REFORM OF ELECTRICITY SECTORS: THE MEXICAN CASE

SENER

SECRETARÍA DE ENERGÍA DR. CÉSAR ALEJANDRO HERNÁNDEZ ALVA April 2016



DIAGNOSIS: ENERGY TARIFFS

Average CFE tariff was 25% superior to the average tariffs in USA.

Without subsidies, the difference was of **73%**



Average rates, first quarter 2013 (cents/ kWh)

Source: Energy Information Administration - EIA (USA)

USA Tariffs converted to pesos considering 12.64 MXP/USD, daily average from the first trimester of 2013.



DIAGNOSIS: CFE

CFE's assets are rapidly declining; reaching negative net assets in 2014.



Source: CFE Financial Statements; Finance Division 2012 of CFE



OBJECTIVES OF THE ELECTRICITY REFORM

Main Objectives: Reduce electricity costs and rates Increase the use of clean energies. Promote investment. Guarantee transparency.

Tools to achieve objectives	Achievements to date
Wholesale Electricity Market, WEM	WEM began operations on January 2016
Competitive Industry Structure	The Terms for the Strict Separation of CFE where published on January 2016. Creation of CENACE on August 2014.
Clean Energy Certificates	First Long Term Auction for the Basic Supply (CECs and Energy) concluded March 31 st 2016
Neutral expansion planning of the network, and interconnection optimization	First PRODESEN published on 2015



PRE-REFORM INDUSTRY STRUCTURE





New Industry Structure





CFE's TRANSFORMATION













POWER MARKET INSTRUMENTS

Market	Periodicity	Market Type
Energy and Ancillary Services	Daily, Hourly	Cost Based
Capacity	Yearly	Unrestricted offers with administered price caps
Clean Energy Certificates	According to CRE Requirements	Unrestricted offers
Financial Transmission Rights	Yearly (monthly in second stage)	Unrestricted offers

Auctions and Long Term Contracts

- CRE will set the requirements for all suppliers to contract forward energy and associated products.
- Basic Service Retailers may only contract forward through auctions operated by CENACE.
- All market participants can participate in the auctions.





Objectives

- Efficient and reliable dispatch of the National Electric System.
- Correct signals for the location of new electric plants and the use of controllable demand.



Features

- Two-Settlement (Day Ahead and Real Time)
- Nodal prices (approximately 2500 nodes)
- Cost-based generation offers (three part)
- Co-optimization of energy and ancillary services
- Later development of additional functionality (virtual trading, etc)



CAPACITY MARKET: GENERAL CHARACTERISTICS

Objectives

- Installation of sufficient capacity.
- Pay the fixed costs not recoverable on the energy market.
- New investments need long term contracts, but the short term capacity market must pay the right prices.

Features

- Maximum price based on the Cost of New Entry and actual reserves.
- Verification of capacity based on availability in 100 critical hours, and deliverability verified by CENACE.
- The final net price subtracts the shortterm income of a reference generator.







Objectives

- Pay for capacity when the system needs it.
- Allow the definition to evolve with the system.

Definition

- Availability in the 100 critical hours of the year:
 - First stage: Maximum demand.
 - Second stage: Minimum reserves.
- Intermittent Plants: Availability as generated.



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CAPACITY MARKET: GENERAL CHARACTERISTICS

Demand Curve

- CRE sets the minimum and "optimal" capacity requirements.
- CENACE buys capacity in excess of the minimum requirement and charges all LSEs.
 - Combines demand elasticity with fines for non-compliance.



Ex-post market

- Generators have absolute certainty about the quantity delivered.
 - The market monitor can implement an obligation to offer capacity without debate about quantity. Availability is monitored during the year.
 - No debate about cost; costs are already sunk.





CLEAN ENERGY CERTIFICATES

Clean Energy Certificates

- SENER establishes requirements to use a percentage of clean energy.
- Suppliers fulfill their requirements by buying Certificates.
- Income from certificate sales allow clean generators to cover their costs.



Short Term Market

- Used to liquidate excesses and deficits.
- CENACE will collect offers from generators, suppliers and others.
- Unlimited banking of certificates and 25% deferral of obligations.





FTRs: GENERAL CHARACTERISTICS

Objectives

- Allow market participants to reduce exposure to congestion prices.
- Assure that generators face correct signals to build and operate plants.
- Preserve legacy rights.
- Avoid restricting efficient dispatch.



Features

- Allocation process for Grandfathered FTRs.
- General auctions for new FTRs.
- Special FTR mechanism linked to new construction.
- CENACE will only award FTRs up to the capacity of the network.





AUCTIONS: GENERAL CHARACTERISTICS

Long Term Auctions

Guarantee a stable cash flow that will cover fixed costs, reducing the risk of generation investment.

Products	Term	Time to Contract
Capacity CECs Energy	15 years (Cap / Energy) 20 years (CEC)	3 years (or more)



Medium Term Auctions

 Allow retailers to obtain an energy hedge prior to the short-term markets.

Products Term		Time to Contract	
Capacity Energy	3 years	4 months	





MEDIUM TERM AUCTIONS OFFER PARAMETERS

- Time blocks are defined such that generators can offer to take an obligation for "baseload", "intermediate" or "peak"
- The same capacity can be offered in more than one block, under the condition that the total sale does not exceed a given quantity



LSE Offers - Energy		Generator Offers - Energy	
Maximum Quantity	By Zone	Maximum Quantity	By Zone
	By Block		By Block
Price / Quantity Function	Maximum Quantity		In Total
		Price / Quantity Function	By Zone
	By Block		By Block







OBJETIVES

- 1) Minimize the costs for Basic Supply Users, in order to reduce rates.
- 2) Transition mechanisms from a monopoly to the new market based system.
- 3) Reduce market Power.
- 4) Tool to operate power plants that are financially viable, acknowledging reasonable costs and incentivizing efficient and proper operation of them, as well as avoiding competitive advantages for CFE that would cause unfair competition.

- Contracts will supply part of the load of BS, complemented by Long and Medium term auctions.
- Coverage supplied by Vesting Contacts will be gradually reduced in order to smooth the rate transition from the existing sector structure to the new, market-based organization of the industry.





FLEXIBILITY ON THE DESIGN

DESIGN IS FLEXIBLE IN THE LONG TERM

Characteristics	Flexibility design
Cost based bids	Market Monitor can grant exemptions to generators not able to exercise market power
Capacity market	If gradual scarcity pricing provides enough revenue, the market transforms in a energy only market.
Retail competition (Qualified users threshold)	Retail level competition (ERCOT or European Style) or a Latin American Style market, with large shares of regulated costumers

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