Towards a low carbon emissions energy sector: Mexico's regulatory efforts

CEER-Ariae 2011 Encounter

Comisión Nacional de Energía, Madrid

Wednesday 23th March, 2011

Francisco Xavier Salazar Diez de Sollano

Chairman, Energy Regulatory Commission, Mexico

Background

- In order to promote the use of renewable energy, Mexico has been taking a number of actions that have resulted in achievements such as having the world's fastest growth in wind capacity in 2009.
- Taking into account that it was not until the end of 2008 that Mexico had a specific law to promote renewable energy and that, up to date, no specific subsidy has been established, most of this growth is explained by:
  - RE projects as part of the capacity expansion for public service (Ministry of Energy mandate implemented by CFE, the State owned utility);
  - Specific regulatory instruments issued by CRE, and
  - Coordination between the Ministry, CFE and CRE.

Main RE regulatory instruments

Through self supply schemes:

- Interconnection contract models:
  - Energy bank above 0.5 MW,
  - 1:1 net metering below and in low or mid tension.
- Postage stamp minimum wheeling charges;
- Coordination of open seasons for new transmission lines;
- Efficient cogeneration criteria.

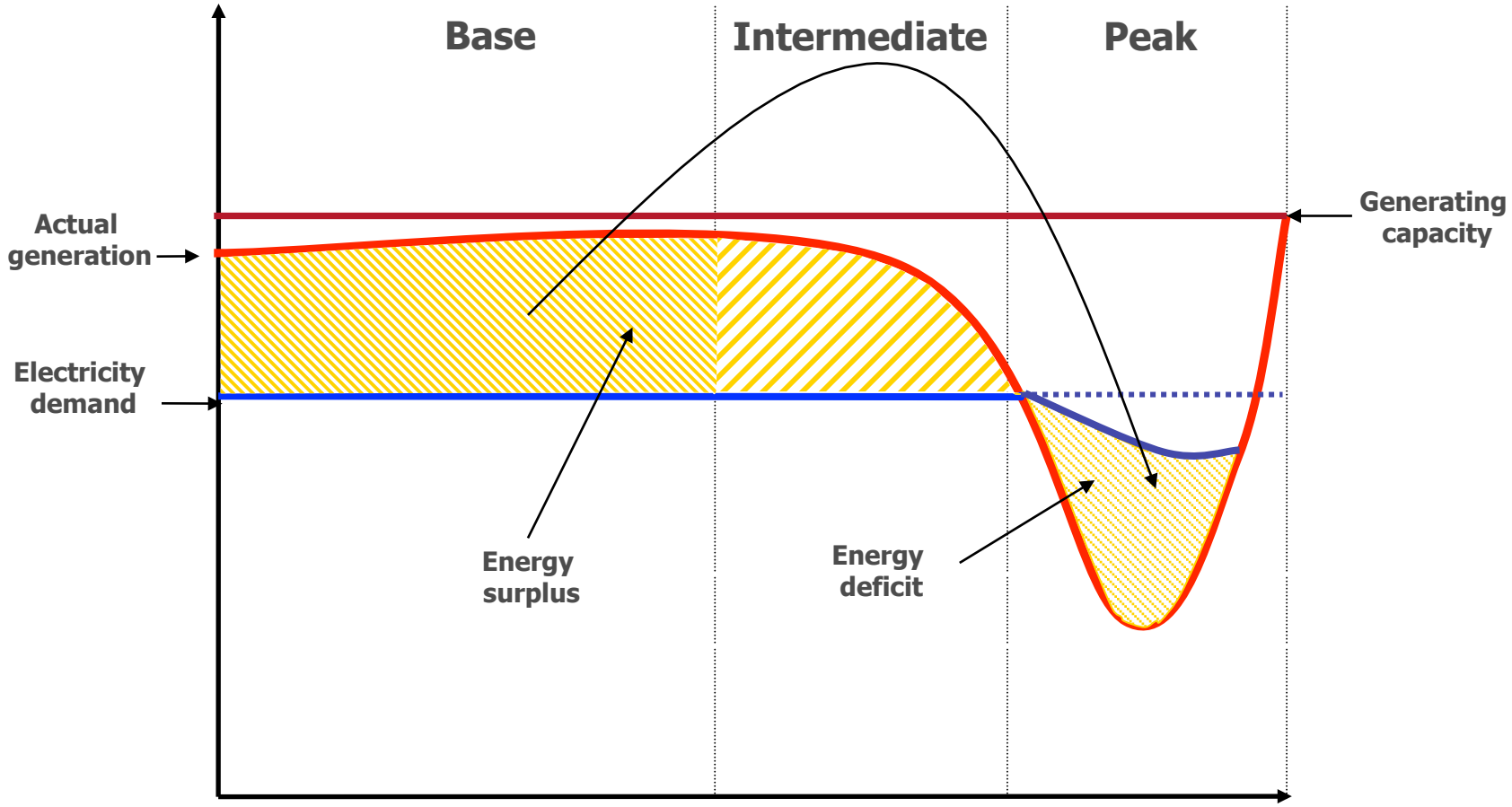
Using CFE monopsony condition:

