



सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड

(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)

(भारत सरकार का उद्यम)

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.

(A wholly owned subsidiary of Power Grid Corporation of India Limited)

(A Government of India Enterprise)

Ref: CTU/S/00/28th CMETS-SR-Agenda

Date: 23.02.2024

As per distribution list

Subject: 28th Consultation Meeting for Evolving Transmission Schemes in Southern Region- Meeting Agenda

Dear Sir/Ma'am,

सीटीयू के पत्र, दिनांक 22.02.2024 के माध्यम से दक्षिण क्षेत्र में पारेषण योजनाओं से संबन्धित 28^{वीं} परामर्श बैठक का कार्यक्रम विवरण प्रसारित किया गया था। उसी संबंध में बैठक का एजेंडा(मसौदा) साझा किया जा रहा है। इस संदर्भ में संबंधित बैठक का एजेंडा (मसौदा) वेबसाइट (www.ctuil.in>> [ISTS Planning and Coordination >>Consultation Meeting for ISTS>> Southern Region](#)) पर भी उपलब्ध है।

This is further to CTU letter dated 22.02.2024 vide which details of the 28th Consultation Meeting for Evolving Transmission Scheme in Southern Region was circulated. Please find attached agenda for the same. The agenda is also available on the website (www.ctuil.in>> [ISTS Planning and Coordination >>Consultation Meeting for ISTS>> Southern Region](#)).

Thanking you,

Yours faithfully,

(Anil Kr. Meena)
General Manager

Distribution List:

1. Chief Engineer (PSP&A – I) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi – 110 066	2. Chief Engineer (Transmission/GEC) Ministry of New and Renewable Energy, Block 14, CGO Complex, Lodhi Road, New Delhi – 110 003
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Connectivity/GNA Applicants

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Agenda for 28th Consultation Meeting for Evolving Transmission Scheme in SR, scheduled to be held on 29.02.2024

A. Confirmation of minutes of 27th Consultation Meeting for Evolving Transmission Scheme in SR

Minutes of the 27th Consultation Meeting for Evolving Transmission Scheme in SR, held on 30.01.2024, were circulated vide letter dated 22.02.2024. Following observation has been received on the minutes.

- i. M/s TEQ Green Green Power XVI Pvt. Ltd., vide email dated 22.02.2024, mentioned that following is provided in dedicated connectivity transmission system for application no. 220000429.

“Through dedicated connectivity transmission system of M/s TEQ Green Power XVI Private Limited granted connectivity for 125 MW (application no. 2200000397) at Bijapur PS i.e. Generating Pooling Station of M/s TEQ Green Power XVI Private Limited – Bijapur PS **230** kV S/c line – **all arrangement under the scope of applicant**”

The same may be read as

“Through dedicated connectivity transmission system of M/s TEQ Green Power XVI Private Limited granted connectivity for 125 MW (application no. 2200000397) at Bijapur PS i.e. Generating Pooling Station of M/s TEQ Green Power XVI Private Limited – Bijapur PS **220** kV S/c line **on D/c tower**– **all arrangement under the scope of applicant**”

- ii. At page No. 9,& 11 of the minutes, application no. for the connectivity application of M/s Green Infra Renewable Projects Ltd. agreed for grant of connectivity for 300 MW at Gadag-II PS is inadvertently mentioned as 2200000414 in place of 2200000435. **The application no. may be read as 2200000435.**

It is proposed to confirm the minutes including above modification.

B. ISTS Network Expansion Scheme in Southern Region

1. Common facility works at NP Kunta 400/220 kV Pooling Station for providing connectivity to RE generation projects

Presently, NP Kunta PS is under operation with 4x500 MVA, 400/220kV ICTs. Connectivity of about 1600 MW was granted at NP Kunta. Further, during the 26th CMETS-SR held on 29.12.2023, connectivity of 100 MW to M/s First Energy Pvt. Ltd. was agreed for grant with the augmentation of 1x500 MVA, 400/220 kV ICT (5th) considering N-1 contingency criteria. With this the total Connectivity / GNA granted / agreed for grant at NP Kunta PS shall be 1700 MW.

Accordingly, augmentation of 1x500 MVA, 400/220 kV ICT (5th) at NP Kunta Pooling Station was agreed in the 27th CMETS-SR held on 30.01.2024.

Further, 1 no. of 220kV bay at NP Kunta has been allocated to NHPC Ltd. for integration of its 100 MW generation project with start date of connectivity as Sep'24.

In view of the above works, 220kV switchyard is to be extended for implementation of 220kV bay(s) for integration of RE generation projects. Accordingly, the common facility works for 220kV switchyard extension may be associated with the augmentation works of 1x500 MVA 5th ICT at NP Kunta PS.

Members may note.

2. Implementation of 220kV and 400kV line bays at various pooling stations for integration of RE generation projects

a. Koppal-II 765/440/220kV PS

Koppal-II 765/400/220kV PS is being established as part of 500 GW RE capacity by 2030 and presently is under construction with implementation schedule of 24 months i.e. Dec'2025. Presently, 2x1500 MVA, 765/400 kV ICTs, 2x500 MVA, 400/220 kV ICTs and 04 nos. of 220 kV line bays under Koppal-II Phase-A and augmentation with 2x1500 MVA, 765/400 kV ICTs, 2x500 MVA, 400/220 kV ICTs and 04 nos. of 220 kV additional line bays under Koppal-II Phase-B are under implementation.

