

## **MINUTES OF THE 86<sup>TH</sup> MEETING OF THE FORUM OF REGULATORS (FOR)**

**Venue: Ooty, Tamil Nadu**

**Date: 26<sup>th</sup> June, 2023 (Monday)**

**Timing: 10:00 hrs**

**List of participants: Annexure-I**

1. At the outset, Chairperson, TNERC (host SERC) welcomed Chairperson, FOR/CERC and the Chairpersons of all the State/Joint Commissions and other dignitaries participating in the 86<sup>th</sup> FOR meeting at Ooty, Tamil Nadu.
2. In his address, the Chairperson, FOR/CERC thanked the Chairperson, TNERC for hosting the FOR meeting and for making the stay of all the participants comfortable. He referred to the decisions taken during the special meeting of FOR with MNRE held on 14<sup>th</sup> June, 2023, especially on mitigating the short and long-term solutions to the issues/ challenges being faced by the RE industry. He also lauded the opportunities for growth in Tamil Nadu for both private and public sector participants. He also took the opportunity to acknowledge the contribution of Shri Raj Pratap Singh, Chairperson, UPERC, who will be retiring soon, for his contribution to the functioning of the Forum and hoped to look for his continued contribution through FOR.
3. Thereafter, the TNERC team made a presentation (**Annexure – II**) on the status of the power sector in the State. Chairperson, TNERC informed the Forum that many generation projects are being developed around Chennai and that the southern part of the State has large RE generation potential, especially wind generation potential. He also emphasised that for the growth of RE, a yearly banking system may be helpful instead of the monthly banking system that has been adopted recently by the FOR. He also informed the Forum that the State has identified 14,000 MW potential for PSP, while the identified wind potential is 31,000 MW at 120 m height. He added that the use of over rated capacitor in grid interactive solar systems in the last 5 years has yielded positive results in terms of maintaining power factor, with extremely few capacitor failure cases, and suggested that BEE should come up with the capacitor specifications for grid interactive solar systems so that the standard is maintained throughout the country.

Subsequently, the agenda items were taken up for discussion.

## **AGENDA ITEM. NO. 1: CONFIRMATION OF MINUTES**

### **A) 85TH FOR MEETING HELD ON 18TH APRIL 2023**

4. Dy Chief (RA), CERC apprised the Forum of the discussions of the 85<sup>th</sup> FOR meeting and action taken points of the said minutes. After deliberations, the Forum unanimously approved the minutes of the 85<sup>th</sup> FOR meeting.

### **B) SPECIAL FOR MEETING HELD ON 14TH JUNE 2023**

5. Dy Chief (RA), CERC, apprised the Forum of the discussions held during the special FOR meeting wherein MNRE had presented various initiatives taken by them and the support/ assistance expected from the State & Joint ERCs in mitigating the hardships being faced by the RE developers and evolving long and short-term solutions to such hardships. The Forum was also apprised of the decision taken during the meeting to constitute a Working Group of FOR along with officials from MNRE on emerging issues both on policy and regulatory fronts.

6. Chief (RA), CERC informed the Forum that currently, there are Standing Technical Committees in FOR. The Forum noted that a separate Working Group can be constituted that will deal with “RE related policy and regulatory matters,” the composition of which would be as follows:

- a) Chairperson, KERC - Chairperson of the Working Group.
- b) Chairperson, RERC - Member
- c) Chairperson, HPERC - Member
- d) Chairperson, TNERC – Member
- e) Chairperson, MERC - Member
- f) Chairperson, OERC – Member
- g) Chairperson, APERC - Member
- h) Chairperson, MSERC - Member
- i) Member (Finance), CERC - Member
- j) Chief (Regulatory Affairs), CERC – Member Convenor

Secretary, MNRE would be a special invitee for MNRE related issues

8. Accordingly, the Forum approved the minutes of the special FOR meeting.

**AGENDS ITEM NO. 2: AUDITED ACCOUNTS OF THE FORUM FOR F.Y. 2022-2023**

9. Deputy Chief (RA), CERC appraised the Forum about the salient features of the FOR Annual Accounts for F.Y. 2022-2023, after which the Forum approved and adopted the Audited Accounts of FOR for F.Y. 2022-2023.

**AGENDS ITEM NO. 3: CONSTITUTION OF STANDING COMMITTEE FOR ANALYSING EMERGING TECHNOLOGIES AND RELATED POLICY IMPLICATIONS. – REFERENCE - 78TH FOR MEETING**

10. Dy Chief (RA), CERC, apprised the Forum of the decision in the 78<sup>th</sup> FOR to constitute a Standing Committee for analysis of emerging technologies and related policy implications. The Forum decided that the FOR Standing Technical Committee could address these issues.

**AGENDA ITEM NO. 4:**

**(A) ISSUES OF IDENTIFYING THE SOURCE OF IMPORTED COAL AND ALLOWING THE REASONABLE COST BY SERCS/JERCS - REFERENCE FROM MPERC**

11. The Forum was apprised of the reference from MPERC regarding identifying the source of imported coal and allowing reasonable costs, in the context of the action points for the SERCs mentioned in the minutes of the interaction meeting of the Hon'ble Minister of Power & NRE with FOR held on 14<sup>th</sup> March 2023 regarding "Preparation for uninterrupted power supply during the high demand crunch period in April- May, 2023".

12. Member, MPERC informed the Forum that, as tendering and procurement of imported coal are done by the generating companies through the process of bidding, it would be difficult for the SERCs to identify the source of imported coal. At best, SERCs can allow reasonable

costs for blending the coal. In this matter, Chief (RA), CERC clarified that the discussion in the above meeting of the Hon'ble Minister was in the context of directions issued by MOP under section 11 of the Electricity Act to some of the generating stations, which are largely inter-state in nature to generate power during the crunch period. Hence, there is a requirement to apply a prudence check in order to allow the right price for the imported coal.

13. After detailed discussion, the Forum recommended that CERC consider framing guidelines or regulations in this context.

**(B) FOR MODEL REGULATIONS ON VERIFICATION OF CAPTIVE STATUS OF GENERATING PLANTS AND ITS USERS – REFERENCE FROM KERC**

14. The Forum was appraised about the reference received from KERC, wherein KERC has requested to examine

- a) whether to consider the consumption of the captive consumer who leaves the grid in the middle of the year while assessing the minimum 51% consumption criteria for the plant to retain its captive status.
- b) How to assess the minimum 26% shareholding criteria in case any captive consumer leaves the plant during the year.
- c) Approach to be adopted consequent on the Order of Hon'ble APTEL dated 07.06.2021 in APPEAL NO. 131 of 2020 & IA Nos. 425, 426, 1210 & 1215 of 2020.

15. Chairperson, KERC suggested that the FOR Model Regulations should address the above issues as well. UPERC Chairperson clarified that the model regulations provide for assessment of the two criteria (consumption and share-holding), at the end of a year and not period assessment during the year.

16. The Forum, after detailed deliberations, noted that the FOR Regulations are in the nature of model regulations, and the SERCs may adapt the same after making suitable changes based on the conditions in their respective States.

**(C) REQUIREMENT OF MODIFICATIONS UNDER CERC (DEVIATION SETTLEMENT MECHANISM AND RELATED MATTERS) REGULATIONS, 2022 WITH REFERENCE TO RE RICH STATE – REFERENCE FROM KERC.**

17. The Forum was apprised of the reference received from KERC, wherein Chairperson, KERC put forward the suggestions and difficulties faced by the RE -rich States such as Karnataka:

- (a) Differentiating RE rich States based on their RE installed capacity: It was suggested that RE rich State with combined installed capacity of more than 5000MW and a 10000 MW minimum deviation limit of meagre 200MW may be increased in the DSM Regulations and Installed capacity can be changed to above 5000MW or 10,000 MW.
- (b) Replacing “Available Capacity” with “Schedule Generation in MWh” for calculating Deviation in a time block for WS sellers. It was informed that with the increase in intermittent sources in the State, the given relaxation for calculating the RE Deviation may be reconsidered.
- (c) Exclusion of STOA transactions while calculating deviations for buyers (being RE rich State). It was informed that when the inter-state schedule is less than zero, the State as per the DSM Regulations, 2022, has no provision for deviation even up to the extent of 1 MW. This is a deterrent to managing the grid operation. Hence, exclusion of the STOA is required while calculating deviations for buyers (being RE rich State), as it has a larger impact on maintaining grid stability and economical dispatch by the system operator.

18. On the above matters, Chief (RA), CERC apprised the Forum of the Removal of Difficulties Order for DSM issued by CERC on 26<sup>th</sup> December , 2022 and 6<sup>th</sup> February, 2023, wherein the RE rich States have been extended the benefit of the deviation limit in absolute terms. As regards the definition of deviation for WS sellers, the Commission has decided to define the error percentage normalized to available capacity instead of schedule with a view to ensuring optimum and genuine forecasting. This will ensure that the error quantity corresponds to the physical MW impact on the grid, the forecasting models are aligned to minimize the actual MW deviations, and the error definition holds valid in all seasons.

19. After discussion, it was decided that the issues raised by KERC be referred to CERC for consideration of suitable action at the time of modifications / amendments to the CERC DSM Regulations, 2022.

