Collecting renewable energy statistics in selected APEC economies

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Outline of Presentation

Background
- APEC/APERC
- EGEDA/ESTO
- Data collection

Sample economies
- Chile
- Mexico
- Issues and Challenges
Background
APEC: Asia Pacific Economic Cooperation

- An open framework for regional economic cooperation among 21 member economies
- Cooperative and voluntary basis
- Activities for trade and investment liberalization, business facilitation, and economic and technical cooperation


Source: APERC Brochure (June 2015)
Expert Group on Energy Data and Analysis

EMM
(Energy Ministers Meeting)

EWG
(Energy Working Group)

APERC
(Asia Pacific Energy Research Centre)

EGEEC
(EG on Energy Efficiency & Conservation)

EGNRET
(EG on New Renewable Energy Technology)

EGCFE
(EG on Clean Fossil Energy)

EGEDA
(EG on Energy Data & Analysis)

TFETI
(TF on Energy Trade & Investment)

Source: APERC Brochure (June 2015)
**ESTO activities**

1. **Data network**
   - **Data collection**
     - Annual data
     - Quarterly data
     - Monthly data
   - **Data processing**
   - **Publication**
   - **Energy database management**

2. **Capacity Building**
   - **Short-term course**
   - **Medium-term course**
   - **Expert dispatch to requesting economies**
   - **Research on district cooling**
   - **Energy modeling seminars (non-EGEDA)**

3. **Other activities**
   - **Annual EGEDA meetings**
   - **Annual workshop on energy statistics**
   - **JODI activities**
   - **IEA’s Energy statistics development group**
   - **InterEnerStat**

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**Instruction**

**Reporting**

**Provision of data**

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**Data network**

- **EGEE&C**
- **EGNRET**
- **EGCFE**
- **APERC**
  1. Overview
  2. Demand & supply outlook
  3. Oil/Coal/Gas reports

**Capacity Building**

- **EI**
- **RE**
- **Fossil fuels**

**Other activities**

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Collection of energy data (1)

1992: EGEDA through the coordinating agency conducted the 1st trial data collection for 1990 annual data

- Biomass energy for power generation was collected (termed commercial biomass)
- Biomass consumed in the residential sector (termed non-commercial biomass) was also collected but just as supplemental information
- Table for non-commercial biomass was not even a part of the main data collection table
- Most economies do not report non-commercial biomass

2005: Revised questionnaires are applied for 2004 annual data

- 5 questionnaires (Coal, Oil, Gas, Electricity & Heat, New and Renewables)
- Non-commercial biomass were included in the renewable energy questionnaires
Collection of energy data (2)

ESTO collects data from Non-OECD APEC members, including China; downloads OECD from IEA

Developments during the last decades necessitates more revisions to the questionnaire

- Inclusion of more biofuel products;
- Finalization of the UN IRES
- Harmonization with IEA energy statistics
- Harmonization with IRENA statistics
Contents of NRE questionnaire

APEC NRE questionnaire consists of 5 tables

- Table 1a: Supply sector
- Table 1b: Imports by origin/Exports by destination
- Table 2: Transformation and energy sectors
- Table 3: Final consumption sector
- Table 4: Conversion factors (calorific values)

RE products collected

- Fuelwood and wood waste
- Bagasse
- Charcoal
- Other biomass
- Biogas
- Municipal solid waste
- Liquid biofuels
- Hydro
- Geothermal
  - Electricity
  - Heat
- Solar
  - Photovoltaic
  - Thermal
  - Electricity
  - Heat
- Tide, wave and ocean
- Wind
EGEDA website is the only platform to disclose member economies’ data and activities to outside (and inside); which include China;

The EGEDA website has been improved to show more information, visualisation and allows for online data submission and with new URL for consistency with other EWG expert groups

http://www.egeda.ewg.apec.org
Case economies
The Ministry of Energy (Ministerio de Energía) as the main authority, oversees implementation of energy policies through dependent and independent institutions in Chile.
## Regulatory framework (1)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Legislation</th>
<th>Coverage</th>
<th>Regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Generation</td>
<td>General Law of Electric Services (LGSE–Ley General de Servicios Eléctricos)</td>
<td>Privatises the electricity industry, introduces competition into the generation sector and separates the industry’s generation, transmission and distribution segments. Created the National Electric Coordinator (Coordinador Eléctrico Nacional, CEN), a unified independent system operator.</td>
<td>CNE “Comisión Nacional de Energía” (National Energy Comission)</td>
</tr>
<tr>
<td></td>
<td>New Electricity Act on Energy Auctions (Law 20 805)</td>
<td>Establishes the process of open energy auctions, encouraging the entrance of new players and electricity generation technologies</td>
<td></td>
</tr>
<tr>
<td>Sector</td>
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<tr>
<td>------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>Law NCRE (Ley ERNC)</td>
<td>Modifies the LGSE, establishing short- and long-term policy targets for the share of renewable energy in total electricity generation. Increasing share of non-conventional renewable energy (NCRE) in total electricity generation by 0.5% annually from 2015 to reach 10% by 2024.</td>
<td>CNE “Comisión Nacional de Energía” (National Energy Comission)</td>
</tr>
</tbody>
</table>
Energy data collection framework