Further, augmentation of additional 5x500 MVA, 400/220kV ICTs (5th to 9th) and 3x1500 MVA 765/400kV ICTs (5th to 7th) at Koppal-II PS were agreed for integration of RE generation projects in various CMETS-SR meetings. So far connectivity of about 3769 MW has been granted / agreed for grant at 220kV level of Koppal-II PS and total 13 nos. of 220kV line bays have been allocated to various RE generation projects. Out of the 13 nos. 220kV bays, 12 nos. of bays are under ISTS scope (8 nos. bays are under implementation and balance 4 nos. bays are to be taken up for implementation) and 1 no. of bay is under applicant's scope. Some of the RE generation developers have requested for implementation of 220kV line bays at Koppal-II PS under ISTS which was agreed in various CMETS-SR meetings. The details of 220kV bays being implemented under ISTS are as below:

Sl. No.	Scope of the Transmission Scheme	Scope of work	Schedule	CMETS-SR
1	1 no. 220kV line bay at Koppal-II PS for termination of dedicated transmission line of M/s Tata Power Renewable Energy Ltd.	<ul style="list-style-type: none"> 220kV line bays – 1 Nos. 	01.03.26	25 th held on 28.11.23

Sl. No.	Scope of the Transmission Scheme	Scope of work	Schedule	CMETS-SR
2	2 nos. 220kV line bays at Koppal-II PS for termination of dedicated transmission line of M/s JSP Green Wind 1 Pvt. Ltd. and Ms/ Gadag Power India Pvt. Ltd.	<ul style="list-style-type: none"> • 220kV line bays – 2 Nos. 	30.12.25	27 th held on 30.01.24
3	1 no. 220kV line bay at Koppal-II PS for termination of dedicated transmission line of M/s Clean Renewable Energy Hybrid Two Pvt. Ltd.	<ul style="list-style-type: none"> • 220kV line bays – 1 Nos. 	31.12.26	

Members may note.

b. Gadag-II 400/220kV PS

Presently, Gadag-II PS is being established as part of 500 GW RE capacity by 2030 and presently is under construction with implementation schedule of 24 months i.e. Dec'2025. Presently, 2x500 MVA, 400/220 kV ICTs and 04 nos. of 220 kV line bays under Gadag-II Phase-A is under implementation.

Further, augmentation of additional 7x500 MVA, 400/220kV ICTs (3rd to 9th) at Gadag-II PS were agreed for integration of RE generation projects in various CMETS-SR meetings. So far connectivity of about 4926 MW (3476 MW at 220 kV and 1450 MW at 400 kV level) has been granted / agreed for grant at Gadag-II PS and total 11 nos. of 220kV line bays have been allocated to various RE generation projects. Out of the 11 nos. of 220kV bays, 8 nos. of bays are under ISTS scope (4 nos. bays are already under implementation and balance 4 nos. bays are to be taken up for implementation) and 3 nos. of bay is under applicant's scope. Some of the RE generation developers have requested for implementation of 400kV and 220kV line bays at Gadag-II PS under ISTS which was agreed in various CMETS-SR meetings. The details of 400kV and 220kV bays being implemented under ISTS are as below:

Sl. No.	Scope of the Transmission Scheme	Scope of work	Schedule	CMETS-SR
1	1 no. 400kV line bay at Gadag-II PS for termination of dedicated transmission line of M/s Serentica Renewables India Pvt. Ltd.	<ul style="list-style-type: none"> • 400kV line bays – 1 Nos. 	30.12.25	23 rd held on 29.09.23
2	2 no. 220kV line bays at Gadag-II PS for termination of dedicated transmission line of	<ul style="list-style-type: none"> • 220kV line bays – 2 Nos. 	30.12.25	

Sl. No.	Scope of the Transmission Scheme	Scope of work	Schedule	CMETS-SR
	M/s Tata Power Renewable Energy Ltd. and M/s Avaada Energy Pvt. Ltd.			
3	1 nos. 220kV line bay at Gadag-II PS for termination of dedicated transmission line of M/s Renew Vayu Energy Pvt. Ltd.	<ul style="list-style-type: none"> • 220kV line bays – 1 Nos. 	31.03.27	25 th held on 28.11.23
4	1 nos. 220kV line bay at Gadag-II PS for termination of dedicated transmission line of M/s Green Infra Renewable Projects Ltd.	<ul style="list-style-type: none"> • 220kV line bays – 1 Nos. 	01.06.27	27 th held on 30.01.24

Members may note.

c. Kurnool-III 765/440/220kV PS

Presently, Kurnool-III 765/400/220kV PS is under implementation by POWERGRID through RTM route and is expected by Nov'24. Connectivity of about 1990 MW at 220kV and 4100 MW at 400kV have been granted at Kurnool-III PS to various RE generation projects. Total 15 nos. of 220kV line bays are under implementation. Connectivity of 600 MW has been granted to M/s Adani Renewable Energy Forty Two Ltd. at 400kV level with 2 nos. of 400kV bays in the 23rd CMETS-SR held on 29.09.2023. Further, Connectivity of 3500 MW (800 MW & 3x900 MW) have been granted to M/s Indosol Solar Pvt. Ltd. at 400kV level with 4 nos. of 400kV bays in the 26th CMETS-SR held on 29.12.2023. The above RE generation projects have requested for implementation of 400kV bays at Kurnool-III under ISTS and same was agreed. The details of 400kV bays being implemented under ISTS are as below:

Sl. No.	Description of Transmission Element	Scope of work	Schedule	CMETS-SR
1	2 nos. of 400kV line bays at Kurnool-III PS for Connectivity to M/s Adani Renewable Energy Forty Two Ltd.	<ul style="list-style-type: none"> • 400kV line bays – 2 Nos. 	30.06.26	23 rd held on 29.09.23
2	4 nos. of 400kV line bay at Kurnool-III PS for Connectivity to M/s Indosol Solar Pvt. Ltd.	<ul style="list-style-type: none"> • 400kV line bays – 1 Nos. 	30.06.25	26 th held on 09.12.23
		<ul style="list-style-type: none"> • 400kV line bays – 1 Nos. 	31.07.26	
		<ul style="list-style-type: none"> • 400kV line bays – 2 Nos. 	31.03.27	

