



Mexico's New Electric Market

From Birth to Infancy and Beyond

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TENASKA[®]



Mexico City at Night

Demographic Comparison:

Mexico:

- Population 127 Million
- GDP is \$2.3 Trillion
- Electricity Use 240 TWHs

Texas:

- Population 28 Million
- GDP is \$1.6 Trillion
- Electricity Use 370 TWHs

United States:

- Population 323 Million
- GDP is \$18.6 Trillion
- Electricity Use 3,900 TWHs

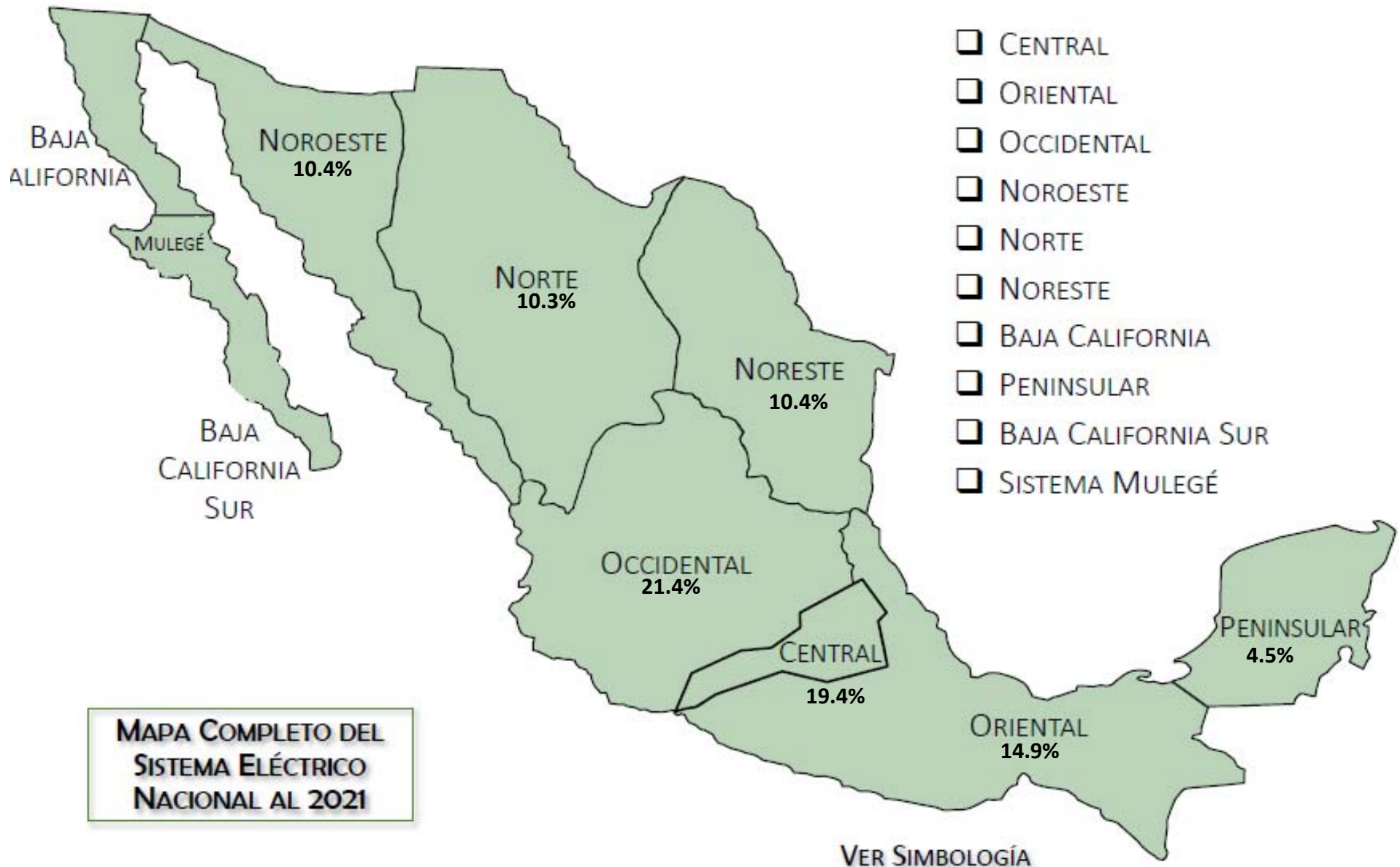
Courageous Politics, Law, & Policy

- ▶ Constitutional Amendment 2013
- ▶ Electric Industry Law (LIE) August 2014
- ▶ CENACE Creation Decree August 2014
- ▶ Electric Power Market Bases September 2015
- ▶ CENACE Day Ahead Market January 2016
- ▶ CRE/NERC/CENACE Steering Group May 2017