**(D) MODEL REGULATIONS FOR IMPLEMENTATION OF GROUP NET-METERING AND VIRTUAL NET-METERING FOR RENEWABLE ENERGY-REFERENCE FROM KERC**

20. The Forum was apprised about the reference received from KERC wherein KERC has indicated that Virtual Net Metering/ Group Net Metering may require use of distribution network for transferring power from the generating unit and therefore, fair allocation of transmission and distribution costs vis-a-vis application of open access charges may be necessary which are seen as regulatory challenges. Chairperson, KERC suggested that FOR may frame Model Regulations for overcoming such regulatory challenges

21. After detailed deliberation on the issue, the Forum agreed that the WG formed for RE related policy and regulatory matters will also look into this issue.

**(E) DASHBOARD OF TARIFF ORDERS FOR DISCOMS IN UTTAR PRADESH – REFERENCE FROM UPERC**

22. Chairperson, UPERC informed the members about the dashboard developed by UPERC, which contains details of the tariff orders of the State for the past 5 years. Vide link ([https://lookerstudio.google.com/u/0/reporting/a98f4e2a-fb99-48d0-a3a2-eac834141f9c/page/p\\_g250lzps6c?s=oJEbxtrxKbA](https://lookerstudio.google.com/u/0/reporting/a98f4e2a-fb99-48d0-a3a2-eac834141f9c/page/p_g250lzps6c?s=oJEbxtrxKbA)), he stated that compilation of data on the dashboard and its analysis have helped foster transparency and efficiency in the working of the distribution utilities in Uttar Pradesh. He further stated that the dashboard may be used by any SERC to improve the efficiency of the Discoms.

23. The Forum noted the development of the dashboard and appreciated the initiative taken by UPERC towards its development and the results it has yielded.

## **AGENDA ITEM NO. 5: REFERENCES FROM MINISTRY OF POWER**

### **a) ALIGNMENT OF THE DISTRIBUTION LOSSES PRESCRIBED BY THE SERCS/JERCS IN LINE WITH THE AT & C LOSS TARGET APPROVED UNDER RDSS**

24. The Forum was informed of a reference from the Ministry of Power regarding the alignment of distribution losses prescribed by the SERCS/JERCS in line with the AT & C losses approved under Revamped Distribution Sector Scheme (RDSS), which was to support DISCOMs improve their operational efficiencies and financial sustainability by providing result-linked financial assistance to DISCOMs to strengthen their supply infrastructure based on meeting prequalifying criteria and achieving basic minimum benchmarks.

25. After detailed discussion, the Forum noted that appropriate action in this regard may be taken by the respective State Commissions.

### **b) DETERMINATION OF GREEN TARIFF UNDER ELECTRICITY (PROMOTING RENEWABLE ENERGY THROUGH GREEN ENERGY OPEN ACCESS) RULES, 2022 AND IMPLEMENTATION OF RULES**

26. The Forum was apprised of the reference received from the MOP, vide its letter dated 13.5.2023, wherein they had asked all SERCS to take appropriate action for the determination of the Green Tariff, implementation of Green Open Access Rules notified by the Central Government, and the alignment of Open Access Regulations in accordance with the notified Rules.

27. The members noted the same for appropriate action by the respective SERCS/JERCS.

### **c) REPORT OF THE TECHNICAL COMMITTEE FOR FACILITATING POWER SUPPLY TO DATA CENTRES**

28. The Forum was apprised that MOP had constituted a Technical Committee under the Chairmanship of Chief Engineer (RA), CEA, with members from MoP, MNRE, CERC, GRID India, TRAI, and BEE to examine power supply related issues raised by Data Centers in the

telecom sector in meetings with TRAI. The Technical Committee made the following recommendations for consideration by the Forum:

- i. Data Centres may be treated as non-curtable high priority loads, and DC developers should ensure firm power purchase contracts for the full quantum of their requirements
- ii. SERCs may provide specific provisions for Data Centers. This issue may also be sensitized through the Forum of Regulators.
- iii. The energy consumption of Data Center remains flat, which helps DISCOMs with better load management and procurement costs. This aspect may be considered by SERCs while determining tariffs. A coordinated effort in this regard can be made through FOR.

29. The Forum appreciated the detailed recommendations and decided that suitable action may be taken by the respective SERCs/JERCs.

**AGENDA ITEM NO. 6: TREATMENT OF EXCESS ENERGY PURCHASED FROM RENEWABLE SOURCES BY AN OBLIGATED ENTITY - REFERENCE FROM GRID CONTROLLER OF INDIA**

30. The Forum was appraised about the reference received from the Grid Controller of India on the treatment of excess energy purchased from renewable sources by an obligated entity other than the Distribution Licensee in excess of its Renewable Purchase Obligation (RPO) compliance. In this matter, Grid Controller of India referred to Rule 4(2)(c)(f) of the Green Energy Open Access Rules 2022, wherein it is provided that when an obligated entity (other than DISCOM) purchases renewable energy (RE) exceeding its obligation, the surplus energy will contribute to the Renewable Purchase Obligation (RPO) compliance of the distribution licensee. However, as per Regulation 4(4) of the CERC (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulation, 2022, DISCOMs and obligated entities purchasing RE in excess of their RPO are eligible for Renewable Energy Certificates (RECs). Therefore, the Grid Controller of India opined that it is possible that the excess RPO compliance shown by the distribution licensee may be due to the excess RPO of obligated entities other than the distribution licensees.



31. After discussion, the Forum noted the recommendations of the Grid Controller of India for appropriate action by the respective SERCs/JERCs and for suitable clarification if necessary by the CERC in this regard.

**AGENDA ITEM NO. 7: IMPLEMENTATION OF INDUSTRIAL TARIFF FOR ELECTRICITY FOR TELECOM OPERATIONS ACROSS ALL STATES – REFERENCE FROM TRAI & COAI**

32. The Forum was apprised of the reference received from TRAI and the Cellular Operators Association of India stating that many States have imposed commercial tariffs for electricity supply to the telecom sector, which results in a high cost of electricity for the telecom sector. Instead, they have requested for specifying industrial tariff for electricity for telecom networks because telecom services extensively provided through telecom network is recognized as essential services by the Govt. of India.

33. After discussion, the Forum decided that the telecom operators may approach the respective State Electricity Regulatory Commissions for the creation of a separate tariff slab or category for the energy consumed by Telecom operators.

**AGENDA ITEM NO. 8: REPORT OF FOR WORKING GROUP ON “RESOURCE ADEQUACY AND REGULATORY FRAMEWORK FOR ENERGY STORAGE” (INCLUDING MODEL REGULATIONS)**

34. Dy Chief (RA), CERC, apprised the Forum that in its 72<sup>nd</sup> meeting, the Forum had decided to constitute a Working Group (WG) on Resource Adequacy (RA) for deliberating on necessary regulatory frameworks under the Chairmanship of Shri I.S. Jha, Member, CERC. Shri. I. S. Jha, Member, CERC, informed the Forum that the WG held seven meetings and finalised the report outlining the recommended framework for Resource Adequacy for the States. He emphasised the need for co-ordination for optimisation at the national level for Resource Adequacy to ensure better utilisation of resources in the country while ensuring grid reliability and sharing of resources for a well-designed RA framework at the State level.

35. The representative of M/s Idam Infrastructure Advisory Pvt. Ltd. (Idam Infra) (supported by LBNL and USAID under the SAREP Program to assist the WG) presented the

Resource Adequacy Framework and Model Regulations based on the deliberations in the Working Groups as under:

- a) Resource Adequacy (RA) is being defined as a mechanism to ensure adequate supply of generation to serve the expected demand (including peak, off-peak, and in all operating conditions) reliably in compliance with specified reliability standards for serving the load with an optimum generation mix.
- b) The Western Region simulation for resource adequacy at the regional level for optimization of resources within a region was presented, with further scope for optimization with resource adequacy at the national level.
- c) The framework consisted of key aspects of Resource Adequacy covering
  - (i) Assessment of demand forecasting by Distribution Utilities,
  - (ii) Generation Resource Planning covering capacity crediting for different resource mix, planning reserve margin and allocation of RA requirement considering diversity among different State demand pattern,
  - (iii) Procurement planning with least cost manner and
  - (iv) Monitoring and compliance mechanisms.

36. Chief (RA), CERC informed that the report and Model regulations have been finalised after extensive deliberations by members of the WG and that States ideally should come up with the Regulations at State level based on the broad recommendations of the Report. He also stated that, based on the framework of resource adequacy recommended by the Working Group, there is a need for detailed State specific analysis using the actual data available for the concerned State. Scientific demand estimation and long-term power procurement planning to identify the right resource mix are involved exercises and will require capacity expansion modelling.

37. The Forum appreciated the efforts of the Working Group and the assistance extended by the consultant. The Forum also endorsed the Report on Resource Adequacy Framework and the Model Regulations and decided to implement the Resource Adequacy framework in the States, and starting with the States of Karnataka, Tamil Nadu, and Andhra Pradesh, for which the assistance of the Consultant supported by LBNL and USAID may be continued. Similar exercises for other States may be taken up when they volunteer for the same.