- **The Ministry**
  - prepares the Energy Balance Table and other International Reports
  - Conducts survey to energy supplier and large consumers

- **CNE**
  - regulator and the key institution in data collection

<table>
<thead>
<tr>
<th>Authority</th>
<th>Function</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEC (Electricity and Fuels Superintendency)</td>
<td>Oversees the sector and intermediates some conflicts among costumers and energy firms</td>
<td></td>
</tr>
<tr>
<td>Greater Northern Interconnected System (SING) and the Central Interconnected System (SIC)</td>
<td>Coordinate the north and central interconnected electricity systems of Chile</td>
<td>Electricity generation data</td>
</tr>
<tr>
<td>Project Management Unit</td>
<td>Keeps track of current RE power plant projects under construction, information about forthcoming power plants using renewable sources</td>
<td></td>
</tr>
<tr>
<td>University of Chile</td>
<td>Collaborates with Ministry of Energy on solar and wind energy</td>
<td></td>
</tr>
</tbody>
</table>
Data processing, reporting and dissemination

Types of data

• Daily electricity supply (by source)
• Installed capacity
  • Detailed information of each power plant
  • Classified by technologies
• Location
• Potential Hydro and Biomass Installable Capacity
• Hydro and Biomass Energy Potential by District
• Distributed Generation Instalations (currently 5.8MW )
• Stored Energy in Hydro Reservoirs

• Open Energy (Energia Abierta)
  – Web page where most of relevant energy statistics are gathered and uploaded
  – Administered by CNE
SENER (Ministry of Energy) is responsible for conducting Mexico's energy policy, within the current constitutional framework.
Regulatory framework (1)

### Energy Transition Law (LTE) 2015

- **legal basis to promote a transformation towards a sustainable energy and economic model in the long term;**
- **regulates the sustainable use of energy, as well as the obligations in clean energy and reduction of emissions of pollutants of the Electrical Industry, maintaining the competitiveness of productive sectors.**

Source: CONUEE's Sergio Segura presentation during PREE in Mexico

### Sector | Governing Laws | Coverage
--- | --- | ---
Electricity | Law of the Electricity Industry (LIE) | legal basis to increase the participation and regulation of clean energies in the electricity generation process.
## Regulatory framework (2)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Governing Laws</th>
<th>Coverage</th>
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<tbody>
<tr>
<td>Renewable energy</td>
<td>LTE and 2008 related laws</td>
<td>share of economy-wide electricity generation, based on clean energy (renewables- 25% by 2018,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy information</td>
<td>LTE (Article 24)</td>
<td>Implement guidelines and criteria for official energy sector information and quality standards, including mechanisms for compiling, validating, processing, updating, safeguarding, publishing and public access, in coordination with the National Statistics and Geography Institute</td>
</tr>
</tbody>
</table>
## Data collection structure (1)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Providers</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>CRE</td>
<td>Capacity and electricity generation data Transmission and distribution International trade, Consumption</td>
</tr>
<tr>
<td></td>
<td>CEBACE, CFE, CENACE, CONUEE, INEGI (Surveys), IPPs</td>
<td>Other electricity data, electric market, etc</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>CeMIE Sol (Mexican Center for Innovation in Solar Energy)</td>
<td>National Inventory of Photovoltaic Systems: Energy Generation, photovoltaic capacity</td>
</tr>
<tr>
<td></td>
<td>ANES (Solar Energy National Association)</td>
<td>National Inventory of Flatted Solar Heaters: Area in use and energy generation</td>
</tr>
<tr>
<td></td>
<td>IPPs</td>
<td>Monthly Report: Energy generation, energy consumption and statistics</td>
</tr>
</tbody>
</table>

**Note:** CRE: Energy Regulatory Commission; CONUEE: National Commission for the Efficient Use of Energy; CFE: Federal Electricity Commission (utility); CENACE: National Centre for Energy Control
Data collection structure (2)
Data processing, reporting and dissemination

All information are posted in the Ministry’s **Energy Information System (SIE)**,

- **National**
  - NEB
  - Monthly reports
  - INEGI
- **International**
  - AIE
  - APEC
  - OLADE
  - UN

**SENER** prepares energy related publications

North American Energy Trade Statistics
Collection of data entails great challenges

Completeness and disaggregation of demand data is still a major challenge.

Despite existence of laws, availability of energy demand and supply data is still an issue. This challenge goes along with the issue of confidentiality or maybe absence of incentives for stakeholders; hence, some industries or companies are not inclined to give information.

Need for strong cooperation from other government institutions to validate data and collect data other than energy.

Need for strong advocacy on the proper use of energy statistics in government and private businesses for planning and decision-making.

Lack of budget to conduct surveys.
Thank you for your kind attention

http://aperc.ieej.or.jp/