RE Round Table 5
WIND REPOWERING IN TAMIL NADU
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RENEWABLE ENERGY TEAM
### Table: State-wise and turbine size-wise wind installation (prior to March 31, 2000)

This is the wind power capacity that is fit for repowering in the country

<table>
<thead>
<tr>
<th>States</th>
<th>&lt;=0.5MW</th>
<th>0.5-1.0MW</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil Nadu</td>
<td>717.05</td>
<td>37.9</td>
<td>754.95</td>
</tr>
<tr>
<td>Gujarat</td>
<td>143.75</td>
<td>1.6</td>
<td>145.35</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>84.39</td>
<td></td>
<td>84.39</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>63.72</td>
<td>2.25</td>
<td>65.97</td>
</tr>
<tr>
<td>Karnataka</td>
<td>24.53</td>
<td></td>
<td>24.53</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>21.1</td>
<td></td>
<td>21.1</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>2.9</td>
<td></td>
<td>2.9</td>
</tr>
<tr>
<td>Total installed capacity</td>
<td>1,057.43</td>
<td>41.75</td>
<td>1,099.18</td>
</tr>
</tbody>
</table>

A QUICK RECAP

Major issues

• Commercial
• Technical
• Legal

Possible solutions

• Mandate
• Collaboration
• Incentivization
• Customization

Based on today’s capital costs and available sites, the reasonable tariff for greenfield wind energy projects is about Rs 3.2-3.25 per kWh. Adding a cost of decommissioning and the residual value of the power purchase agreement, the tariff for a repowering project will be of an order of Rs 4 per kWh or above

Parag Sharma

About 10,000 MW of capacity consists of turbines smaller than 1 MW. Repowering them could increase generation by almost two-three times

K. Balaraman

Green-field projects and repowered projects differ significantly and cannot be clubbed together

Balawant Joshi
WIND POWER & TURBINE PROFILE

Installed Capacity (MW)

- <=0.5 MW: 0.28 MW
- 0.5 - 1 MW: 0.74 MW
- 1 - 1.5 MW: 1.37 MW
- 1.5 - 2 MW: 1.71 MW
- > 2 MW: 2.04 MW

Capacity in MW (Mar 2017)

Percent WTGs

- 52%
- 27%
- 15%
- 5%
- 1%

Instal Capacity (MW)

<=0.5 MW 0.5 - 1 MW 1 - 1.5 MW 1.5 - 2 MW > 2MW

Percent WTGs

0% 10% 20% 30% 40% 50% 60%
UNIQUE CHALLENGES

Large wind portfolio

- Long term PPAs
- Model of development
- Private land and Fragmented ownership
REPOWERING POLICY & REGULATION

National Policy
• Announced by MNRE in August 2016.
• Repowering of wind turbine generators (WTG) of 1 MW and less is allowed.
• It offers an additional interest rate rebate of 0.25% on the loans financed through IREDA.
• No activity under this policy.

Tamil Nadu
TANGEDCO’s proposal 2017:
• FiT of Rs 2.80/unit or the latest discovered rate
• Banking of one month with encashment of unutilised energy at 75% of the tariff at the end of the month.
• Developers to erect/augment transmission infrastructure

Draft Indian wind turbine certification scheme
• On papers since November 2018
• Mandatory to conduct a safety and performance assessment of all turbines that are connected to the grid and that have been in operation for more than 80 per cent of their designed life.
HOW TAMIL NADU LEADS REPOWERING?

• Effectiveness of current policies at national and state level
• Tailor-made approach for Tamil Nadu
• Role of various stakeholder
• Technical & Commercial barriers
• The WTG owner’s perspective
• Regulatory aspects to address repowering bankability
• Financial viability
• Repowering vis-à-vis wind sector