Members may note.**d. Ananthapuram 400/220kV PS**

Presently, Ananthapuram 400/220kV PS is under implementation by POWERGRID through TBCB route and is expected by Sept'25. Connectivity of about 1055 MW at 220kV and 2710 MW at 400kV have been granted at Ananthapuram to various RE generation projects. Total 12 nos. of 220kV line bays are under implementation. Connectivity of 1710 MW has been granted to M/s Renew Vikram Shakti Pvt. Ltd. at 400kV level with 2 nos. of 400kV bays in the 23rd CMETS-SR held on 29.09.2023. Further, Connectivity of 1000 has been granted to M/s ABC Cleantech Pvt. Ltd. at 400kV level with 1 nos. of 400kV bay in the 25th CMETS-SR held on 28.11.2023. The above RE generation projects have requested for implementation of 400kV line bays at Ananthapuram PS under ISTS which was agreed. The details of 400kV bays being implemented under ISTS are as below:

Sl. No.	Description of Transmission Element	Scope of work	Schedule	CMETS-SR
1	2 nos. of 400kV line bays at Ananthapuram PS for Connectivity to M/s Renew Vikram Shakti Pvt. Ltd.	<ul style="list-style-type: none"> 400kV line bays – 2 Nos. 	31.03.26	23 rd held on 29.09.23
2	1 nos. of 400kV line bay at Ananthapuram PS for Connectivity to M/s ABC Cleantech Pvt. Ltd.	<ul style="list-style-type: none"> 400kV line bays – 1 Nos. 	31.03.26	25 th held on 28.11.23

Members may note.**e. Tumkur(Pavagada) 400/220kV PS**

Presently, Tumkur (Pavagada) PS is under operation with 5x500 MVA, 400/220kV ICTs. Further, 1x500 MVA, 400/220kV ICT(6th) is under implementation and is expected by Mar'24. Further, addl. 2x500 MVA (7th & 8th) ICTs are agreed for providing connectivity for RE generation projects. During the 25th CMETS-SR held on 28.11.2023, Connectivity of 200 MW has been agreed for grant to M/s TEQ Green Power XVIII Pvt. Ltd. at 220kV level with 1 nos. of 220kV bay. The above applicant have requested for implementation of 220kV bay at Tumkur (Pavagada) PS under ISTS which was agreed. The details of 220kV bays being implemented under ISTS are as below:

Sl. No.	Description of Transmission Element	Scope of work	Schedule	CMETS-SR
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1	1 nos. of 220kV line bay at Tumkur (Pavagada) PS for Connectivity to M/s TEQ Green Power XVIII Pvt. Ltd.	• 220kV line bays – 1 Nos.	30.06.26	25 th held on 28.11.23
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Members may note.

f. Pugalur(existing) 400/230kV S/s

Presently, Pugalur (Existing) 400/230kV S/s is under operation with 2x315 + 1x500 MVA, 400/230kV ICTs. During the 26th CMETS-SR held on 29.12.2023, Connectivity of 151 MW has been agreed for grant to M/s Tata Power Renewable Energy Ltd. at 230kV level with 1 nos. of 230kV bay. Further, additional connectivity of 151.2 MW has also been agreed for grant to M/s Tata Power Renewable Energy Ltd. during the 27th CMETS-SR held on 30.01.2024. The applicant have requested for implementation of 230kV bay at Pugalur (Existing) under ISTS which was agreed. The details of 230kV bay being implemented under ISTS are as below:

Sl. No.	Description of Transmission Element	Scope of work	Schedule	CMETS-SR
1	1 no. 230kV line bay at Pugalur(Existing) 400/230kV S/s for Connectivity to M/s Tata Power Renewable Energy Ltd.	• 230kV line bays – 1 No.	01.03.26	27 th held on 30.01.24

Members may note.

3. Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects.

Presently, Kurnool-III 765/400/220kV PS is under implementation by POWERGRID through RTM route and is expected by Nov'24. Further, for optimal utilisation of the pooling station, space provision for integration of additional 4.5 GW has been kept at Kurnool-III. The broad scheme is as below:

- Establishment of 765/400/220kV 3x1500 MVA, 9x500 MVA Kurnool-III PS
- Kurnool-III PS – Kurnool(new) 765 kV D/c line
- Kurnool-III PS – Maheshwaram (PG) 765 kV D/c line

Connectivity of about 2320 MW (1720 MW at 220kV level & 600 MW at 400kV level) have already been granted at Kurnool-III PS with the above under implementation transmission system. Further, CTU has received additional connectivity applications for 3770 MW (Solar: 3650 MW & Wind: 120 MW) seeking connectivity at Kurnool-III in the month of Nov'23. With this, the total connectivity quantum at Kurnool-III shall be about 6090 MW (1990 MW at 220kV level & 4100 MW at 400kV level). However, Kurnool-III PS is being implemented with 3x1500 MVA, 765/400kV transformation capacity. Therefore, grant of connectivity for additional 3770 MW shall require expansion of Kurnool-III PS and further transmission lines for evacuation of power from Kurnool-III PS.