## **ANY OTHER AGENDA ITEM**

### **a) VENUE OF NEXT FOR MEETING**

38. Chairperson, TERC, proposed to host the next FOR meeting at Agartala, Tripura. The date of the meeting would be decided in consultation with the FOR Secretariat

### **b) ADDRESS BY OUTGOING CHAIRPERSON, UPERC**

39. Chairperson, UPERC, is to demit office as Chairperson, UPERC, on 1<sup>st</sup> July, 2023. He was requested to share his thoughts on his association with the FOR. Chairperson, UPERC, in his address, stated that it was a rewarding experience to be the Chairperson of UPERC and to be part of the FOR. He informed the Forum that during his tenure, he had taken several steps to improve transparency and efficiency in Uttar Pradesh and that under his Chairmanship, the Commission had been able to issue over 6 ARRs and Business plans, 27 Regulations and disposed of more than 100 cases.

40. Expressing his deepest gratitude to all the members, he said that he would miss the intellectual discourse of the Forum.

### **c) VOTE OF THANKS**

41. The meeting ended with a vote of thanks by Chief (RA), CERC. He thanked the Chairperson, FOR/CERC for presiding over the meeting and also the Chairperson, TNERC, for hosting the event and taking all efforts to ensure a comfortable stay for the participants. He also thanked all the members for their contribution to enriching the discussion and for the successful completion of this meeting with a heavy agenda.

\*\*\*\*\*

**LIST OF PARTICIPANTS OF THE**  
**86<sup>TH</sup> FORUM OF REGULATORS ( “FOR” ) MEETING**  
**HELD ON MONDAY, THE 26<sup>TH</sup> JUNE, 2023.**  
**AT OOTY (TAMIL NADU)**

<b>S. No.</b>	<b>NAME</b>	<b>ERC</b>
01.	Shri Jishnu Barua Chairperson	CERC/FOR – in Chair.
02.	Justice (Shri) C.V. Nagarjuna Reddy Chairperson	APEREC
03.	Shri Kumar Sanjay Krishna Chairperson	AERC
04.	Shri R.K. Pachnanda Chairperson	HERC
05.	Shri D.K. Sharma Chairperson	HPERC
06.	Justice (Shri) Amitav Kumar Gupta Chairperson	JSERC
07.	Shri Alok Tandon Chairperson	JERC for State of Goa & UTs
08.	Shri Lokesh Dutt Jha Chairperson	JERC for UTs of J&K and Ladakh
09.	Shri P. Ravi Kumar Chairperson	KERC
10.	Shri T.K. Jose Chairperson	KSERC
11.	Shri Sanjay Kumar Chairperson	MERC
12.	Shri P. W. Ingty Chairperson	MSERC
13.	Shri Khose Sale Chairperson	NERC
14.	Shri Suresh Chandra Mahapatra Chairperson	OERC
15.	Dr. B.N. Sharma Chairperson	RERC
16.	Shri K.B. Kunwar Chairperson	SSERC
17.	Shri M. Chandrasekar Chairperson	TNERC
18.	Shri T. Sriranga Rao Chairperson	TSERC

19.	Shri D. Radhakrishna Chairperson	TERC
20.	Shri Raj Pratap Singh Chairperson	UPERC
21.	Dr. M.V. Rao Chairperson	WBERC
22.	Shri D.P. Gairola Chairperson Incharge	UERC
23.	Shri Pramod Kumar Gupta Member	CSERC
24.	Dr. Akhilesh Kumar Ambasht Member	DERC
25.	Shri Gopal Srivastava Member	MPERC
26.	Shri Paramjeet Singh Member	PSERC
27.	Dr. Sushanta Kumar Chatterjee Chief (Regulatory Affairs)	CERC
<b>SPECIAL INVITEES</b>		
ERC		
28.	Shri I.S. Jha Member	CERC
29.	Shri Arun Goyal Member	CERC
30.	Shri Pravas Kumar Singh Member	CERC
31.	Shri K. Venkatesan Member	TNERC
32.	Shri B. Mohan Member	TNERC
<b>FOR SECRETARIAT</b>		
33.	Ms. Rashmi S. Nair Dy. Chief (RA)	CERC
34.	Shri Ravindra Kadam Sr. Advisor (RE)	CERC

# Forum of Regulators

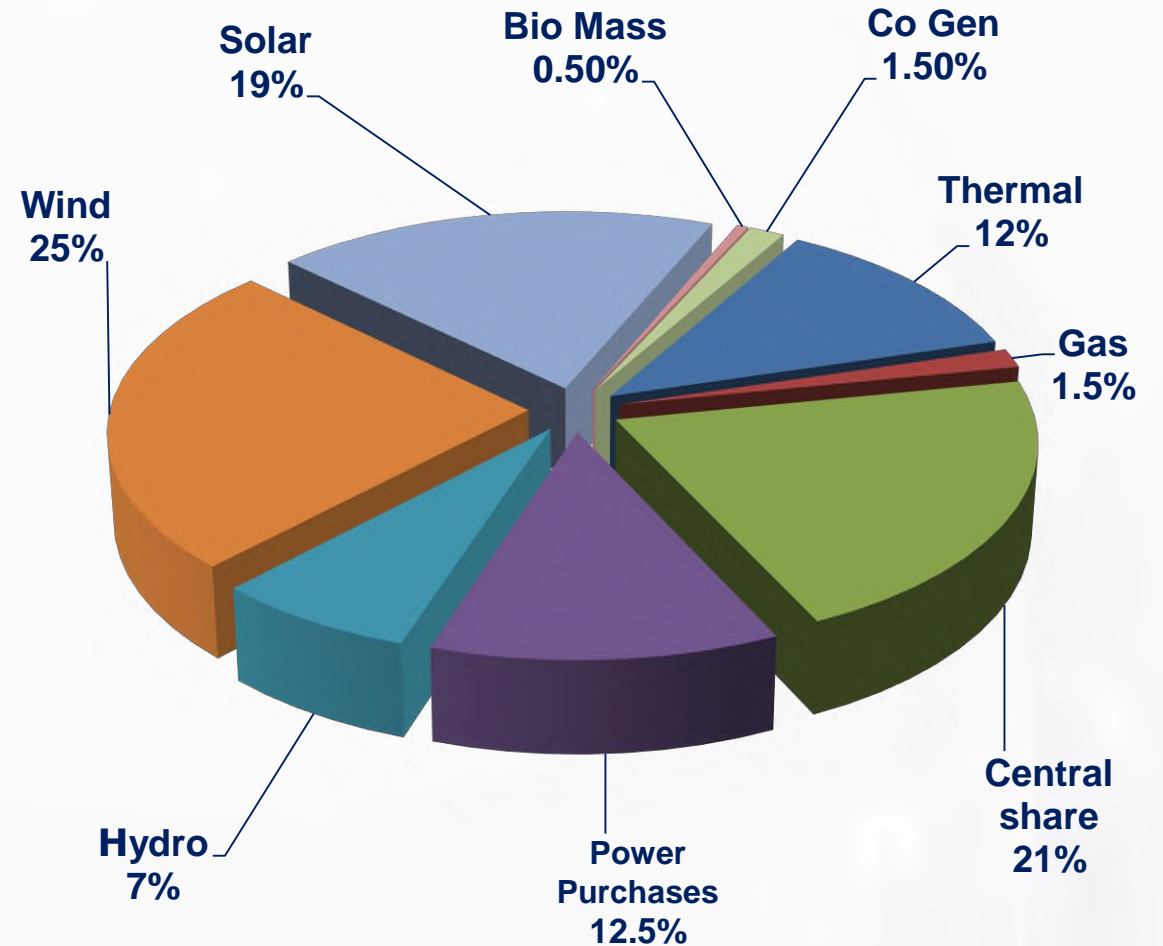
86<sup>th</sup> FoR meeting organized by TNERC