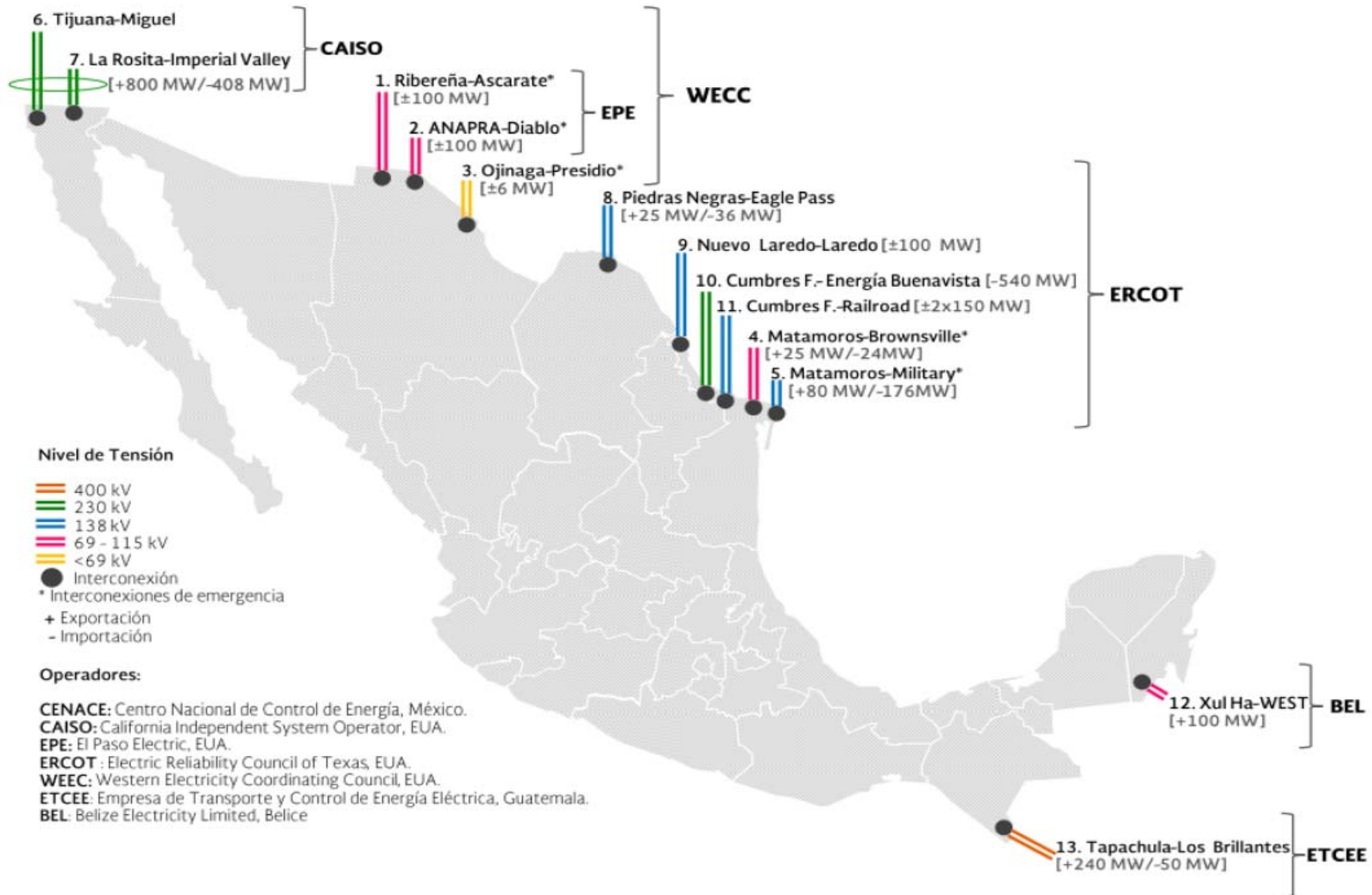
“In terms of scope, depth and space of implementation, Mexico’s energy reform ranks as the most ambitious energy system transformation worldwide in a long time”

Paul Simons, International Energy Agency (IEA), Deputy Executive Director (February, 2017)*