Accordingly, following transmission system was proposed for integration of additional 4.5 GW of RE at Kurnool-III PS in the 26th CMETS-SR held on 29.12.2023 :

- Augmentation of transformation capacity of 3x1500 MVA, 765/400kV ICTs at Kurnool-III PS
- Kurnool-III PS – Chilakaluripeta 765 kV D/c line

Further, CTU is in receipt of additional connectivity application for 1650 MW (PSP: 1250 MW & Solar: 400 MW) seeking connectivity at Kurnool-III in the month of Jan'24. With this, the total connectivity quantum at Kurnool-III shall be about of 7740 MW (2390 MW at 220kV level & 5350 MW at 400kV level).

Ananthapuram PS is also being integrated at Kurnool-III through Ananthapuram PS – Kurnool-III PS 400kV (Quad) D/c line. Some quantum of power from Ananthapuram will also be evacuated through Kurnool-III PS. Considering the same, the above transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects is required.

The above transmission system was also deliberated in the Joint Study meeting of Southern Region constituents held on 21.12.2023 & 22.12.2023 at Yelahanka, Bengaluru, wherein it was decided that the proposal and corresponding study files may be shared with the SR constituents for their observations / comments.

Accordingly, the proposal and study files have been shared with the SR constituents on 05.01.2024 and requested SR constituents to send their observations / comments within 15 days so that same may be deliberated in the next CMETS-SR meeting.

Following observations has been received from TSTRANSCO

- The approved 12 ohms fault limiting series reactor on both the circuits of 400 kV Maheshwaram (Power Grid) to Maheshwaram (TSTRANSCO) Quad Moose line at Maheshwaram (TSTRANSCO) end was not considered in the PSSE study file.

- 7 Nos. 765/400kV, 1500MVA ICTs are considered at Kurnool-III PS (7x1500 = 10500 MVA). As per CEA Manual on Transmission Planning Criteria 2023, the transformation capacity of any single Generation Pooling substation at 765kV voltage level shall not normally exceed 9000 MVA. In the PSSE study file communicated by CTUIL, it is observed that the loading of 7 Nos. ICTs considered is exceeding the full rated capacity of Transformers in N-1 contingency at Kurnool-III PS.
- The loading on 400kV Srisailem Left Bank Power House (Telangana) – Kurnool (Andhra Pradesh) Twin Moose Single Circuit line is observed to be 1x1006.8 MVA as against to its thermal loading limit of 850 MVA.

Considering that some quantum of power from Ananthapuram will also be evacuated through Kurnool-III PS, maximum connectivity of about 7 GW can be allowed at Kurnool-III PS. Further, the Kurnool-III PS has space provision for 400kV bus sectionaliser and 765/400kV, 1500 MVA ICT(7th). Accordingly, the Kurnool-III 400kV bus can be operated into 2 independent sections, if required.

With regard to high loading on Srisailem Left Bank Power House (Telangana) – Kurnool (Andhra Pradesh) 400kV S/c line, suitable strengthening shall be carried out by respective STUs.

Accordingly, following transmission system is proposed for integration of additional RE generation projects and grant of Connectivity at Kurnool-III PS under the CERC GNA Regulations :

- Augmentation of transformation capacity of 3x1500 MVA, 765/400kV ICTs at Kurnool-III PS
- Kurnool-III PS – Chilakaluripeta 765 kV D/c line

Members may deliberate.

4. Transmission System for integration of Kurnool-IV and Ananthapuram-II REZs

Govt. of India has set a target of 500 GW generation capacity from non-fossil fuel resources by 2030. In this direction, MNRE has identified addition of 181.5 GW RE Potential in the States of Andhra Pradesh, Telangana, Karnataka, Rajasthan, Madhya Pradesh and Tamil Nadu (Offshore). Out of the identified 181.5 GW Potential, 86 GW RE Potential is identified in the State of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu (Offshore) in Southern Region.

Out of the identified (86 GW) RE Potential in Southern Region, 51 GW has been identified in the State of Andhra Pradesh (Ananthapur – 20 GW, Kurnool – 23 GW & Kadapa – 8 GW).

A comprehensive transmission system for integration of 51 GW RE Potential in Andhra Pradesh has been identified by CEA and a report on Transmission System for Integration of over 500 GW RE Capacity has been published by CEA on 07.12.2022. The details of district wise potential is as below:

District	Pooling Station	Potential (GW)		Total (GW)	Maximum Dispatch (GW)	BESS (GW)	Evacuation System (GW)
		Wind	Solar				
Anantapur	Anantapur, Anantapur-II	10	10	20	15	5	10
Kurnool	Kurnool-IV, Kurnool-V	8	15	23	18	6	12
Kadapa	Kadapa-II	0	8	8	8	3	5
Total		18	33	51	41	14	27

Presently, Connectivity of about 7740 MW (2390 MW at 220kV level & 5350 MW at 400kV level) has been granted / agreed for grant at Kurnool-III PS. Similarly, Connectivity of about 3765 MW (1055 MW at 220kV level & 2710 MW at 400kV level) has been granted / agreed for grant at Ananthapuram PS.

Keeping above in view, it is prudent to take up the implementation of Kurnool-IV PS and Anantapur-II PS for integration of RE generation projects in Kurnool and Anantapur areas. Following comprehensive transmission system has been identified by CEA in the report on Transmission System for Integration of over 500 GW RE Capacity.

a. Transmission System for integration of Kurnool-IV REZ (7.5 GW Solar, 4 GW Wind, 3 GW BESS)

- Establishment of 5x1500 MVA, 765/400 & 7x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVA (765 kV) & 2x125 MVA (400 kV) bus reactors at Kurnool-IV PS (3 GW injection at 220 kV level and 3 GW injection at 400 kV level)
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (~100 km)
- Kurnool-IV – Bidar PS 765 kV D/c line with 240 MVA SLR at both ends (~280 km)

b. Transmission System for integration of Anantapur-II REZ (8 GW Solar, 8 GW Wind, 4 GW BESS)

- Establishment of 6x1500 MVA, 765/400 kV & 9x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVA (765 kV) & 2x125 MVA (400 kV) bus reactors at Anantapur-II PS (4 GW injection at 220 kV level and 4 GW injection at 400 kV level)
- Anantapur-II – Cuddapah 765 kV D/c line with 240 MVA SLR at Anantapur-II PS (~250 km)
- Anantapur-II – Kurnool-V PS 765 kV D/c line (~100 km)

The proposed Kurnool-IV and Ananthapuram-II PS shall have provision to facilitate integration of 9 GW RE at each pooling station.

