ADVANCES ON THE IMPLEMENTATION OF THE ELECTRICITY REFORM IN MEXICO

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Commissioner
Comisión Reguladora de Energía

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*The opinions expressed herein are exclusive responsibility of the speaker.
The Energy Reform features clear goals in tariff reduction and competition.

The Electric Reform has the following goals:

- Decrease service costs;
- Ensure transparency;
- Promote investments;
- Foster clean energies;

Introducing competition and lower costs:

- Improves the competitive process regarding industrial and trading activities;
- Foster welfare on families.

• Average rates: **25% higher than in the US**; Without subsidies: **difference would be 73%**; Subsidies equal to **0.75% of GDP**

*Sources: Sistema de Información Energética (Mexico); Energy Information Administration (USA)*
In a context of a system facing an increasing demand ...

- In 2015 the peak demand was **39,840 MW**, 2.2% higher than the peak demand in 2014 and 12.5% with respect to 2010.

* Excludes Baja California and Baja California Sur
... and a high market concentration

- Total Power Capacity in México was 67,216 MW in June 2015.
- CFE, State Owned Enterprise (including IPP), had 82% of the total capacity.

### Suppliers

<table>
<thead>
<tr>
<th>Supplier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comisión Federal de Electricidad*</td>
<td>63</td>
</tr>
<tr>
<td>Independent Power Producer (IPP)</td>
<td>19</td>
</tr>
<tr>
<td>Self supply</td>
<td>10</td>
</tr>
<tr>
<td>Cogeneration</td>
<td>5</td>
</tr>
<tr>
<td>Exports</td>
<td>2</td>
</tr>
<tr>
<td>Own uses</td>
<td>1</td>
</tr>
<tr>
<td>Small producers</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

### Power Capacity by Type

- Combined cycle: 36%
- Steam: 21%
- Gas turbine: 5%
- Coal: 8%
- Internal Combustion: 2%
- Multiple: 2%
- Hydro: 2%
- Nuclear: 1%
- Wind: 0%

Total Power Capacity: 67,216 MW
The electric market works under a new structure ...
Constitutional amendments in Dec 2012.

On August 11th, 2014 the new Electric Industry Law was published:

- Orders strict legal separation of generation, distribution, transmission and retail activities
- opening generation to free competition
- preserves control on transmission and distribution but allowing associations with private parties
- Preserves operative control of the system by the state
- Gives to SENER the duty of the indicative planning of generation, and authorizes the grids expansion
- Creates a fund for electrification of rural and poor urban communities
- Creates the Clean Energy Certificates obligations mechanism

On September 2015 the “Bases del Mercado Eléctrico” Electricity Market Bases were published.
Electricity Market Bases

- Target: To define the rules and procedures to be followed by the participants of the market and the authorities in order to have a proper management, operation and planning of the market.

- The Market Rules have the following goals:
  - Convey clear signals about doing business in the new competitive environment.
  - Guarantee equal conditions for all participants, including CFE.
  - Adopt best practices worldwide.
  - Ensure transparency.
Spot market is designed to create a competitive environment—governed by clear rules and transparency—in which:

- Generators can sell their products minimizing entry barriers;
- Suppliers representing final users can buy from the most competitive producers;
- Tools are provided to control risks and to provide investment security.

The electricity market includes:

- Energy;
- Capacity;
- Renewable Energy Certificates;
- Financial Transmission Rights; and
- Others, as set forth by the regulations to be issued by CRE.
... under the responsibility of an Independent System Operator ...

Created on August 28th, 2014, is in charge of:

- Providing open and non-discriminatory access to the transmission and distribution grids.
- Elaborating an annual transmission planning program for the approval of SENER.
- Conducting market operations, including the day-ahead, real-time as well as financial transmission rights markets.
- Guaranteeing reliability of the National Electric System.
- The auctioning process for the Basic Service Supply.
... Which will enter into contractual agreements with market participants

- **Generator**: Represents plants in the spot market.
- **Traders**: Carry out transactions as intermediary without owning infrastructure.
- **Suppliers** (3 types: Basic, Qualified and Last-resource): Represent load points in the spot market for the consumption of final users.
- **Qualified users**: Represent load points in the spot market for self-consumption.
# A New Wholesale Spot Electricity Market