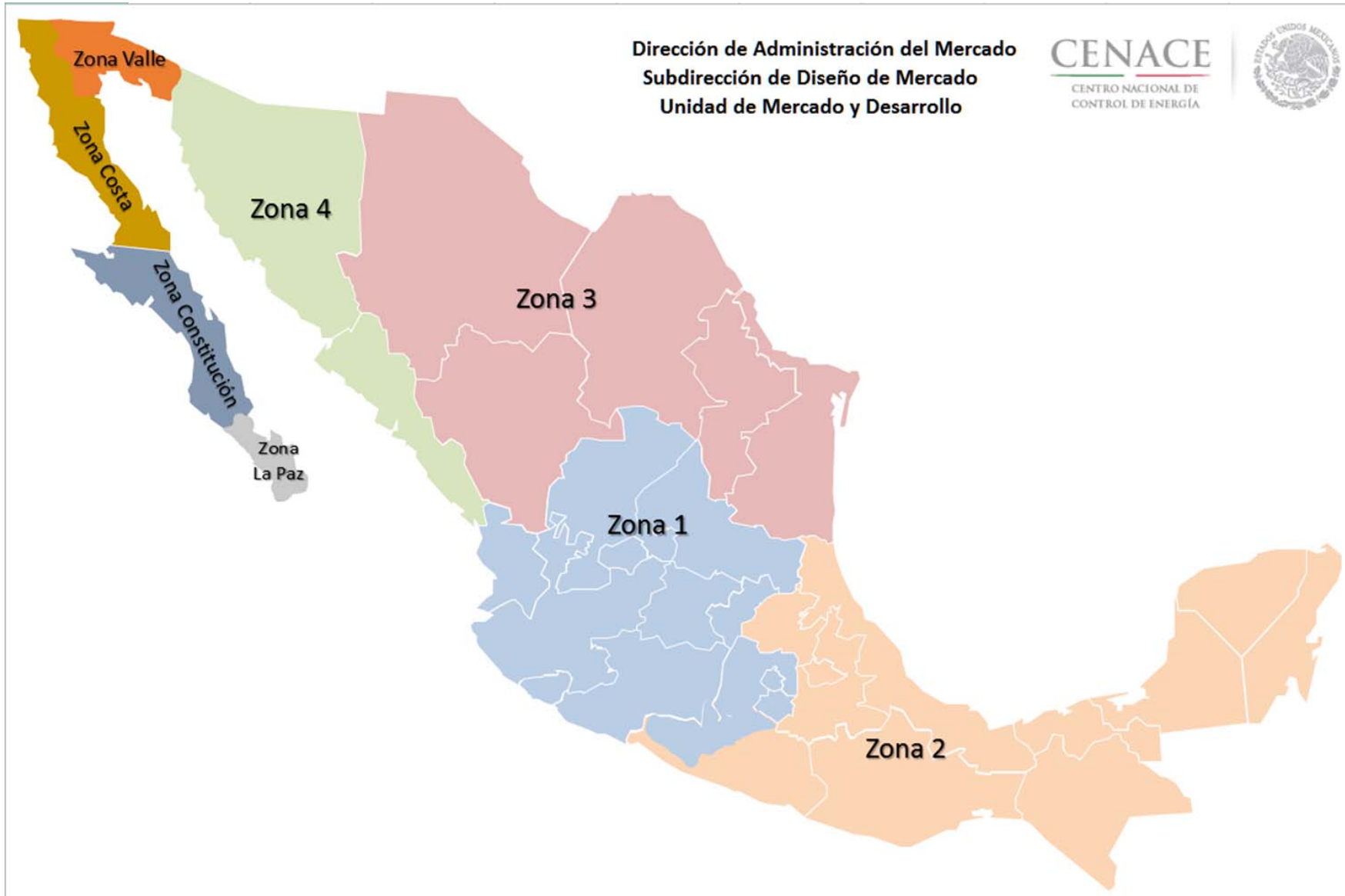
National Interconnected System (SIN) Consumption Distribution (September 6, 2017)



