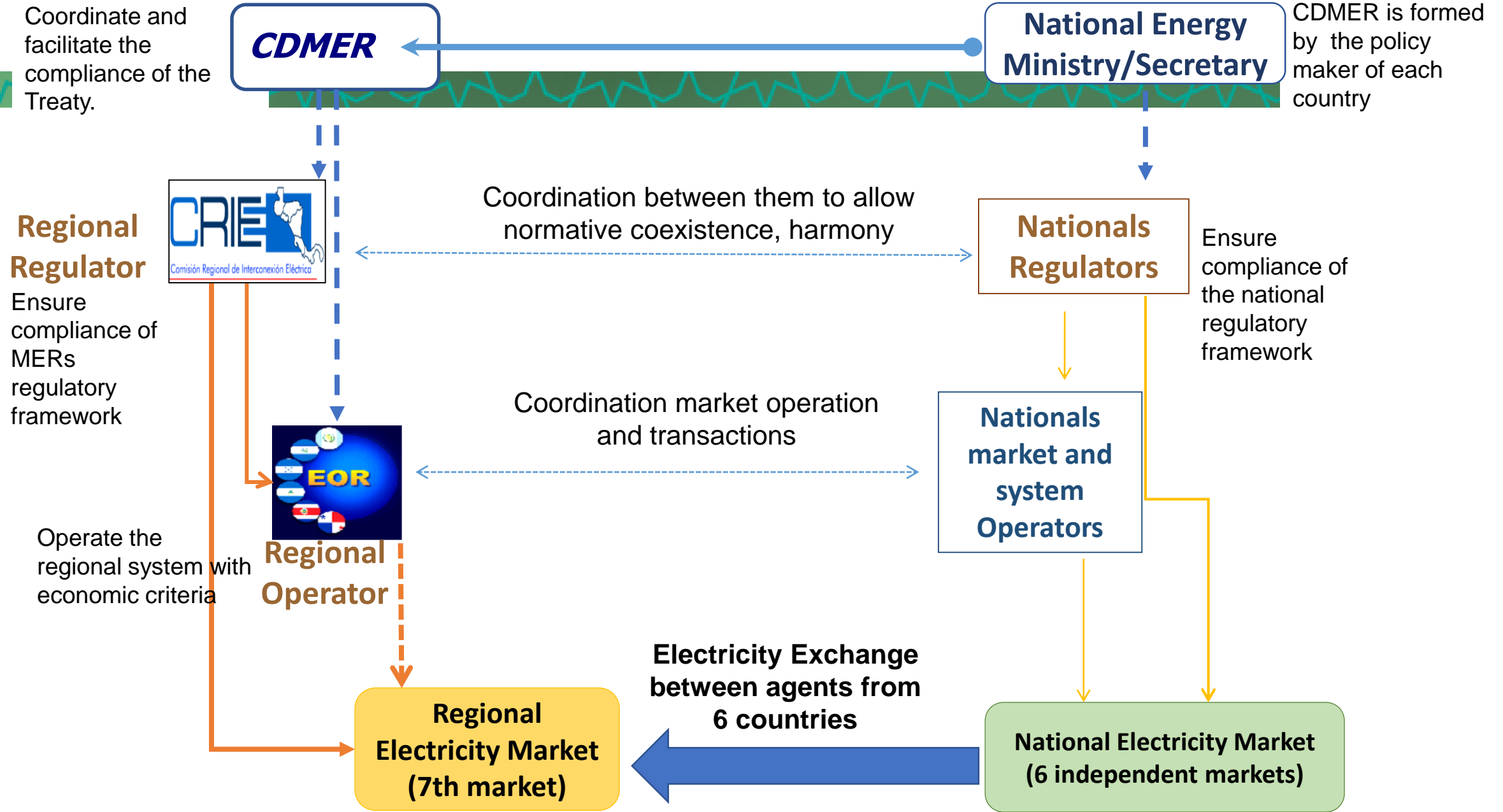


Characteristics:

The regional market Treaty is a Law in each country, but has its own field of appliance, the regional electric market