 26.06.23

 Ooty

# Installed Capacity as on 01.04.2023

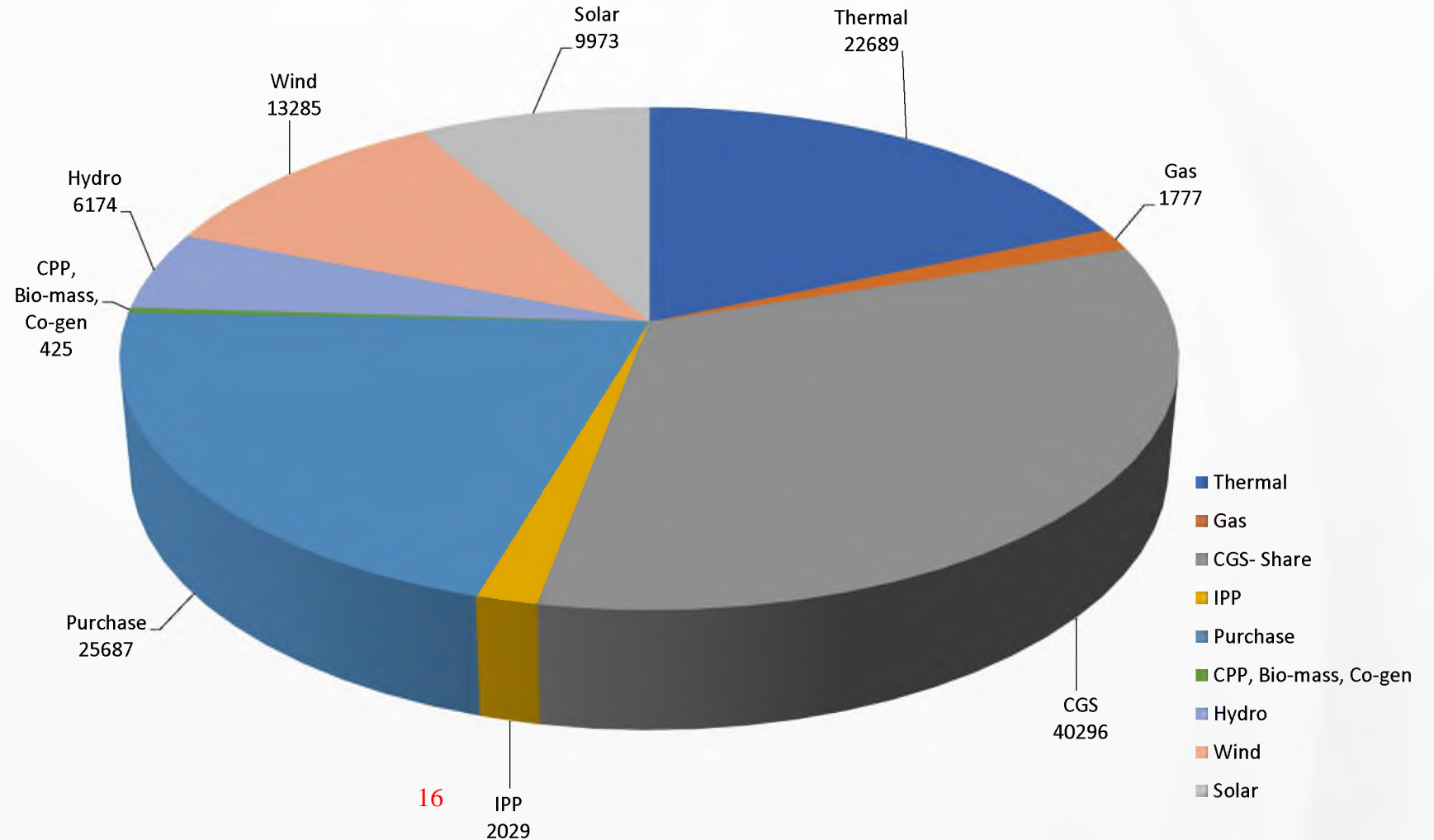
Generation Category	Installed Capacity in MW
Thermal	4,320
Gas	516
CGS- Share	7170
IPP	1,105
LTOA	2,830
MTOA	252
CPP	224
<b>Total - Conventional</b>	<b>16,417</b>
Hydro	2,322
Wind	8,739
Solar	6539
Bio Mass	165
Co Generation	524
<b>Total- Renewables</b>	<b>18,289</b>
<b>Total (Conventional &amp; Renewables)</b>	<b>34,706</b>





# Sourcewise Generation in MU for the year 2022-23

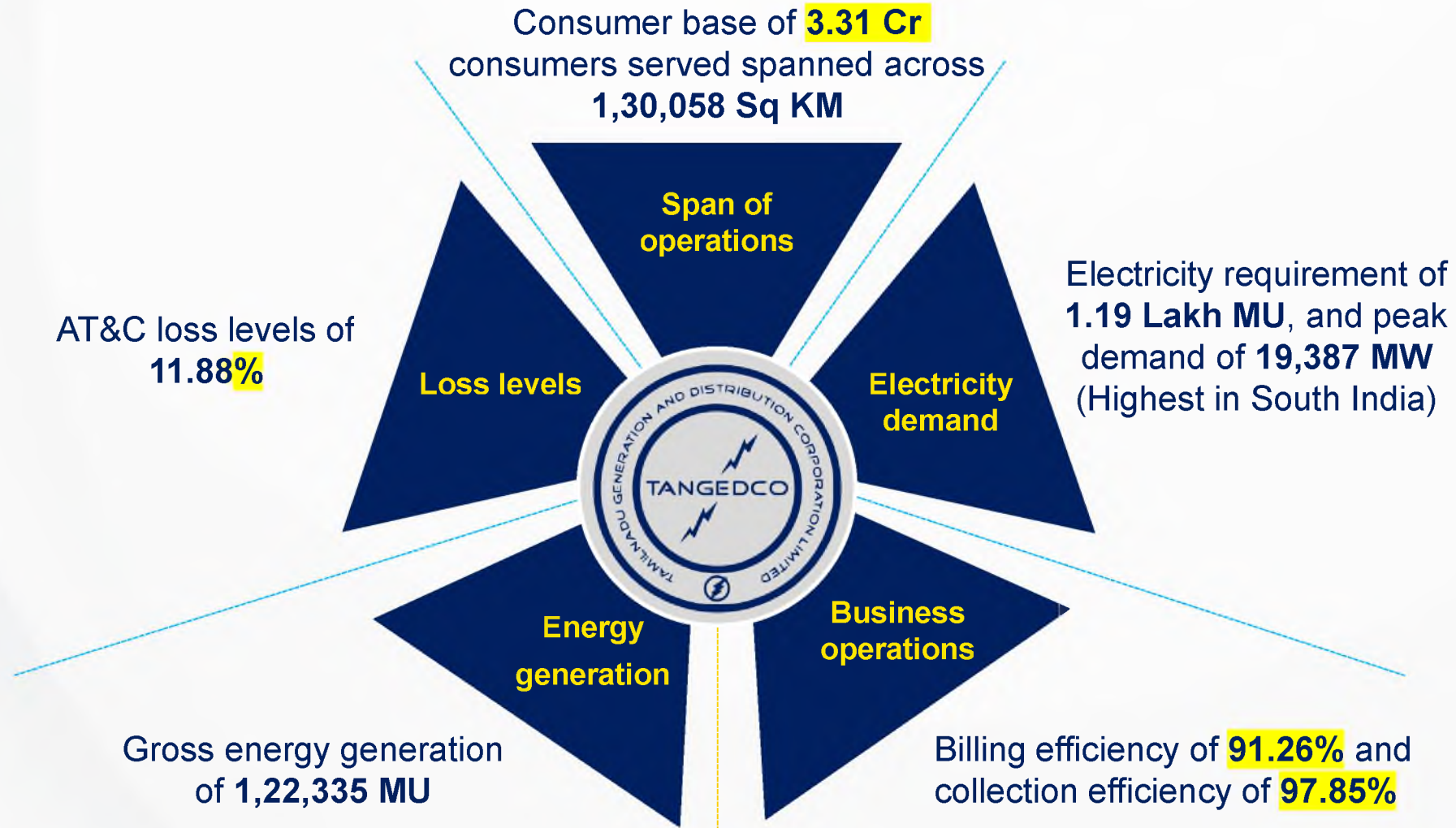
Category	Generation in MU
Thermal	22689
Gas	1777
CGS- Share	40296
IPP	2029
Purchase	25687
CPP, Bio-mass, Co-gen	425
Hydro	6174
Wind	13285
Solar	9973
Total	122335