Further, during the 14th CMETS-SR held on 27.12.2022, NREDCAP had requested for establishment of new 765kV substation near Aspiri, Kurnool district, accordingly, same may be established at suitable location near Aspiri in Kurnool district.

Further, as requested by NREDCAP Ananthapuram-II PS may be established at suitable location near Raydurg in Ananthapuram district.

Members may deliberate.

5. Transmission System for 5 GW Offshore wind farm (Sub Zone B1 to B4 & G1 to G3) in Tamil Nadu

Govt. of India has set a target of 500 GW capacity addition from non-fossil fuel based generation capacity by 2030. MNRE has identified about 30 GW Offshore wind potential each in the coast of Gujarat and Tamil Nadu. A report on Transmission System for Integration of over 500 GW RE Capacity has been published by CEA on 07.12.2022. Initially 5 GW Offshore wind potential each at Gujarat (CUF – 37%) and Tamil Nadu (CUF – 48%) has been prioritized for implementation by 2030.

The Offshore wind potential may be integrated with the Onshore pooling station through Submarine cables and transmission system beyond Onshore wind has been planned as AC transmission system.

- Govt. of India on 09.06.2022 vide Public Notice has informed following with respect to **Offshore wind in Gujarat and Tamil Nadu**:
 - Bids equivalent to a project capacity of **4.0 GW per year for a period of three years** starting with the current FY 22-23 for development off the coast of Tamil Nadu and Gujarat for sale of power through open access / captive / bi-lateral third party sale / merchant sale
 - Subsequently a project capacity of **5 GW** will be bid out **every year for a period of five years** i.e. up till FY 29-30.

- In the first phase, 5 GW Offshore wind potential each at Gujarat (CUF - 37%) and Tamil Nadu (CUF - 48%) has been prioritized for implementation.
- The transmission system for integration of 5 GW Offshore wind potential each at Gujarat and Tamil Nadu has already been identified.

Proposed Transmission System for Offshore wind farm (Sub Zone B1 to B4 & G1 to G3) in Tamil Nadu
Prioritized Offshore Wind Zone & Capacity

Sub Zone ID	OSS ID	Installable MW	Tentative Timelines
B1	OSS B1	912	Stage-1 auction by 2022 & Stage-2 auction between 2024 - 26
B2	OSS B2	828	
B3	OSS B3	705	
B4	OSS B4	809	
G1	OSS G1	655	
G2	OSS G2	555	
G3	OSS G3	878	
Total		5342 MW	

A. Transmission System onwards Onshore Pooling Station

- Avaraikulam Onshore PS – Pugalur (HVDC) 400kV (Quad ACSR moose) D/c line with 125 MVAr switchable reactors at both ends (300 km)
- Avaraikulam Onshore PS – Tuticorin PS 400kV (Quad ACSR moose) D/c line (100 km)

B. Onshore Pooling Station

- Establishment of 12x500 MVA, 400/230kV Onshore Pooling Station near Avaraikulam, Tirunelveli District in Tamil Nadu
- Suitable Static Compensation / Dynamic Compensation with MSR

C. Transmission System for integration of Offshore Wind Farms with Onshore PS

- OSS G1 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (40 km)
- OSS G2 – Avaraikulam Onshore PS 230kV S/c* Submarine cable (35 km)
- OSS G3 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (36 km)
- OSS B1 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (30 km)
- OSS B2 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (35 km)
- OSS B3 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (41 km)
- OSS B4 – Avaraikulam Onshore PS 230kV 2xS/c* Submarine cable (43 km)
- 13 nos. of 230kV line bays for interconnection of Offshore wind projects
- Suitable Reactive compensation at Offshore PS & Onshore PS

*** Note :**

1. The no. of 230kV Submarine Cables has been considered assuming capacity of one three phase cable as 500 MW.
2. Reactive compensation and Cost has been worked out based on tentative estimates considering Rs. 20 crore per km, however same is to be revised on receipt of data from submarine cable manufactures and implementing agencies. Further compensation shall be provided based on the data pertaining to MVAR generation from the cables.

Further, a meeting on “Offshore development” was held under chairmanship of Shri R.K. Singh, Hon’ble Minister of Power and New & Renewable Energy on 14.06.2023 (Copy of Record of Discussion attached at **Exhibit-A**), to discuss the issues related to grid connection, timelines and bidding of offshore wind energy projects under various models. During the meeting, it was decided that initially 2GW offshore evacuation infrastructure (1 GW in Gujarat and 1 GW in Tamil Nadu) may be developed by PGCIL under RTM and further, 4GW evacuation infrastructure will be developed under TBCB.

In view of above following transmission system may be developed in initial phase for integration of 1 GW Off-shore wind in the coast of Tamil Nadu.