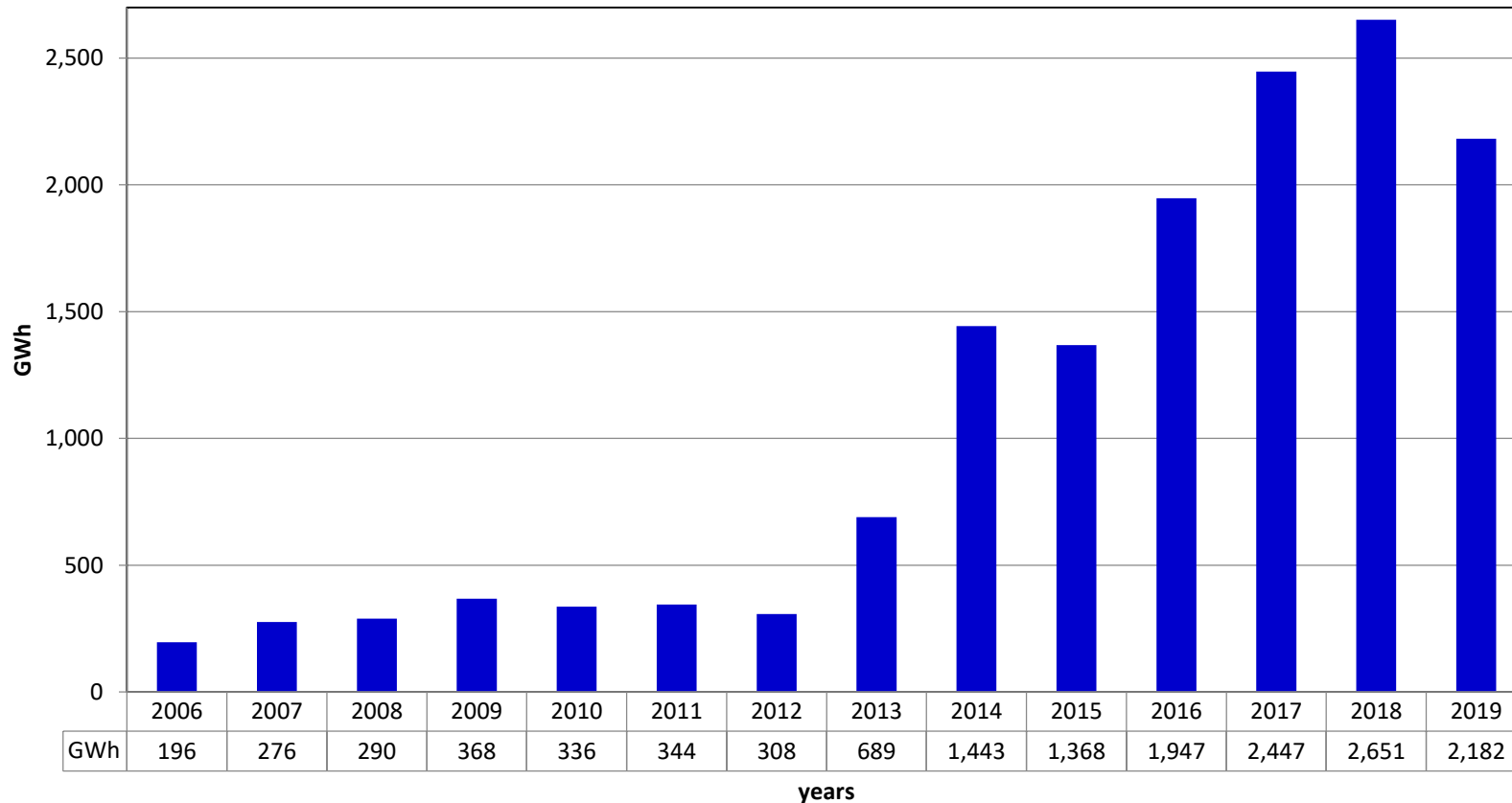
- Regional market is a 7th market
- Must be coexistence and harmony between the both normative: national and regional
- Regional regulator organism has to coordinate with national regulators.
- Respect the market model of each country.
- Each country decide how to do the harmonization
- Each country adapt its own rules to allow to its markets agents do transactions on regional market.
- Each national regulator has to do interface between its rules with the regionals rules.
- Each agent that makes transactions at regional market has to fulfill regional and national regulation.