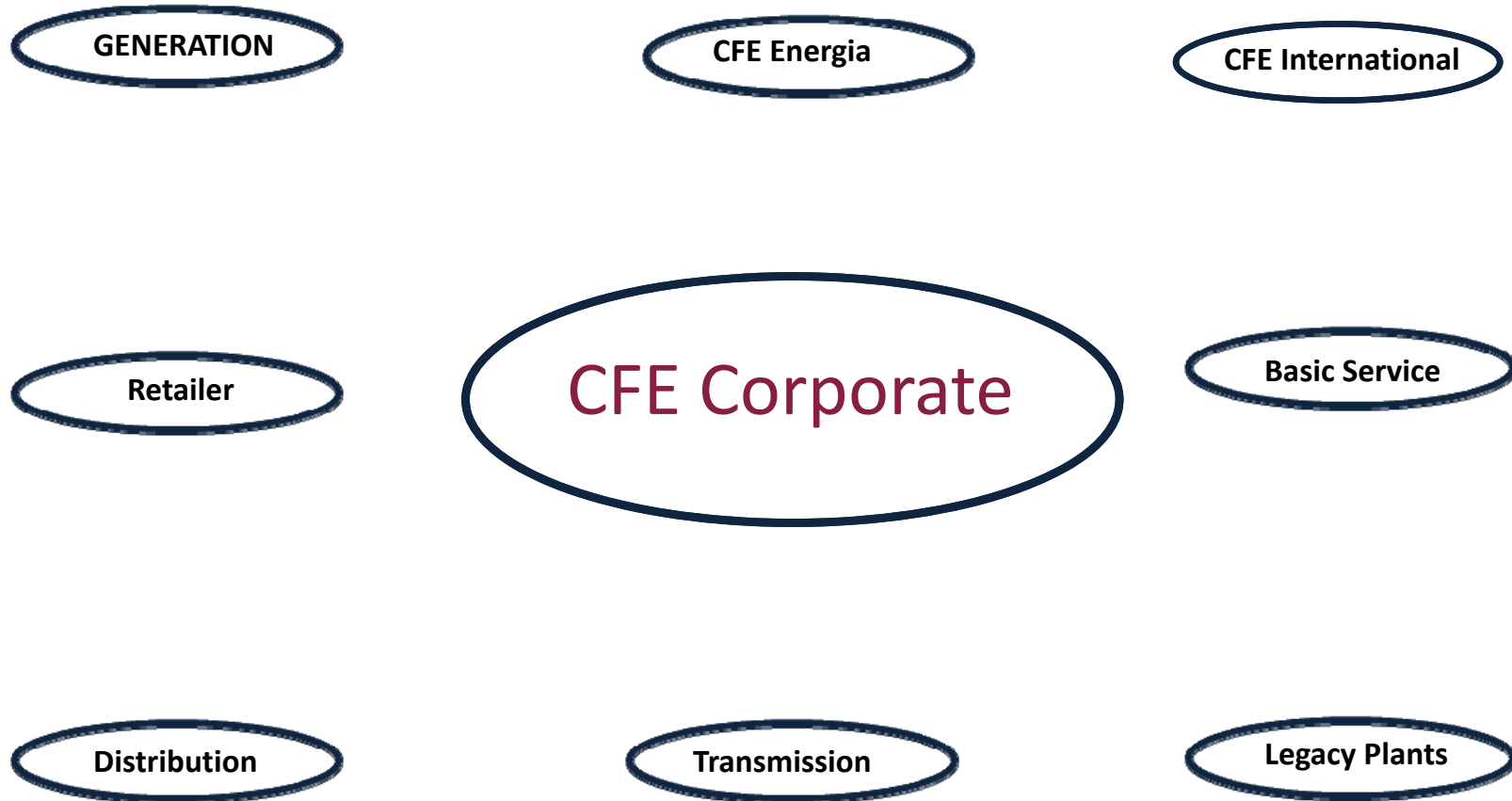
Electric Interties Between the United States & Mexico