A. Transmission System onwards Onshore Pooling Station

- Establishment of 3x500 MVA, 400/230 kV Onshore Pooling Station near Avaraikulam, Tirunelveli District in Tamil Nadu.
- Avaraikulam Onshore PS – Tuticorin PS 400 kV D/c quad line (approx. 100 km)
- \pm 300 MVAR STATCOM along with 2x125 MVAR MSR

B. Transmission System for integration of Offshore Wind Farms with Onshore PS

- Off Shore substation 1 (OSS-1) – Avaraikulam Onshore PS 230kV S/c Submarine cable
- Off Shore substation 2 (OSS-2) – Avaraikulam Onshore PS 230kV S/c Submarine cable
- Suitable Reactive compensation at Offshore PS

The above transmission system was deliberated during the 20th CMETS-SR meeting held on 04.08.2023. During the meeting SR constituents expressed certain apprehensions and requested to provide the cost of the transmission system and its impact on transmission charges. After detailed deliberations, it was decided that details may be sought from MNRE for sharing with the constituents and the proposal may be deliberated during the next CMETS meeting.

Subsequently, in the meeting held on 16.08.2023 between MNRE & CTUIL (Copy of Record of Discussion attached at **Exhibit-B**), following was decided:

- Initial 02 GW transmission capacity (01 GW each off the coast of Gujarat and Tamil Nadu) shall be developed in the 1st Phase and further 04 GW each off the coast of Gujarat and Tamil Nadu shall be developed subsequently.
- NIWE to demarcate the offshore sites of 01 GW capacity into 2 x 500 MW blocks each (500 MW for VGF Project and remaining 500 MW for Non-VGF Project) of the coast of Gujarat and Tamil Nadu and finalize the probable coordinates of the offshore pooling substations.
- MNRE to share with CTUIL the site details with probable coordinates of the offshore substations and commissioning timelines for the above 1GW and the balance offshore wind energy projects.

Further, in the meeting held on 22.12.2023 (Copy of Record of Discussion attached at **Exhibit-C**) in MNRE for finalization of the specifications of the transmission infrastructure, following was decided:

- 500 MW VGF project off-Tamil Nadu coast to be commissioned by March 2029. Tender for the project to be published by **March 2025**.
- 4 GW non-VGF project off-Tamil Nadu coast to be commissioned by in FY 029-30. Tender for the projects to be published on **01.02.2024**.
- The tentative specifications of the transmission infrastructure were agreed upon and are as follows:
 - Operating voltage for the substation and the transmission line to be kept 220kV.
 - Substation transformer configuration of 2 x 315 MVA to be used in order to allow for safety margins and evacuation of additional capacity if awarded capacity increases beyond 500 MW
 - 2 x 300 MVA capacity subsea cables to be used for power evacuation
- PGCIL to prepare a DPR for development of the proposed transmission infrastructure drawing from their experience of a similar DPR prepared for a cross-border transmission link between India and Sri Lanka.
- SECI have published RfS for Allocation of Sea-bed Lease Rights for 4000 MW Offshore Wind Power Projects in Tamil Nadu coast on 02.02.2024.

Further, Govt of Tamil Nadu vide its DO letter dated 31.01.2023 to MNRE (Copy of DO letter attached at **Exhibit-D**) has stated that “the State Government is interested to purchase the Offshore wind power to be generated off coast of Tamil Nadu at the flat rate of Rs. 4.00 per unit. In this connection, I am to request you to allocate 100% of the power to be generated from the offshore wind power projects proposed off the coast of Tamil Nadu to the State of Tamil Nadu to meet the future load growth, industrial development and Renewable Power Obligation (RPO) in Tamil Nadu as a special case.

Based on the above, it is proposed that following transmission system for integration of initial 1 GW Offshore wind farms off the coast of Tamil Nadu may be implemented:

A. Transmission System onwards Onshore Pooling Station

- Establishment of 3x500 MVA, 400/230 kV Onshore Pooling Station near Avaraikulam, Tirunelveli District in Tamil Nadu with provision of expansion upto 5 GW.
- Avaraikulam Onshore PS – Tuticorin PS 400 kV D/c quad line (approx. 100 km)
- \pm 300 MVAr STATCOM along with 2x125 MVAr MSR

Estimated Cost : Rs. 1193 Crs

B. Transmission System for integration of Offshore Wind Farms with Onshore PS

Offshore Substation-1 {500 MW VGF} :

- Establishment of 2x315 MVA, 230/66kV Off-Shore Substation-1 with 10 nos. of 66kV line bays for RE integration
- Offshore substation 1 (OSS-1) – Avaraikulam Onshore PS 2 nos. 230kV (atleast 300 MVA capacity) Submarine cables (~35 - 40 km) with 2x50MVAr switchable line reactors at OSS-1 end

Estimated Cost : Rs. 5146 Crs

Offshore substation-2 {500 MW Non-VGF} :

- Establishment of 2x315 MVA, 230/66kV Off-Shore Substation-2 with 10 nos. of 66kV line bays for RE integration
- Offshore substation 2 (OSS-2) – Avaraikulam Onshore PS 2 nos. 230kV (atleast 300 MVA capacity) Submarine cables (~35 - 40 km) with 2x50MVAr switchable line reactors at OSS-2 end
- **Estimated Cost : Rs. 5146 Crs**

Commissioning Schedule : 2028-29

The annual transmission charges for the subject scheme for 1 GW with estimated cost of about **Rs 11485 Crs.** shall be about **Rs 1722.75 Crs.** The above transmission system shall enable transfer of about **1000 MW** of power from the Offshore Wind farms in Tamil Nadu. Such quantum of power shall translate into annual energy of about **4117.2 MU** per year [*Energy in MU = (1000x0.47x8760)/1000*] (assuming Wind offshore CUF of 47%). The tentative transmission tariff shall be about **Rs. 0.42 /Unit.**

