Sri Lanka Presentation
SAARC Workshop on “Load/Power Flow Studies Using PSS/E for Efficient National & Cross Border Interconnected Power Systems in South Asia”
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CEYLON ELECTRICITY BOARD

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Additional General Manager(Transmission)

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Electrical Engineer (Transmission Planning)
Power Sector Framework-Sri Lanka
(Sri Lanka Electricity Act-2009 as amended in 2013)

Policy Maker
Government, Ministry of Power and Renewable Energy

Regulator
Public Utilities of Sri Lanka (PUCSL)

Generations

Ceylon Electricity Board (CEB)
Independent Power Producers

Power Purchase Agreements

Transmission

CEB

Power Sales Agreements

Distribution

CEB-1
CEB-2
CEB-3
CEB-4
LECO

Consumers

LECO-Lanka Electricity Company (Pvt) Ltd
### Country Information

as at 2017

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>21.2 million</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>3,835 USD (2016)</td>
</tr>
<tr>
<td>Area</td>
<td>65610 km²</td>
</tr>
<tr>
<td>Installed Capacity</td>
<td>4036 MW</td>
</tr>
<tr>
<td>Peak Demand</td>
<td>2523 MW</td>
</tr>
<tr>
<td>Annual Electricity Demand</td>
<td>14,620 GWh</td>
</tr>
<tr>
<td>Electrification Level</td>
<td>99%</td>
</tr>
<tr>
<td>Per Capita Electricity Consumption</td>
<td>603 kWh per yr</td>
</tr>
</tbody>
</table>
Installed Generation Capacity

as at 2017

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEB Hydro</td>
<td>1377</td>
</tr>
<tr>
<td>CEB Thermal - Coal</td>
<td>810</td>
</tr>
<tr>
<td>CEB Thermal - Oil</td>
<td>604</td>
</tr>
<tr>
<td>IPP Thermal - Oil</td>
<td>687</td>
</tr>
<tr>
<td>Other RE</td>
<td>558</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4036</strong></td>
</tr>
</tbody>
</table>
Peak Demand Forecast

Electricity Demand Growth Rate - 4.6%
Generation Forecast

- **Major Hydro**
- **Coal**
- **Combined Cycle-LNG**
- **Combined Cycle-Oil**
- **Oil**
- **Gas Turbine**
- **Wind**
- **Mini hydro**
- **Solar**
- **Biomass**
- **Pumped Hydro**
- **Peak Demand**
The Map of Sri Lanka Transmission System in Year 2021
Renewable Energy Development

Present Installed Capacity (MW)

as at 2017

- Wind - 128MW
- Solar Rooftop - 100MW
- Solar Grid Scale - 50MW
- Total VRE - 278MW
Technical and Economical feasibility studies are carried out between CEB and Power Grid India to interconnect two Networks by DC link.

A Joint Technical Team has been appointed
Transmission Planning

- Commissioned Tr. Projects of past & present year
- Present maximum demand of Grid Substations
- National Power & Energy Demand Forecast

1. Existing Tr. Network model
2. Grid Demand Forecast
3. Capacity enhancement proposals

- Generation expansion plan
- Future system studies

1. Tr. Expansion proposals

- Satisfactory
- Yes
- Long term Transmission Development Plan

- No

Challenges

- Delay of implementation of committed transmission infrastructure due to Environmental and Social Considerations
- Raising of Finance for the Development Proposals
- Integration of Indigenous Renewable Energy Sources to meet the Renewable energy targets
  - Transmission Infrastructure development
  - out of hand Implementation schedules
  - Operational Planning restrictions
- India-Sri Lanka cross border interconnection
  - Selecting most feasible line route
  - Section of interconnection type (VSC or LCC)
  - Power exchange agreement
- Optimizing the reactive power requirement in the network
Thank You