Ancillary Services Regions in Mexico

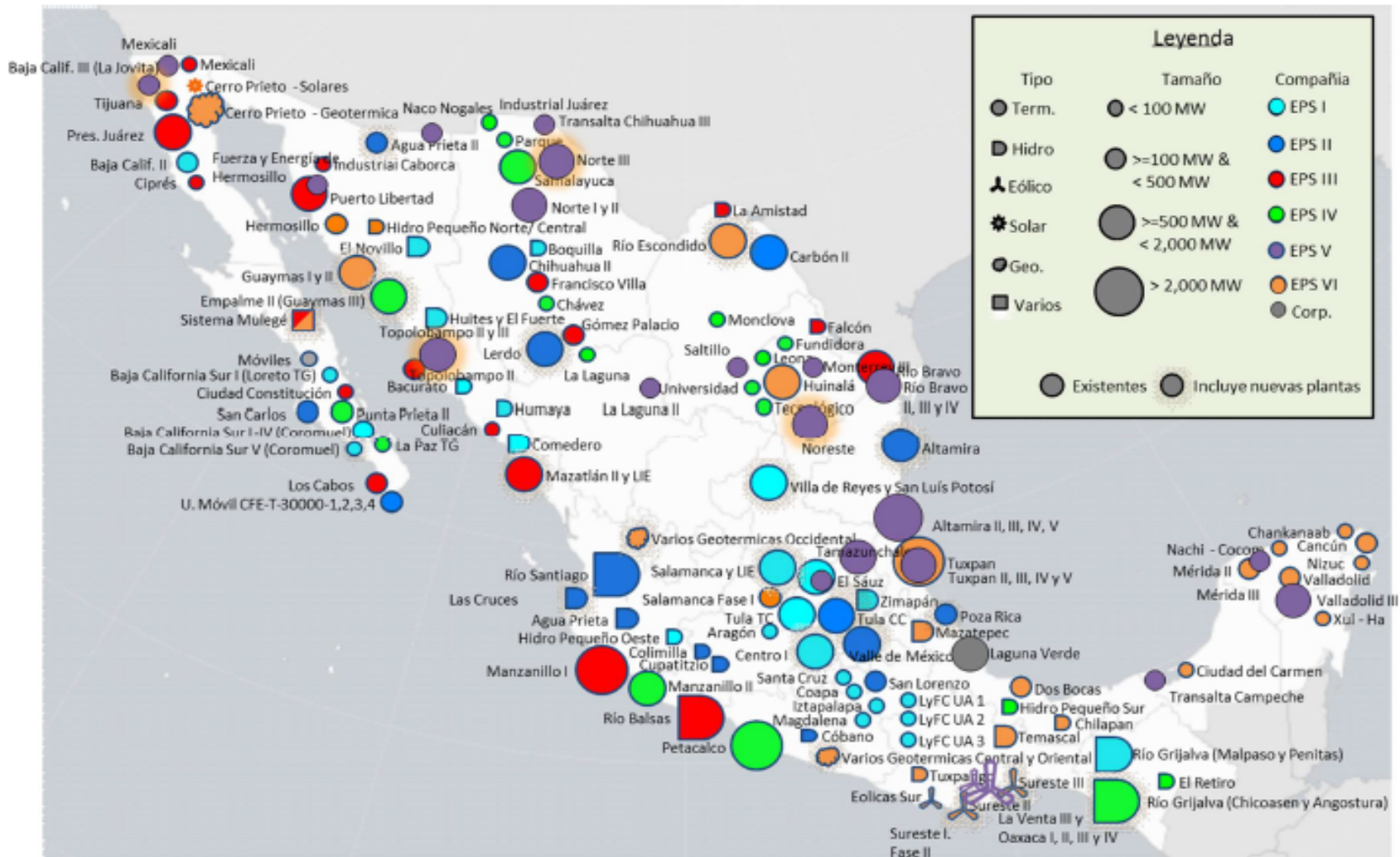


CFE Tic Tac Toe



CFE Generation is Now 6 Independent Gencos

Gráfica 2 Separación horizontal de la actividad de generación de la CFE



Fuente: SENER.

CENACE Centralized Spot Market

FIRST Stage Market

- Two Settlement Market: DA and RT
- 15 minute dispatch intervals
- No virtual offers are permitted
- Demand Response is not dispatched by CENACE
- Simplified RSG calculation
- Scarcity pricing only applies when there is true scarcity; prices are capped at the highest cost generator