- Renewables pre-determined CFE buying rates (pending)

Energy bank basic characteristics

- Energy is delivered to the grid whenever it is generated;
- Consumption doesn't need to match generation; energy can be "accumulated" in the grid and delivered in a different period of time;
- Energy exchange takes place at the prevailing tariff rate in the interconnection and load points;
- At the end of the year, the permit holder can sell the remaining "accumulated" energy at 85% of the marginal cost of the system;
- Capacity credit is granted based on the monthly average of power produced during the weekdays system peak period;
- Emergency energy for the Government Utility (CFE) is paid at 1.5 times the tariff rate.

A graph…


Base
Intermediate
Peak
Actual generation
Electricity demand
Generating capacity
Energy surplus
Energy deficit

CRE

Wheeling rates

- Traditional methodology to calculate transmission rates is based in energy flows and location of both generation and loads: Transmission that goes with the flow pays more than if it went counter flow.
- Since that logic is not applicable for RE where generation can not be located at will, CRE issued postage stamp type rates based on minimum variable costs. March 2011 values are:
  - High tension 0.03230 MX$/kWh
  - Medium tension 0.03230 MX$/kWh
  - Low tension 0.06459 MX$/kWh
- Rates are adjusted every month based on inflation.
- User pays the rate according to the tension levels used (without duplicating). Rates do not apply for new devoted infrastructure.

Transmission open seasons

- New transmission infrastructure for several independent projects normally involves a coordination problem between permit holders and CFE (building several transmission lines is uneconomic).
- To coordinate CFE and permit holders, CRE can conduct an open season type of process that determines the capacity of a new transmission line to be built, establishes how this new capacity will be paid, and allocates transmission capacity among the different users.
- Back in 2008 more than 2600 MW of transmission capacity were reserved through this process: around 2000 MW were allocated with several permit holders while CFE retained the rest for its own projects. More than 500 MW of these projects are already operating and the rest are scheduled to start before 2012.

Efficient cogeneration criteria

- According to the new 2008 RE law, efficient cogeneration is subject to renewable regulatory special treatment (energy bank, postage stamp wheeling charges, etc.)
- Efficient cogeneration has been defined by CRE as follows:

$$\eta \geq \eta min$$

Plant size (MW)	ηmin (%)
Nameplate < 0.5	5
0.5 ≤nameplate < 30	10
30 ≤ nameplate< 100	15
nameplate≥100	20

- Where:

$$\eta = \frac{Elc}{Econv} = \frac{AEP}{Fe}$$

$$AEP = EP - F$$

$$EP = \frac{E}{RefE'} + \frac{H}{RefH}$$

$$Fe = F - Fh$$

CFE buying rates (in process)

- Although RE has grown through self supply schemes, it is important to take advantage of CFE power to aggregate demand.
- Current IPP bid scheme works for large scale projects (≥100 MW), but there is a need to develop smaller projects.
- A current proposal being discussed is bidding every year a certain amount of capacity associated with the gap between existing capacity and the goal established in the RE program (restrictions based on technology, resource or location could be considered) according to:

$$\boldsymbol{C_m = G_m\,[\,(PCE - Y) - X\,]}$$

- Where *PCE* is the price paid for capacity and energy based on current rates fixed but indexed for a 20 year period, *Y* is an administrative charge for CFE and *X* a discount to be bid.

Thanks!

www.cre.gob.mx