# Key highlights of TANGEDCO





# GENERATION

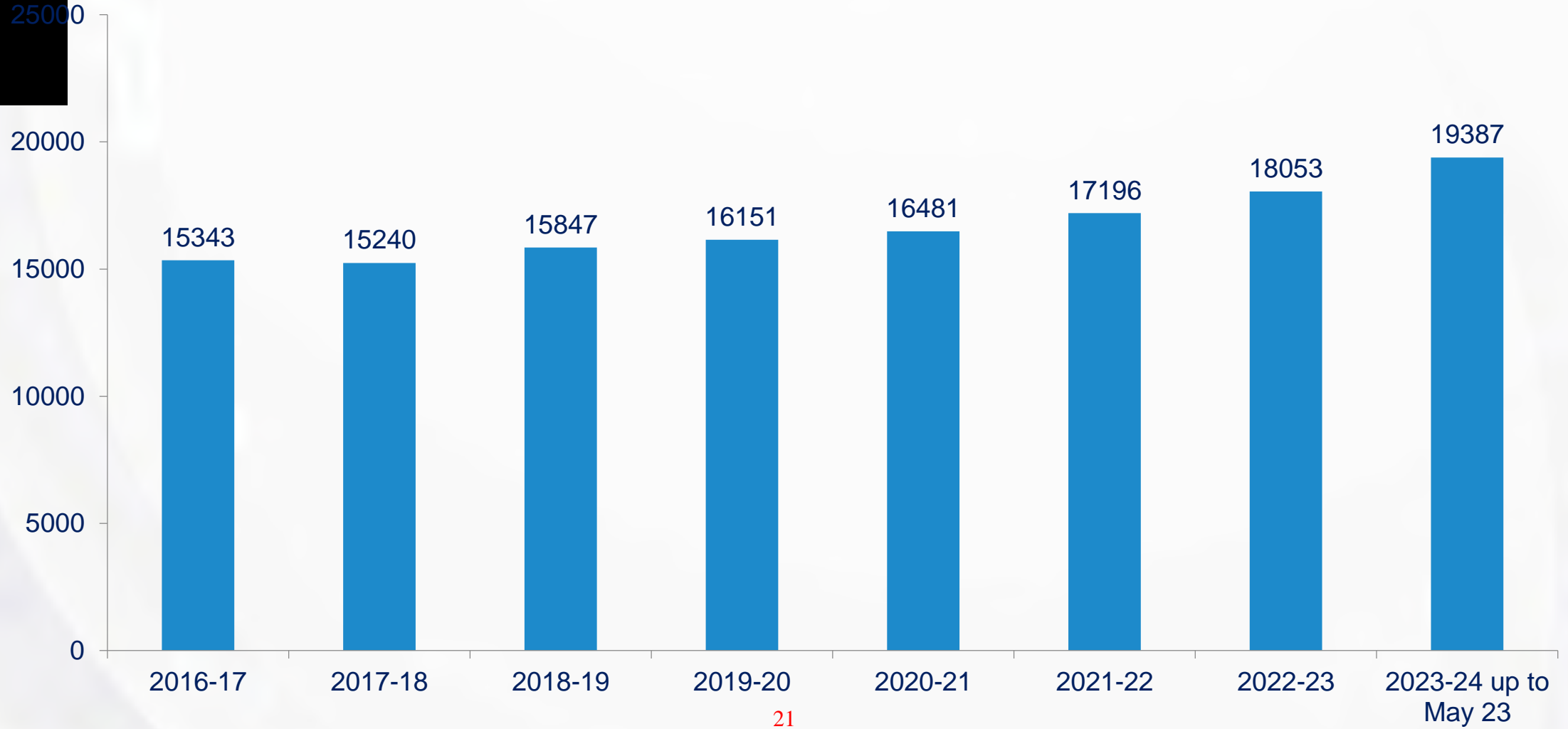
# ONGOING PROJECTS

SI No	Ongoing Project	Capacity in MW	Name of the Contractor	Value in crore	Date of award	Scheduled Date of Commissioning	Expected Date of Commissioning
1	NCTPP Stage III 1 x 800 MW	800	BTG M/s.BHEL BOP M/s.BGRESL FGD M/s.BHEL	8723	29.01.2016	28.07.2019	2023-24
2.	ENNORE SEZ 2 x 660 MW	1,320	EPC M/s.BHEL	9800	27.09.2014	27.03.2018	2024-25
3.	Udangudi Stage- I 2x660MW	1,320	Main Plant: EPC : Ms. BHEL Coal Jetty : M/s.ITD Cementation	13077	07.12.2017	06.06.2021	2024-25
4	ETPS Expension 1x 660 MW	660	EPC : M/s.BGRESL	4443	09.03.2022	08.03.2025	2024-25
5	Kundah PSHEP 4x125MW	500	Civil: M/s.Patel Engg. E&M: M/s.Megha Engg	2445.38	25.11.2019	24.03.2024	2024-25
6	Kollimalai HEP 20MW	20	M/s.Rajagopalan & Co	19 338.79	28.12.2016	29.04.2021	2024-25



# TRANSMISSION

# State's Peak Demand in MW



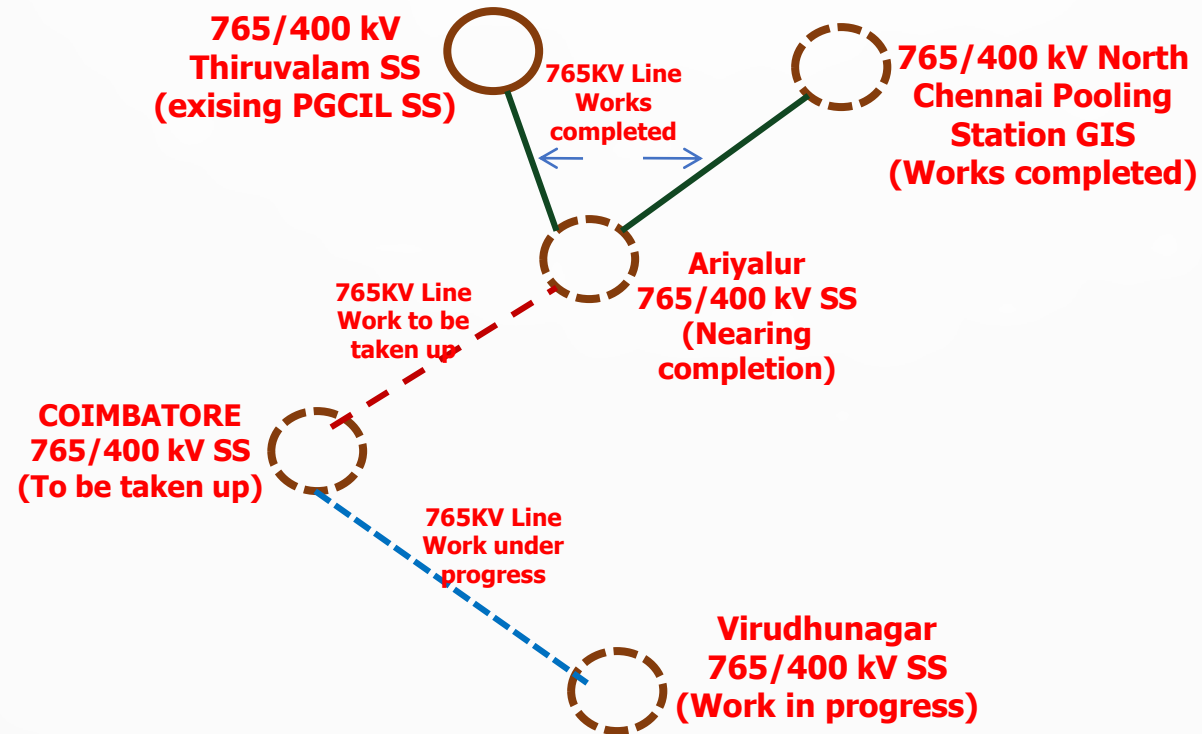
## TRANSMISSION INFRASTRUCTURE AS ON 31.05.2023

S.NO	VOLTAGE RATING	SUBSTATIONS	EHT LINES IN CKMS
1	400 kV	18	4,761
2	230 kV	114	11,613
3	110 kV	946	20,755
4	66 kV	3	83
	<b>Total</b>	<b>1081</b>	<b>37,212</b>

## TRANSMISSION SCHEMES (SUBSTATIONS) UNDER EXECUTION

<b>Voltage Rating</b>	<b>Total No. of Substations</b>	<b>Work under Progress</b>	<b>Work to be taken up</b>
<b>765 KV</b>	<b>4</b>	<b>3</b>	<b>1</b>
<b>400 KV</b>	<b>9</b>	<b>7</b>	<b>2</b>
<b>230 KV</b>	<b>21</b>	<b>9</b>	<b>12</b>
<b>Grand Total</b>	<b>34</b>	<b>19</b>	<b>15</b>

# ONGOING AND PROPOSED 765KV NETWORK



Among all State Transmission Utilities in India, TANTRANSCO is the first Utility to erect 765 kV transmission network.

Objectives of the 765kV Transmission Network:

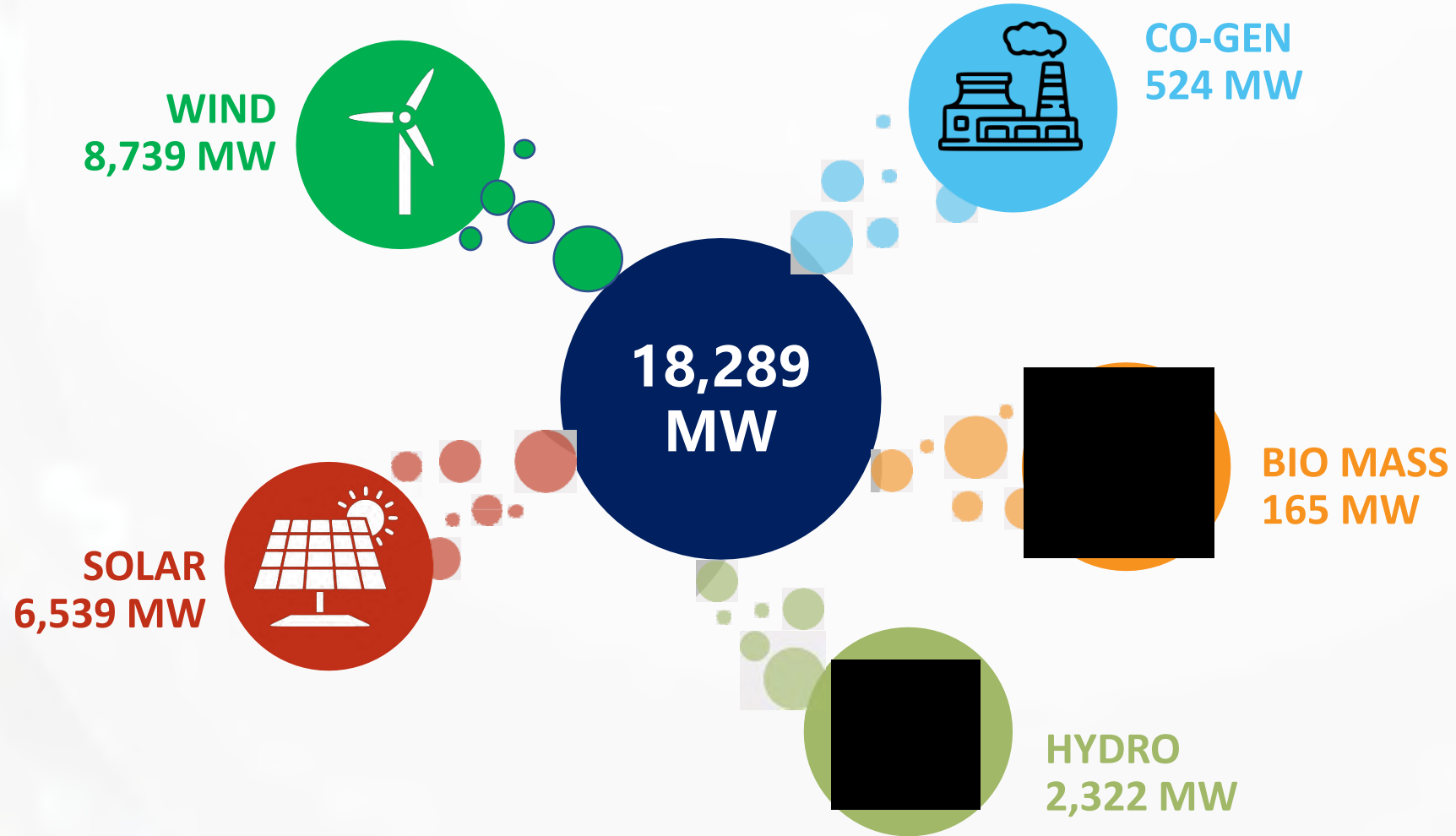
- Bulk power of about 3000 MW transfer from North Chennai Pooling Station to Load Centre at Coimbatore through Ariyalur 765KV SS.
- Interstate power transfer from Thiruvalam via Ariyalur 765KV SS.
- Renewable Power evacuation from Virudhunagar 765KV SS to Coimbatore 765KV SS.