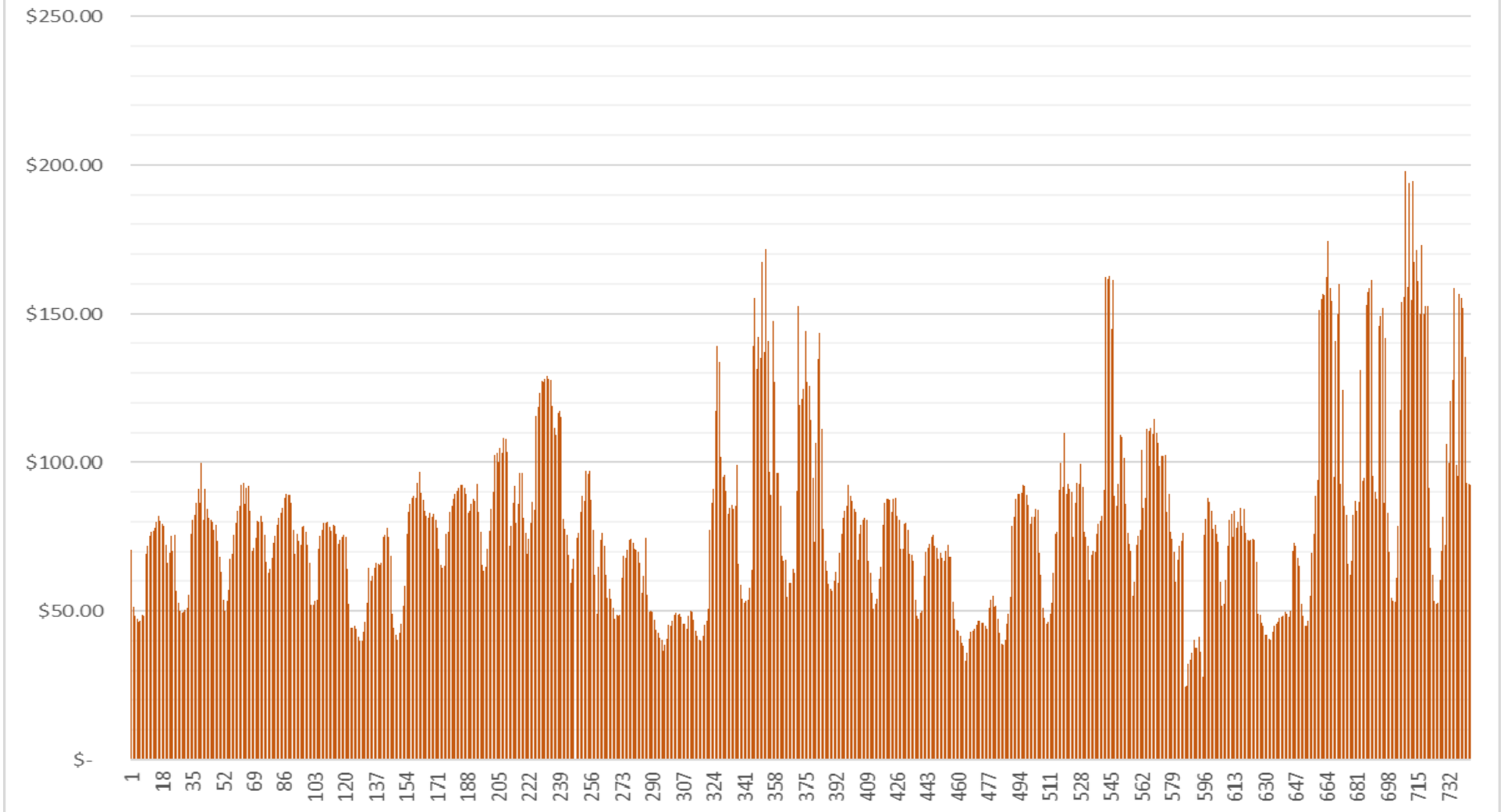
SECOND Stage Market

- Three Settlement Market: DA, HA and RT
- 5 minute dispatch intervals
- Virtual offers are allowed
- CENACE will dispatch demand in the DA and RT Markets.
- Separate RSG calculation per startup and for out of merit dispatch
- Gradual scarcity pricing is implemented as a complement to the capacity market.

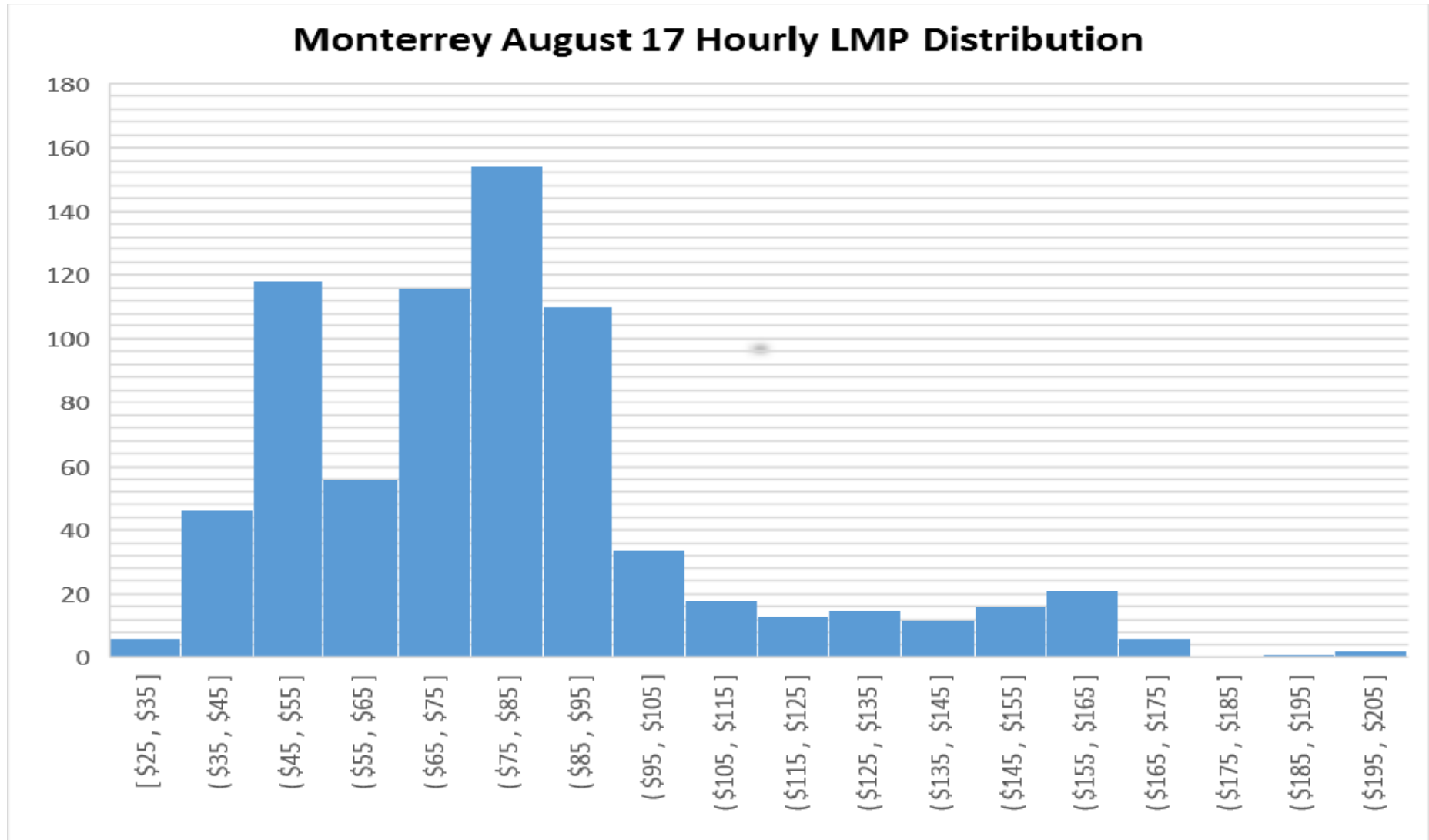
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Monterrey August Hourly Day-Ahead LMP Prices