Members may deliberate

C. Connectivity related issued regarding deliberation of 27th CMETS-SR, held on 30.01.2024

1. Proposal for modification in Connectivity transmission system granted to M/s JSP Green Wind 1 Pvt. Ltd. (application no. 2200000402 for 300 MW at Koppal-II PS)

In 27th CMETS-SR, it was agreed to grant connectivity to M/s JSP Green Wind 1 Pvt. Ltd. (application no. 2200000402 for 300 MW at Koppal-II PS) through 220 kV S/c line at Koppal-II PS. It may be noted that M/s s JSP Green Wind 1 Pvt. Ltd. is already granted Connectivity (application no. 2200000262 dated 22.09.2023) for 400 MW at Koppal-II PS through 220 kV D/c line. in view of optimization of transmission system, it is proposed to grant the connectivity for application no. 2200000402 (300 MW) through dedicated connectivity transmission system of M/s JSP Green Wind 1 Pvt. Ltd. granted at Koppal-II PS for application no. 2200000262 (400 MW). The revised connectivity transmission system for the application no. 220000402 for 300 MW is given below.

a. Modified Connectivity Transmission system under GNA for M/s JSP Green Wind 1 Pvt. Ltd. (application no. 2200000402 for 300 MW):

i. Dedicated Connectivity Tr. System:

- Through dedicated connectivity transmission system of M/s M/s JSP Green Wind 1 Pvt. Ltd. granted for application no. 2200000262 (400 MW) i.e. Generation Pooling Station of M/s JSP Green Wind 1 Pvt. Ltd. at Raichur – Koppal-II PS 220 kV D/c line – all arrangement under the scope of applicant

ii. Associated Transmission System for GNA: Nil

iii. Common Transmission system required for effectiveness of connectivity/GNA (augmentation other than ATS):

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I.**

- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) in Karnataka, as per **Annexure-V**.
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-B), as per **Annexure-VI**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-C), as per **Annexure-VII**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-D), as per **Annexure-VIII**

Start date of Connectivity: 31.12.2025 (Tentative) with the availability of common transmission system required for effectiveness of GNA. *The firm date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.*

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:

- Conn-BG1 of Rs. 50 lakhs + Conn-BG3 of Rs. 6.0 Cr. (@Rs.2 lakhs/MW)

Members may deliberate

2. Proposal for modification in connectivity transmission system granted to M/s Serentica Renewables India Pvt. Ltd. at Gadag-II PS

In 27th CMETS-SR, it was agreed to grant connectivity for 550 MW to M/s Serentica Renewables India Pvt. Ltd. (application no. 2200000414) at Gadag-II PS through 400 kV S/c line on D/c tower. In the meeting, M/s Serentica Renewables India Pvt. Ltd. requested that earlier granted connectivity for 350 MW (cumulative) to it at 220 kV at Gadag-II PS (for application no. 2200000074, 2200000099, 2200000100, 2200000096, and 2200000121) may be also be granted at 400 kV level. the same was agreed in the meeting. Subsequently, M/s Serentica Renewables India Pvt. Ltd. has submitted formal request in this regard on 01.02.2024. It may be noted that Connectivity for the application was agreed with start date of connectivity as 30.06.2026. However, application nos. 2200000074, 2200000099, 2200000100, 2200000096, and 2200000121 were granted with start date of connectivity as 30.09.2025 (considering SPV transfer by end of September 2023). SPV for implementation of required transmission system for grant of Connectivity has already been transferred in Dec'2023.

M/s Serentica Renewables India Pvt. Ltd. may present the case considering required start date of connectivity for the application nos. 2200000074, 2200000099, 2200000100, 2200000096, and 2200000121.

D. Connectivity/ GNA Related proposal for applications received in Southern Region

Details of the Connectivity/ GNA applications, in line with CERC Regulations, received in the month of Jan'2024 are given below.

1. Connectivity Related proposal at Koppal-II PS/ Gadag-II PS

Sl.	Application ID, date & time of submission	Name of the Applicant	Project Location	Application for: Connectivity/ GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Connectivity / GNA requested	Installed Capacity/ GNA (Break up)	Power injection to ISTS (MW)	Start date of Connectivity/ GNA (requested)
i.	2200000434 dt 01.01.2024	NTPC Renewable Energy Limited	Gadag, Karnataka	Connectivity	LoA/PPA (contract capacity : 500 MW RTC)	Generating station(s), including REGS(s), without ESS	Gadag-II PS	350 (W)	350	28.06.2025
ii.	2200000466 dt 08.01.2024	Serentica Renewables India 11 Private Limited	Balagod, Karnataka	Connectivity	Land BG Route	Generating station(s), including REGS(s), with ESS	Gadag-II PS	Hybrid : 360MW (Solar : 180MW, Wind : 180MW)	150	31.05.2026
iii.	2200000474 dt 10.01.2024	Torrent Solar Power Private Limited	Koppal, Karnataka	Connectivity	Land Route	Generating station(s), including REGS(s), without ESS	Koppal – IIPS	125.4 (Wind)	125.4	31.01.2026
iv.	2200000481 dt 12.01.2024	Tata Power Renewable Energy Limited	Koppal, Karnataka	Connectivity	LOA (contract capacity 260 MW)	Generating station(s), including REGS(s)	Koppal -II PS	Solar : 200 MW, BESS : 32.5 MW/ 65 MWh	232.5	01.03.2026
v.	2200000504 dt 17.01.2024	Ayana Renewable Power Private Limited	Koppal, Karnataka	Connectivity	Land BG Route	Generating station(s), including REGS(s), without ESS	Koppal II PS	100 (wind)	100	01.12.2025
vi.	2200000517 dt 25.01.2024	Renew Solar Power Private Limited	Gadag Karnataka	Connectivity	LoA (contract capacity : 234MW)	Generating station(s), including REGS(s), without ESS	Gadag-II PS	300 (wind)	300	31.05.2026
vii.	2200000519 dt 25.01.2024	Renew Solar Power Private Limited	Gadag, Karnataka	Connectivity	LoA (contract capacity : 184MW)	Generating station(s), including REGS(s), without ESS	Gadag-II PS	200 (wind)	200	31.05.2026
viii.	2200000532 dt 29.01.2024	Serentica Renewables India 11 Private Limited	Balagod Karnataka	Enhancement in Connectivity	Land BG Route	Generating station(s), including REGS(s), without ESS	Gadag-II PS	Hybrid : 120 MW (Solar : 60MW + Wind : 60 MW)	50	31.05.2026