# TN RE SCENARIO

# TAMIL NADU RE-INSTALLED CAPACITY AS ON 01.04.2023





# WIND ENERGY

## WIND ENERGY - HIGHLIGHTS

Wind power reached its all-time high generation of 120.25 MU on 09.07.2022

1

Tamil Nadu is the foremost and pioneer State to harness power through Wind energy.

5

All-time high capacity of 5689 MW on 03.07.2022.

2

1<sup>st</sup> Plant installed during 1986 Kayathar, Tirunelveli district

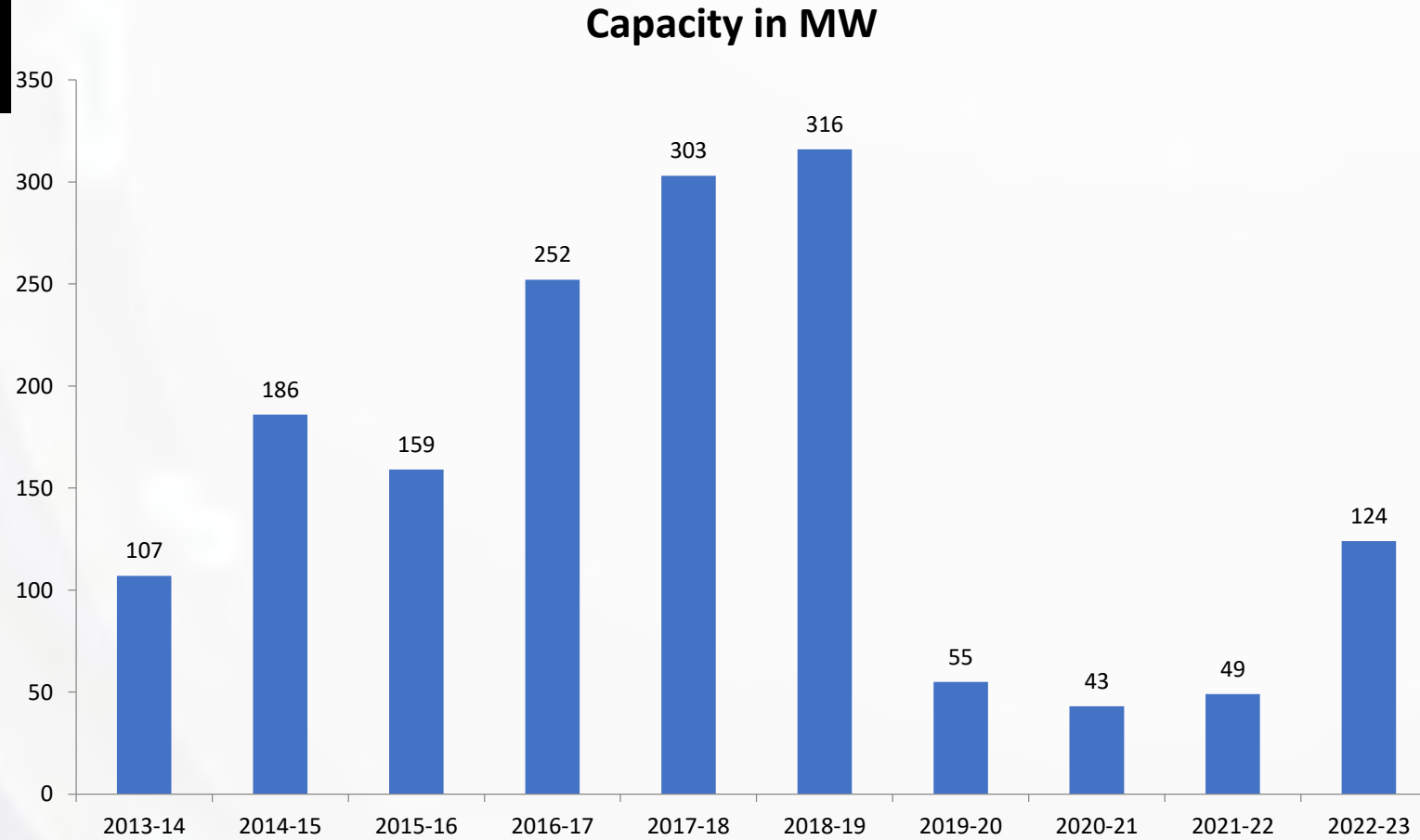
4

Evacuated 13,284 MU during the year 22-23.

3

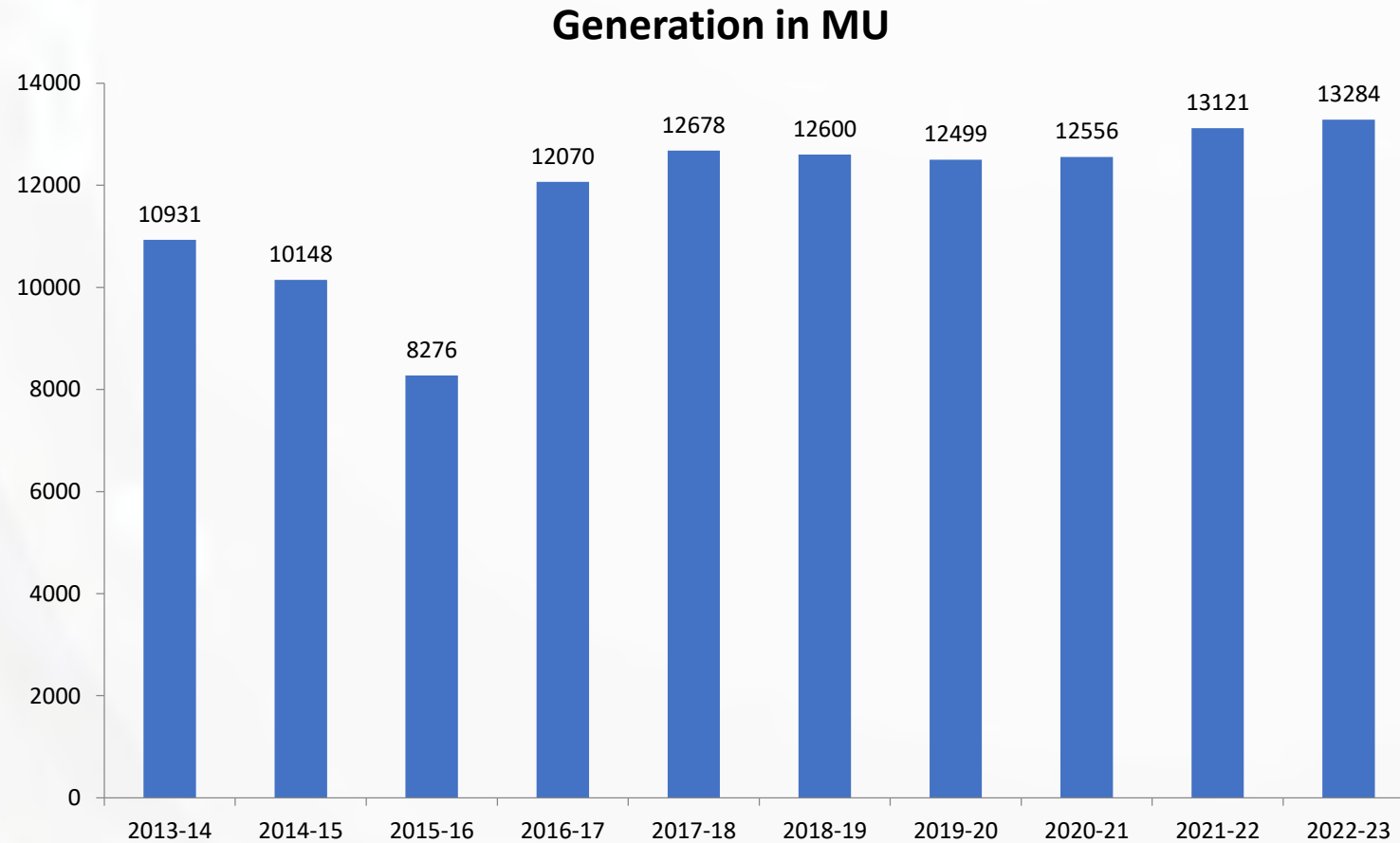
TANGEDCO the installed capacity as on date has grown up to 9932 MW (STU – 8739 MW, CTU – 1328 MW).

