RENEWABLE ENERGY INTEGRATION IN TAMILNADU
Tamil Nadu – Installed Capacity as on 30th July 2017

**Generator** | **Installed Capacity in MW**
--- | ---
TN Hydro | 2308
TN Thermal | 4320
TN Gas | 516
TN IPP | 746
CGS Thermal | 4340
CGS Nuclear | 1703
Purchase | 3190
CPP | 986
Wind | 7858
Solar | 1693
Cogen | 690
Biomass | 230
Total | 28580
## Tamil Nadu High Energy Consumption Details Achieved in a Day

<table>
<thead>
<tr>
<th>Details</th>
<th>Achieved</th>
<th>On</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>345.617 MU</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; April 2016</td>
</tr>
<tr>
<td>Demand</td>
<td>15343 MW</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; April 2016</td>
</tr>
<tr>
<td>Wind Energy</td>
<td>102.579 MU</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; August 2017</td>
</tr>
<tr>
<td>Wind Generation</td>
<td>5096 MW</td>
<td>27&lt;sup&gt;th&lt;/sup&gt; July 2017</td>
</tr>
<tr>
<td>Solar Energy</td>
<td>9.681 MU</td>
<td>12&lt;sup&gt;th&lt;/sup&gt; August 2017</td>
</tr>
<tr>
<td>Solar Generation</td>
<td>1621 MW</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; July 2017</td>
</tr>
<tr>
<td>Solar Rooftop</td>
<td>91 MW</td>
<td>31&lt;sup&gt;st&lt;/sup&gt; July 2017</td>
</tr>
</tbody>
</table>
Present RES Installed capacity in Renewable Rich States

Upto July 2017

- Rajasthan: 6386
- Gujarat: 6778
- MP: 3538
- Maharashtra: 7649
- Tamilnadu: 10471
- AP: 6411
- Karnataka: 7634
RES Target for 2022 for Renewable Rich States

- Rajasthan: 8600
- Gujarat: 8800
- MP: 6200
- Maharashtra: 7600
- Tamil Nadu: 11900
- AP: 8100
- Karnataka: 6200

Categories:
- Solar
- Wind
- Biomass
- SHP
- Solar
- Wind
- Biomass
- SHP
Maximum % contribution of Wind & Solar in a Day Consumption so far

27-08-2017

<table>
<thead>
<tr>
<th>Total Day Consumption</th>
<th>255.542 MU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional and others</td>
<td>159.904 MU</td>
</tr>
<tr>
<td>Wind &amp; Solar</td>
<td>95.638 MU</td>
</tr>
</tbody>
</table>
Maximum MU of Wind & Solar in a Day Consumption so far

04-08-2017

<table>
<thead>
<tr>
<th>Total Day Consumption</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional and others</td>
<td>190.443 MU</td>
</tr>
<tr>
<td>Wind &amp; Solar</td>
<td>108.251 MU</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional and others</td>
<td>190,443 MU</td>
</tr>
<tr>
<td>Wind &amp; Solar</td>
<td>102,579 MU</td>
</tr>
<tr>
<td>Solar</td>
<td>5,672 MU</td>
</tr>
</tbody>
</table>
Wind Energy Contribution Vs Conventional Generation

2017-18
All India Total
12,42,009 MU

Conventional
307,979
92%

RES
25.420
8%

2017-18
Tamil Nadu Total
38433 MU

Conventional
29.553
77%

RES
8.880
23%

Up to June-17

Up to July-17
Wind Generation Details from May 17 to August 17

Total MU
May 2017 - 1360 MU
June 2017 - 2440 MU
July 2017 - 2530 MU
Wind Generation
August 16 & August 17

Total MU
August 2016 - 2510 MU
August 2017 - 2010 MU
Generation Mix During High Wind Absorption on 04/08/2017

Day Consumption - 298.694 MU
Wind Generation - 102.579 MU
Day Consumption - 266.86 MU
Wind Generation - 10.599 MU
TANTRANSCO developed the 400 KV Transmission corridors in order to accommodate the wind energy

1. Tamilnadu Backbone Network 1495 CKMS – Rs.2186.15 crores
2. Tamilnadu Wind Power Corridor 846 CKMS – Rs.1418.18 crores
3. Tamil Nadu Inter State transfer of Power 696 CKMS - Rs. 993.43 crores
Accommodation of maximum wind generation results

• Deviation Settlement Mechanism
• Surrendering of Central Generating Stations power.
• Backing down power purchase from LTA/MTOA Generators.
• Purchase of high cost power from IPPs.
• Intraday purchase during sudden withdrawal of wind generation
• Backing down the TANGEDCO Thermal Stations.
• Compensation charges towards Backing down
Hydro – Pumped Storage Projects

To improve spinning reserve in Tamil Nadu control area, the following Hydro pumped storage projects are under pipeline.

• Kundah – 500 MW (4 X 125 MW) – expected by 2020-21
• Sillahalla - 2000 MW (4 x 500 MW) – expected by 2021-22
• Mettur – 500 MW (4 X 125 MW)
• Tamilnadu experiencing much difficulty as there is no spinning reserve from Hydro generation, deprival of monsoon / very low hydro storage and due to less gas allocation for gas stations
Suggestions
1. Forecasting and Balancing mechanism are an essential tools to aid the integration of the increasing amount of wind energy.

2. Proper Forecasting helps us to make Renewable Energy appear more like a conventional power station.

3. Storage technology to store the renewable energy have to be cost effective. Regulations have to to made. Cost for Energy Storage to be included during bidding of PPA itself.

4. Available Transfer Capability (ATC) margin between Regions to be revised practically.

5. Metering and Data storage for State and for the Country for all Generations and Demand.
6. Compensation have to be considered by MNRE for accommodating Renewable Energy in Tamilnadu control area for the following items
   ▪ for maintaining thermal units at low PLF
   ▪ Commercial losses to TANGEDCO on various accounts indirectly including compensation paid for the Central Generating Stations
   ▪ Expenditure made on to increase the Transmission corridor capability

7. Future Conventional generating plants have to be designed for low operating flexibility.

8. Strict adherence LVRT & HVRT

9. Facility / Delegation of power for real time trading of power to System Operation to avoid undue delay at least during wind season with viable commercial implications.
Thank you!
Generation Mix for the Demand Met in 2017

Sources

- Hydro
- Gas
- IPP
- Solar
- CPP & Others
- Wind
- TNEB Thermal
- CGS & Purchase

Month

- Jan.17
- Feb.17
- Mrz.17
- Apr.17
- Mai.17
- Jun.17
- Jul.17
- Aug.17

In MW
Generation Mix for the Demand Met in 2016

Sources

Month

Back