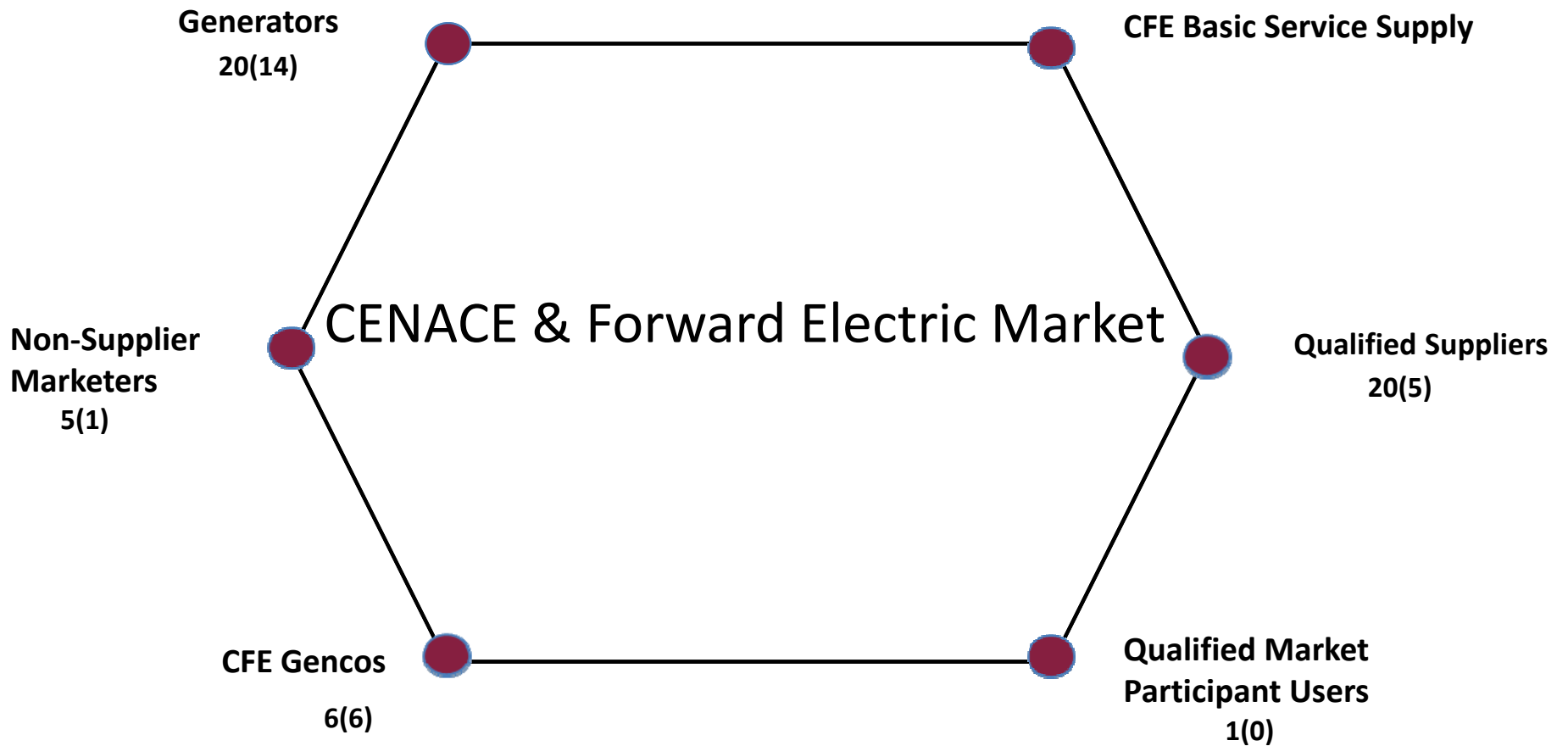
Monterrey August 2017 Hourly LMPs
(Average LMP = USD \$85.23)



Monterrey August Hourly Day-Ahead LMP Price Distribution

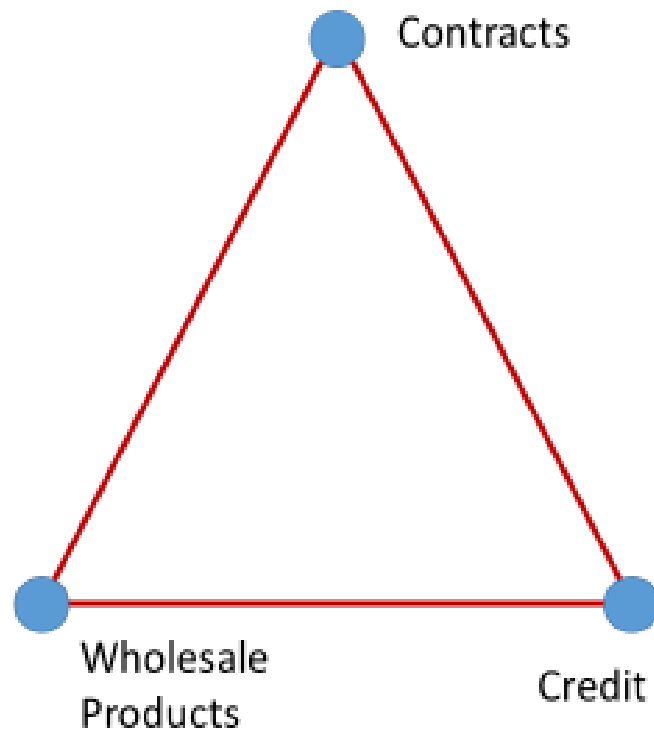


Mexican Wholesale Market Participants



Mexican Wholesale Electric Transactional Mechanics (Current Status)

Transactional Mechanics



Transactional mechanics is the description of those things necessary to execute transactions in the wholesale markets. It is composed of the three facets of Contracts, Credit, and Wholesale Products.