# WIND CAPACITY ADDITION (IN MW) DURING THE LAST 10 YEARS



Year	Capacity (in MW)
2013-2014	107
2014-2015	186
2015-2016	159
2016-2017	252
2017-2018	303
2018-2019	316
2019-2020	55
2020-2021	43
2021-2022	49
2022-2023	124
<b>Total</b>	<b>1594</b>

# WIND GENERATION (IN MU) DURING THE LAST 10 YEARS

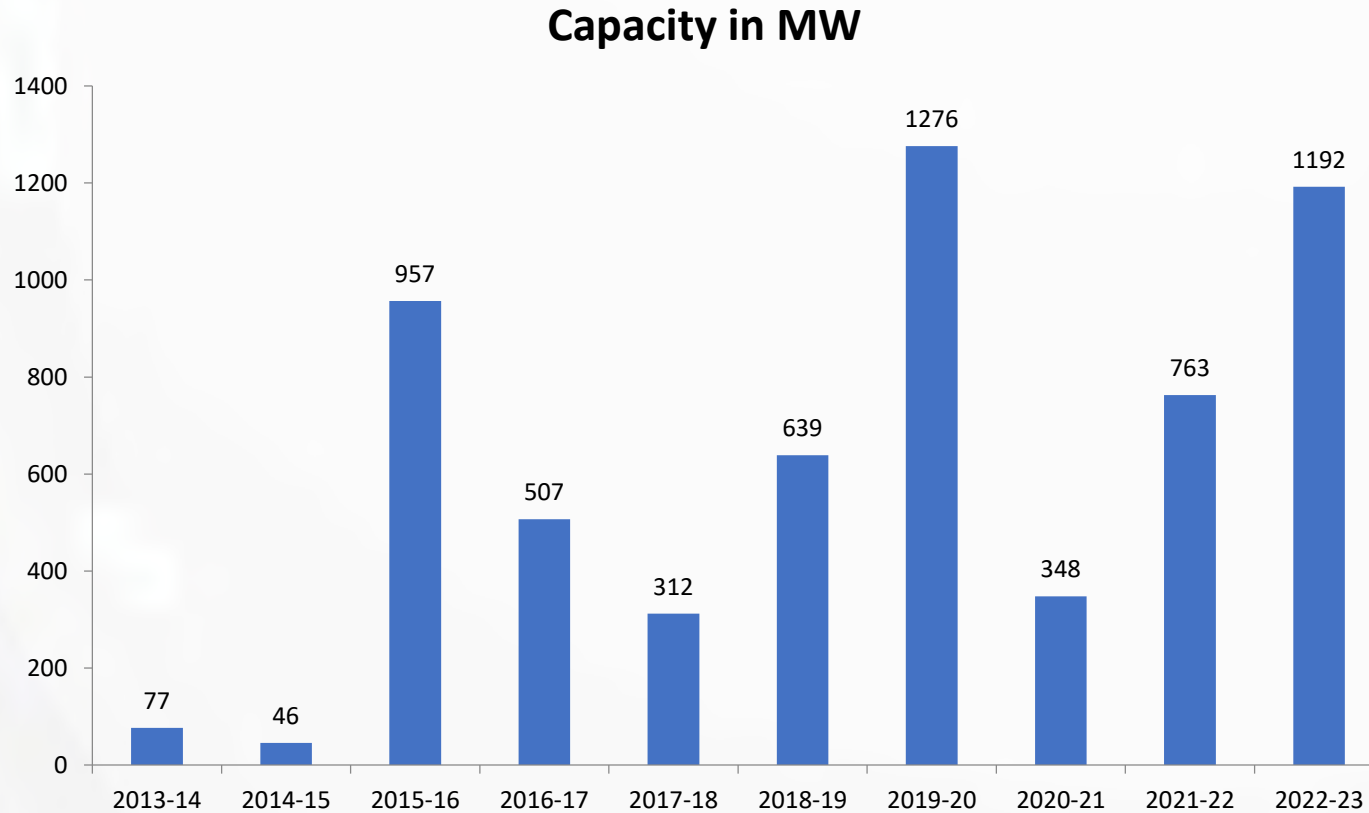


Year	Generation (in MU)
2013-2014	10931
2014-2015	10148
2015-2016	8276
2016-2017	12070
2017-2018	12678
2018-2019	12600
2019-2020	12499
2020-2021	12556
2021-2022	13121
2022-2023	13284
<b>Total</b>	<b>118163</b>

An abstract graphic on the left side of the slide. It features three white spheres of varying sizes and a larger blue circle. The spheres are positioned at the top-left, middle-left, and bottom-left, each casting a soft shadow to the right. The blue circle is centered vertically between the top and bottom spheres. The background is a light, neutral color with subtle, curved lines.

# SOLAR ENERGY

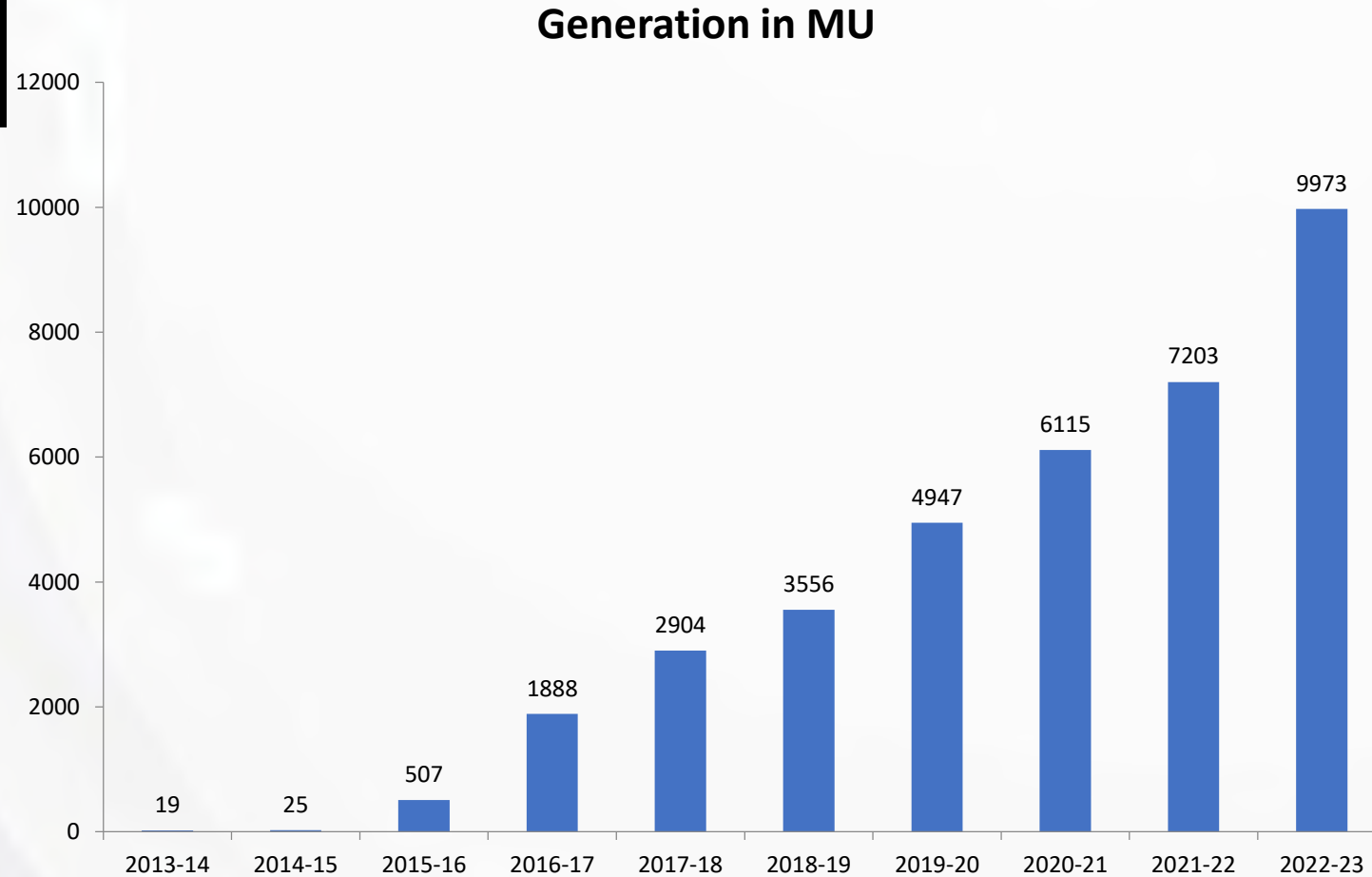
# SOLAR CAPACITY ADDITION (IN MW) DURING THE LAST 10 YEARS



Month/ Year	STU (MW)
2013 - 2014	77
2014 - 2015	46
2015 - 2016	957
2016 - 2017	507
2017 - 2018	312
2018 - 2019	639
2019 - 2020	1276
2020 - 2021	348
2021-2022	763
2022-2023	1192
<b>Total</b>	<b>6117</b>