Relationship between MER and national organisms

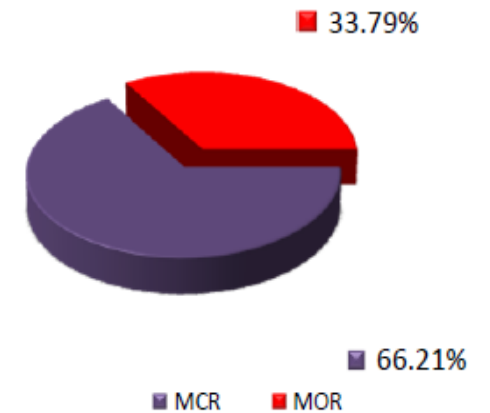


Annual exchange in regional market, to september 2019

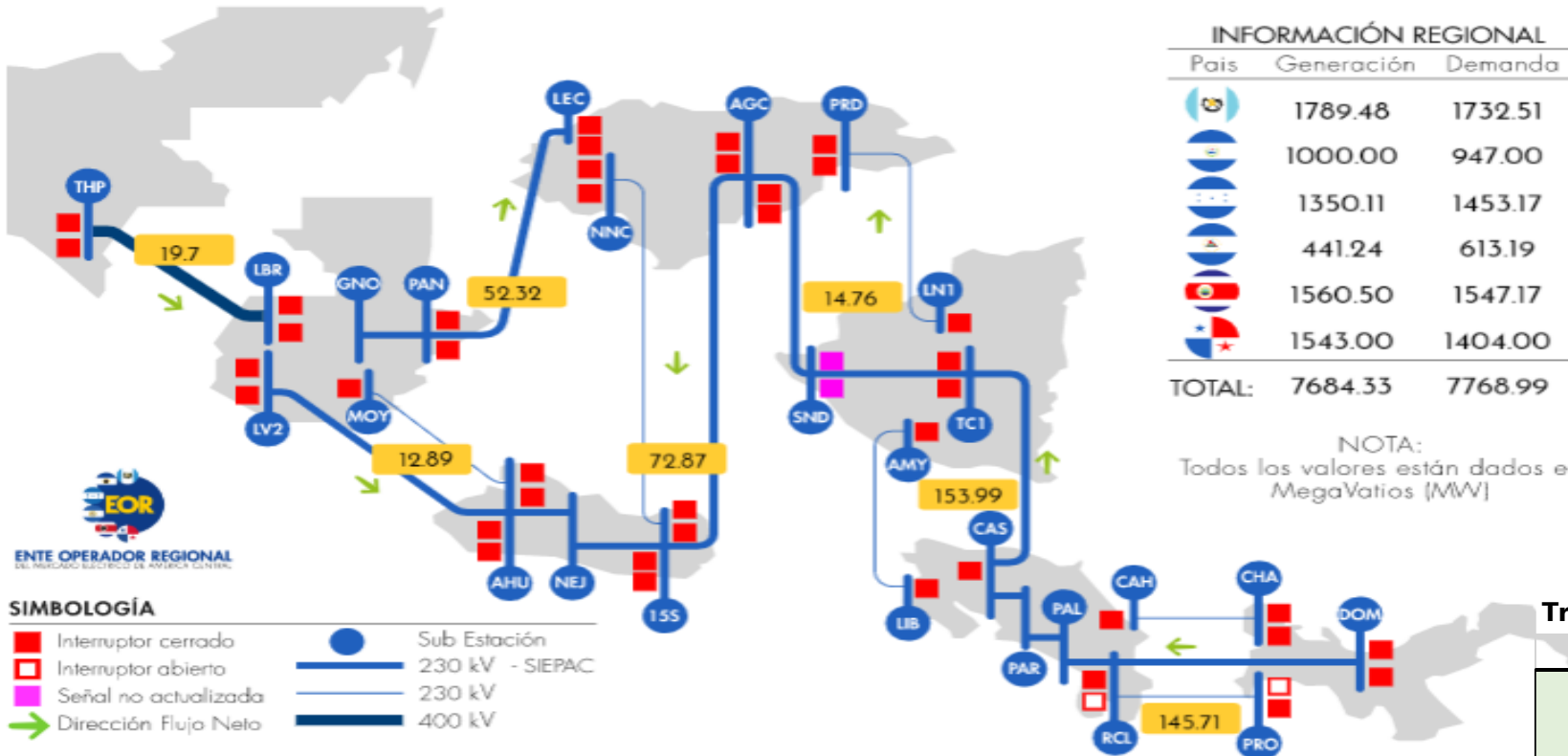
Annual energy transactions



In 2013, "different" regional rules and national harmonizations were implemented. Since that, the growth in the volume of transactions is notorious, it is equivalent to 15% of the annual region's generation.



About 34% of the transactions are on opportunity market and 66% in the contract market; but is for **short term market**, a year or less.



Transfer capacity between countries - october 2019

North - South

	*Guatemala-El Salvador-Honduras	Honduras-Nicaragua	Nicaragua - Costa Rica	Costa Rica - Panamá
Peak	300	220	190	50
Valley	300	220	200	100
Minimum	300	190	210	50

South to North

	*Guatemala-El Salvador-Honduras	Honduras-Nicaragua	Nicaragua - Costa Rica	Costa Rica - Panamá
Peak	300	150	150	150
Valley	300	100	140	50
Minimum	300	220	100	100

*Máxima capacidad de transferencia simultánea a través de Guatemala, El Salvador y Honduras.

The design capacity of SIEPAC along the 6 countries (300 MW), is not reach yet.

Step Forward

- Currently, a third protocol amendment has being formulated based on improvements identified and reinforcements necessary to direct the development of the MER towards the objectives of the Treaty.
- Additionally, are necessary regulatory reforms that allow the development of long-term contracts in the regional market.

Third Protocol amendment, major challenges

Issue	Description
INSTITUTIONAL	<ul style="list-style-type: none"> • MER Governance: reinforcement CDMER roll as MER policy director. CRIE and EOR are technical organism, but not policy makers. • Creation of Regional Committee of Appellations, adscript to CDMER, but independent: Instance for impugnation of resolutions/rules issued by the Regulator (CRIE)
INFRASTRUCTURE	<ul style="list-style-type: none"> • Problem: Maximize transfer capacity between countries: The design capacity of SIEPAC along the 6 countries (300 MW), is not reach yet. • Is necessary to reinforce the national transmission lines, to release SIEPAC line from national electricity transactions. • Improve the planning coordination between national and regional organisms to identify the investment needs on transmission lines on each country.
EXTRA REGION RELATIONSHIP	<p>Define the treatment to interconnect with countries no members of the Treaty: Politics decisions</p> <p>And must be defined in agreement with the third country:</p> <ul style="list-style-type: none"> • Political, technical guidelines, and regulatory principles • infrastructure and its technical and economical feasibility



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Thank You!

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