<table>
<thead>
<tr>
<th>Region</th>
<th>Activity</th>
<th>Market</th>
<th>Date or Period</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Baja California</td>
<td><strong>CENACE</strong> starts operations</td>
<td>Day-ahead</td>
<td>January 26&lt;sup&gt;th&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real-time</td>
<td>January 27&lt;sup&gt;th&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td><strong>CENACE</strong> starts the publication of numbers</td>
<td>Spot</td>
<td>February 3&lt;sup&gt;rd&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
<tr>
<td>National</td>
<td><strong>CENACE</strong> starts operations</td>
<td>Day-ahead</td>
<td>January 28&lt;sup&gt;th&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Real-time</td>
<td>January 29&lt;sup&gt;th&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td><strong>CENACE</strong> starts the publication of numbers</td>
<td>Spot</td>
<td>February 5&lt;sup&gt;th&lt;/sup&gt;, 2016</td>
<td>✓</td>
</tr>
</tbody>
</table>
**THE MARKET ADOPTS BEST INTERNATIONAL PRACTICES**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Other markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Markets</strong> with nodal prices</td>
<td>Argentina, Chile, Ireland, Russia, Singapour, New Zealand, PJM, ERCOT, CAISO, MISO</td>
</tr>
<tr>
<td><strong>Capacity markets</strong> based on the costs of new generation and reserve demand</td>
<td>U.K., Ireland, Russia, Colombia, PJM, NYISO, MISO,</td>
</tr>
<tr>
<td><strong>Clean Energy Certificates</strong> with clean portafolio obligations</td>
<td>Nord Pool, Italy, CAISO, U.K. Australia, Chile, India</td>
</tr>
<tr>
<td><strong>Financial Transmission Rights</strong> with periodical bids</td>
<td>New Zealand, PJM, ERCOT, CAISO, MISO</td>
</tr>
</tbody>
</table>
The new market design entails that the State will carry out two types of bids:

◆ **Mid-term bids**: Seek to ensure that basic suppliers will have a clear position, aiming to reduce its exposure to fluctuating prices of the spot market;

◆ **Long-term bids**: for power, clean energy and Clean Energy Certificates. They seek to:
  i) Ensure a steady payment flow in order to cover the investments on new plants; and,
  ii) Establish the cost of compliance of the Clean Energy Certificates requirements.
BIDS

- Both modalities will be carried out annually;
  
  - Mid-term bids: Contracts will begin (+/-) the year after the performance of the bid, with a 3-years duration;
  
  - Long-term bids: Contracts will begin (+/-) 3 year after the performance of the bid, with a 15 and 20-years duration.
LONG TERM BID PROCESS

1. Call
   - Inform about the auction and,
   - Define the required products

2. Auction entry payments
   - Reception
   - Accreditation
   - Billing

3. Clarification meetings
   - Clarify the register and payment process
   - Training to use the auction platform

4. Preliminary buying and selling offers
   - Reception of preliminary buying and selling offers through the auction platform

5. Pre-qualification
   - Review of offers for sale
   - Pre-qualification document (*)

6. Economic evaluation
   - Optimization process
   - Make iterations

7. Publication of results
   - Publication of participants

8. Contracts
   - Contract signing

**Timeline**

- **1. Call**: Nov/19/15
- **2. Auction entry payments**: Nov/30/15 – Feb/12/16
- **3. Pre-qualification**: Nov/30/15 – Jan/12/16
- **4. Clarification meetings**: (*) Mar/18/16
- **5. Economic evaluation**: Nov/30/15 – Jan/12/16
- **6. Publication of results**: 29-30 March
- **7. Contracts**: Apr/01
- **8. Offers**: Jul/12
**First Auction So Far (Feb/2016)**

- **103** Bidders requested pre-qualification
- **468** Technical bids received

Pre-qualification applications included a total of:

- **830 MW** Power
- **102 Millions of MWh** Energy
- **109 Millions** Clean Energy Certificates

**CRE**
Clean energy is defined in the Electric Industry Law, and considers the following energy sources:

- Wind
- Geothermal fields
- Ocean energy
- Solar radiation
- Bioenergetics
- Hydroelectric plants
- Efficient co-generation

Legal framework is flexible with respect to new clean energy technologies that may be developed in the future.
The new renewables legal framework shows a commitment to insert Mexico into a worldwide trend, in which clean energy sources will continue to gain market share, due mainly to technological innovation and public policies aimed to address climate change.

Global participation of renewables energy sources in the energy mix forecast

Power generation capacity additions (GW) Bloomberg
New Energy Finance
Recent LATAM has proven that bids represent an effective mechanism in order to reduce the Price of electricity through time:

- Average Price in the Peruvian electricity market: 55 USD/MWh.
- Through bids the Price of electricity generated though renewable sources has considerably decreased (22%).

**Source:** OSINERGMIN
PRIVATE INVESTMENT IN TRANSMISSION AND DISTRIBUTION ACTIVITIES IS NOW ALLOWED

The Constitution and the Energy Industry Law allows the State to enter into contracts/associations with private parties to carry out activities related with transmission/distribution infrastructure

✓ **Regulated income will** be the lower consideration resulting from a competitive process should should be expressed as a steady income or contractual annual payment necessary to cover all costs associated with the project under the conditions of providing the best service to the system during the term of contract -which will be consistent with the life of the project.

✓ **The annual contractual payment of the selected project** will be included in the required income of the public service of transmission and will be recovered through the general tariff for the use of the network, paid by users.

✓ **The annual contractual payment will** only be modified according to the adjustment index or formulas issued by CRE.
Thank you!

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