# SOLAR GENERATION (IN MU) DURING THE LAST 10 YEARS



Month/ Year	STU (MU)
2013 - 2014	19
2014 - 2015	25
2015 - 2016	507
2016 - 2017	1888
2017 - 2018	2904
2018 - 2019	3556
2019 - 2020	4947
2020 - 2021	6115
2021-2022	7203
2022-2023	9973
<b>Total</b>	<b>37137</b>



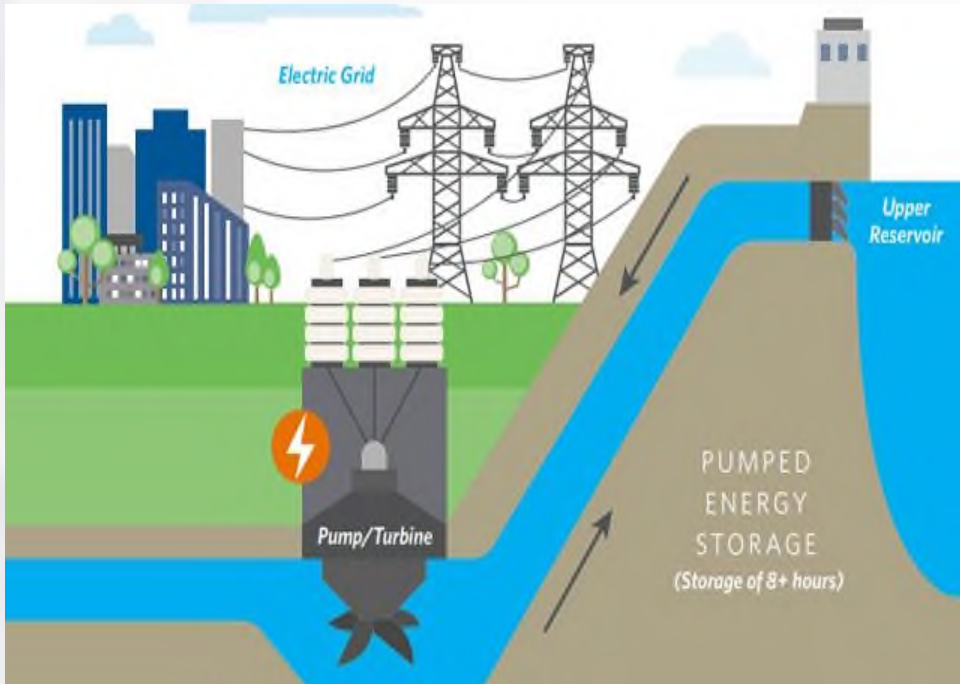
# PSHEP

( Pumped Storage Hydro Electric Project)

# PUMPED STORAGE HYDRO ELECTRIC PROJECTS

1 SOLAR IS CLEAN  
BUT NOT CHEAP

2 PUMPED STORAGE  
15 NOS. PUMPED STORAGE  
HYDRO ELECTRIC PROJECTS  
TOTAL CAPACITY 14500 MW



Sl. No.	Name of the project	District	Proposed Capacity in MW	Cost Rs. in crore
1.	Sillahalla PSHEP Stage I	Nilgiris	4x250	6,345 (As per draft Detailed Project Report)
2.	Kodayar PSHEP	Kanyakumari	6x250	10,838.37
3.	Manalar PSHEP	Theni	6X200	9,887.29
4.	Upper Bhavani PSHEP	Nilgiris	4X250	3,904.45
5.	Sandynalla PSHEP	Nilgiris	4X300	4,411.67
6.	Sigur PSHEP	Nilgiris	4X200	3,797.37
7.	Sillahalla PSHEP Stage II	Nilgiris	4X250	4,917.81
8.	Aliyar PSHEP	Coimbatore	2X350	2,504
9.	Palar-Poranthalar PSHEP	Dindigul	4X275	4,254
10.	Manjalar PSHEP	Theni	2X250	2,464
11.	Velimalai PSHEP	Kanyakumari	4X275	4,521
12.	Mettur PSHEP	Salem	4X250	4,434
13.	Chattar PSHEP	Kanyakumari	4X275	4,707
14.	Karaiyar PSHEP	Tirunelveli	4X250	4,589
15.	Athur PSHEP	Dindigul	2X150	1,718
<b>TOTAL</b>			<b>14,500</b>	<b>73,293</b>



# OFF SHORE WIND

# OFF SHORE WIND POTENTIAL

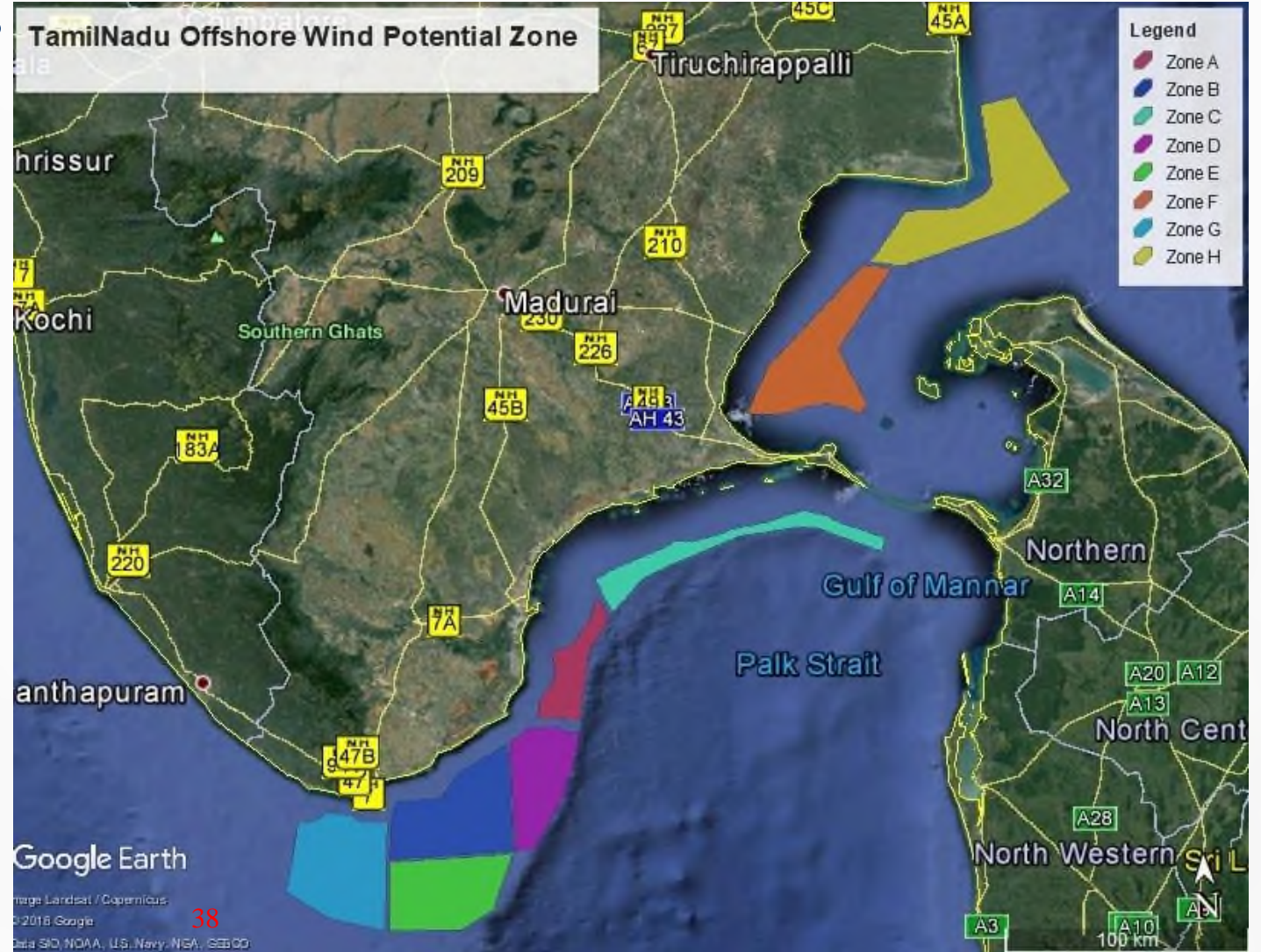
In India, Tamil Nadu is having the highest Coastal Wind Speed of 9 m/s to 11 m/s.

Offshore Wind Potential 31 GW at 120 m

Offshore CUF 45%-50%

Available on RTC basis for 8 months

Nearby Port – Tuticorin, Kanyakumari, Dhanushkodi





# FUTURE PLANS

## FUTURE PLANS

**SOLARISATION OF  
1,685 NOS. OF AGRICULTURE  
FEEDERS**



**2GW OFF SHORE WIND  
AT RAMESWARAM**



**82 MW WIND &  
SOLAR HYBRID**



**1,800 MW  
CAPTIVE USE**







## Notable Regulations framed by TNERC

- **Installation of RCD for all category of applicants to ensure safety.**
- **Harmonics control for HT consumers stipulating measurement methodology, limits, penalty.**
- **Grid Interactive Solar System Regulation with incorporation of network charges.**
- **Direction issued to Licensee to install capacitors in all Agricultural pumpsets to reduce loss and grid demand.**

**THANK YOU**