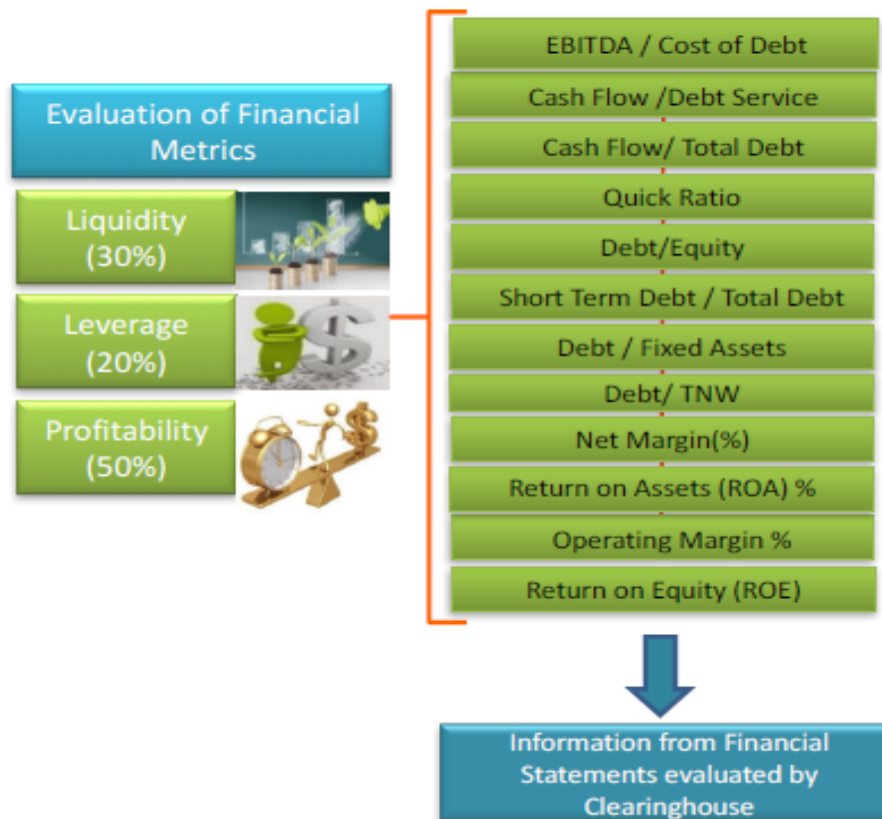
There are two different sets of transactional mechanics in play right now.

The Centralized CENACE markets have their own unique transactional mechanics.

Centralized Long Term & Mid Term Auction Clearinghouse

CLEARINGHOUSE CREDIT QUALITY EVALUATION (2)

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Liquidity(30%)	Value	Range	Weight	Score
EBITDA / Cost of Debt	4.7	3.14	25%	0.79
Cash Flow /Debt Service	1.93	3.69	35%	1.29
Cash Flow/ Total Debt	0.1	3.66	30%	1.1
Quick Ratio	0.3	5.72	10%	0.57
				3.75
Leverage (20%)	Value	Range	Weight	Score
Debt/Equity	0.54	4	35%	1.4
Short Term Debt / Total Debt	0.11	3.07	15%	0.46
Debt / Fixed Assets	0.47	2.84	25%	0.71
Debt/ TNW	1.21	3.21	25%	0.8
				3.37
Profitability(50%)	Value	Range	Weight	Score
Net Margin%	5.74	3.75	25%	0.94
ROA %	1.82	5.16	25%	1.29
Operating Margin %	13.1	3.41	25%	0.85
ROE %	5.78	2.84	25%	0.71
				3.79
		Weight	Score	Group Score
Liquidity		0.3	3.75	1.13
Leverage		0.2	3.37	0.67
Profitability		0.5	3.79	1.9
			Composite Score	3.7

Final Thoughts:

- It is a Spanish speaking market. So what?
- The foreign exchange rate between Mexico and the US withstood the election of President Trump.
- CENACE has the potential to outgrow the Cal ISO.
- Mexico's transformation is making a true North American Electric Market possible.
- The electric interchange between the United States and Mexico is currently anemic but what if it wasn't?
- From Dallas, Texas it takes exactly as long to fly to Mexico City as it does to Minneapolis, Minnesota.

Thank You

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