SAARC Knowledge Sharing Workshop on “Modern Techniques Including Renewable Energy Auctions for Economizing Renewable Energy Tariff”

Sri Lanka Country Presentation

9th May, 2018

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## Overview of Country & Power Sector

- **Population**: 21.4 million
- **Area**: 65,610 km²
- **GDP per Capita**: 3,857 US$
- **Installed Capacity**: 3,500 MW (approx., without NCRE)
- **NCRE Capacity**: 560 MW
- **Capacity Mix**: Hydro 40% Thermal 60%
- **Energy Mix**: Renew 31% Thermal 69%
- **Peak Demand**: 2,500 MW (approx.)
- **Energy Generation (net)**: 14671 GWh
- **Energy Sales**: 13,431 GWh
- **Trans. & Dist. Losses**: 8.5 %
- **Electrification level**: 99.3 % (estimated)
- **Per capita consumption**: 628 kWh

*End 2017 draft data*
Present Status of NCRE (end 2017)

<table>
<thead>
<tr>
<th>Description</th>
<th>Project Type</th>
<th>No. of Projects</th>
<th>Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commissioned</td>
<td>Mini Hydro Power</td>
<td>182</td>
<td>354</td>
</tr>
<tr>
<td>Projects</td>
<td>Wind Power</td>
<td>15</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>Biomass-Agricultural &amp; Industrial Waste Power</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Biomass – Dendro Power</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Solar Power</td>
<td>8</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td><strong>Commissioned</strong></td>
<td><strong>215</strong></td>
<td><strong>560</strong></td>
</tr>
</tbody>
</table>

NCRE : Non Renewable Energy
NCRE Development

NCRE Project Development - Capacity Additions (up to 31.12.2017)

Capacity (MW)

Cumulative Number of Projects

Year

- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
Energy from NCRE

Annual Energy Contribution from NCRE Projects

% energy from NCRE to the total energy demand

Year:
- 2000: 0.6%
- 2001: 1.0%
- 2002: 1.5%
- 2003: 1.6%
- 2004: 2.6%
- 2005: 3.2%
- 2006: 3.7%
- 2007: 3.5%
- 2008: 4.4%
- 2009: 5.5%
- 2010: 8.8% 6.3% 6.3%
- 2011: 9.9% 9.8% 9.9%
- 2012: 9.9% 9.8% 8.2%
- 2013: 11.1%
- 2014: 11.1%
- 2015: 11.1%
- 2016: 11.1%
- 2017: 11.1%
NCRE Tariff Background

• NCRE, mainly Mini Hydro, was on Feed in Tariff at the start

• 1996 – 2007: Avoided cost principle
  – Tariff based on avoided cost of thermal energy
  – 15 Year contracts, first come first served basis
  – Tariff published annually

• 2008 onwards Technology Specific Cost Reflective Three Tier Tariff
  – Tariff is based on the Cost incurred
  – Different for different technologies
  – Three tiers based (8-7-5 years)
  – 20 year contracts
  – Sri Lanka Sustainable Energy Authority also established at this time
• In 2012 CEB has taken a policy decision to call for bids to develop Wind and Solar Power projects (<10MW).

• Sri Lanka Electricity Act 2009 and as amended in 2013 has given provisions to implement competitive bidding process to develop NCRE projects.
Competitive Tendering of NCRE Projects

1. 10MW X 02Nos. Wind Power Projects - 2015
2. 1MW X 60Nos. Solar Power Projects - 2017
4. 1MW X 90Nos. Solar Power Projects - 2018
10MW X 2Nos. Wind Power Projects

- 1st ever competitive process for NCRE
- Two sites close to each other in the North (One project NCB other ICB)
- Two resource blocks were identified by the SLSEA in Chavakachcheri
- Transmission Interconnection from CEB
- RFP called in the basis of BOO in December 2015 for a 20 year term
- Bids opened in July 2016 and Award made in January 2017.
- Bids received, NCB – 16, ICB – 12
- Range of bid prices - 12.29 - 29.90 LKR/kWh (FIT at the time : 23.00 LKR/kWh approx.)
- Awarded tariff – 12.29 LKR/kWh first year tariff for both NCB & ICB projects
- Three tier tariff – bid for the first year price
- Land to be provided by CEB
- Proposal Security and Performance Security required
- 80% tariff adjustable for USD/LKR variation between Tender opening and PPA date
- Otherwise LKR flat tariff no forex component
- At present – approvals being taken
1MW X 60Nos. Solar Power Projects

- 1\textsuperscript{st} Tendering for Solar PV
- Three 1MW\textsubscript{pk} projects each, in identified 20 grid substations
- Bids for each grid sub evaluated separately
- Land (2 hectares) – by the developer – ownership/lease to be shown
- Interconnection cost also to the developer
- Proposal security 2 MLKR, Performance security – 15 MLKR
- One company allowed to bid only for one project
- Policy guidance to give opportunity to local small scale entrepreneurs to invest
- Flat Tariff for 20 years, no forex variation compensation
- Tariff Ceiling of 18.37 LKR/kWh
RFP called in February 2017 and closed in June 2017.
100+ bid documents purchased and 65 bids received
Bids awarded (LOI issued) in February 2018 to 35 bidders
Awarded bids range from 12.73 – 18.37 LKR/kWh (Avg. 17.22 LKR/kWh)
Comparison with previous FIT tariff of 23.10 LKR/kWh for Solar PV
Project period – total 24 months (bidders could propose lessor period)
All approvals to be obtained by the bidders.
Tendering period and evaluation took a long time
Large number of bids, criteria/ condition changes during the process, etc
10MW X 2Nos. Solar Power Projects

- Both are ICB named as Polonnaruwa SPP & Vavunathivu SPP
- To be connected to Valachchenai GSS & Vavunathivu GSS
- Resource blocks were identified and the developer has to obtain (purchase/lease) required lands within the resource block with
- Interconnection details given and to be developed at the cost of the developer
- Proposal security 20 MLKR, Performance security – 150 MLKR
- Flat Tariff for 20 years. 80% tariff adjustable for USD/LKR variation between Tender opening and PPA date
- Tariff Ceiling of 18.37 LKR/kWh

- RFPs called in July 2017
- Vavunathivu SPP tender closed in September 2017 & 17 bids received.
- Polonnaruwa SPP tender closed in February 14 2018 & 09 bids received.
- Vavunathivu SPP awarded for 11.86 LKR/kWh (bids range from 11.86 – 18.15 LKR/kWh with Avg. 15.22 LKR/kWh)
- Polonnaruwa SPP waiting for approval to award (bids range from 11.60 – 16.50 LKR/kWh with Avg. 14.43 LKR/kWh)
- Project period – total 24 months (bidders could propose lessor period)
- All approvals to be obtained by the bidders.
1MW X 90Nos. Solar Power Projects

- 1MW capacity 90 Projects
- 17 Grid substations – No of projects for each varying from 3-7
- No restriction on No. of projects for a company
- Land ownership conditions eased
- Land requirement reduced to 1.21 hectares
- Ceiling price of 18.37 LKR/kWh
- 533 bid documents purchased
- 508 bids submitted (for all 17 grids)
- Bid tariff range : 12.37-18.26 LKR/ kWh (avg. 16.37)
- Under evaluation at present
Points to Ponder

• No Reverse Auction has been carried out in SL as of now
• Competitive bidding has brought down the pricing
• Time taken for completing the bidding process is seen as long
• Initial resistance to change of system from developers and other stake holders
• What level of conditions (commercial/technical) to be included in the bid
  – Too strict could discourage potential bidders
  – Too lenient could bring in speculators
END
Thank You