ix.	2200000536 dt 29.01.2024	Serentica Renewables India 11 Private Limited	Balagod Karnataka	Enhancement in Connectivity	Land BG Route	Generating station(s), including REGS(s), without ESS	Gadag-II PS	Hybrid : 50 MW	50	31.05.2026
x.	2200000513 dt 31.01.2024	Vena Energy Aura Private Limited	Koppal, Karnataka	Enhancement in Connectivity	Land Route	Generating station(s), including REGS(s), without ESS	Koppal-II PS	40 (wind)	40	31.12.2025

- a. Regarding grant of Connectivity at Koppal-II PS/ Gadag-II PS, it may be noted that initially Koppal-II PS/ Gadag-II PS were planned for evacuation of power for 2 GW each only. Further, Power from Gadag-II PS shall be evacuated through 765 kV transmission system at Koppal-II PS only. At present, Connectivity at Koppal-II PS and Gadag-II PS has already been granted/ agreed for grant for 3769 MW and 4926 MW respectively and margin for grant of additional connectivity at Koppal-II / Gadag-II is available for about 750 MW only. In view of same, applications [nos. 2200000434 (350 MW), 2200000466 (150 MW) & 2200000474 (125.4 MW)], as per priority of the time, at Koppal-II/ Gadga-II PS are proposed for grant of connectivity. For balance capacity (125 MW), Connectivity shall be granted as per priority of the application, if applicant agrees for same, else it will be offered to next applicant. **Further, it may be noted that with grant of connectivity for additional capacity for 750 MW, Koppal-II PS & Gadag-II PS shall be closed for all purpose regarding grant of connectivity or addition of generation capacity.**
- i. M/s NTPC Renewable Energy Ltd. (NREL) has sought grant of Connectivity for 350 MW at Gadag-II PS as per above mentioned details for application no. 2200000434. The application has been submitted on basis of LoA/ PPA. The LOA, REMCL/CO/PP/P-85 dated 27.04.2023 & REMCL/CO/PP/P-85 dated 19.06.2023 has been issued by REMCL for supply of RTC power of 500MW having installed capacity of 1700 MW (Solar : 650 MW, Wind : 1050 MW) and PPA has been signed with Central Railways. As per LOA, 350 MW wind component was to be connected at Koppal-II. Subsequently, vide letter LRE.233.P.8.RTC.RE.500MW dated 27.12.2023. Central Railway has accepted the change in interconnection point from Koppal-II PS to Gadag-II. Further, M/s NREL has requested to implement 220 kV line bay for termination of DTL at ISTS end under the scope of ISTS.
- ii. M/s Serentica Renewables India 11 Private Ltd. (application no. 2200000466) has sought Connectivity for 150MW at Gadag-II PS as per above mentioned details. Applicant requested to grant connectivity through 220 kV S/c line on D/c tower and requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS. Further, M/s Serentica has also mentioned some internal connectivity details for above mentioned projects. The applicant is advised to provide schematic for connectivity arrangement.

- iii. M/s Torrent Solar Power Private Ltd. (application no. 2200000474) has sought connectivity for 125.4 MW at Koppal-II PS as per above details. Applicant has requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS.
- b. System studies have been carried out for grant of additional connectivity of 750 MW at Koppal-II PS / Gadag-II PS, wherein it was found the Connectivity to all applicants may be granted along with existing/under-construction/under-bidding/planned transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure - I**) and Tr. Scheme for Koppal-II PS (detailed scheme mentioned at **Annexure II - V**). Proposal for implementation of transmission schemes at **Annexure-IV & V** are under NCT approval and expected to be commissioned by 31.12.2025 (**Tentative**) with implementation schedule of 18 months. Further, corresponding transmission scheme at Gadag-II PS (detailed scheme mentioned at **Annexure VI - VIII**) are also under NCT approval and expected to be commissioned by 31.07.2026 (**Tentative**) with implementation schedule of 24 months. In view of above, it is proposed to grant connectivity under GNA Regulations with following connectivity transmission system.
- b.1 Connectivity Transmission system under GNA for M/s NTPC Renewable Energy Ltd. (Application no. 2200000434 for 350 MW):**
- iv. **Dedicated Connectivity Tr. System:**
- Generation Pooling Station of M/s NTPC Renewable Energy Ltd. – Koppal-II PS 220 kV S/c line along with line bay at generation pooling station –under the scope of applicant
 - 1 no. 220 kV line bay at Koppal-II PS for termination of above mentioned line – under the scope of ISTS
- v. **Associated Transmission System for GNA: Nil**
- vi. **Common Transmission system required for effectiveness of connectivity/GNA (augmentation other than ATS):**
- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per Annexure-I.
 - Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) in Karnataka, as per Annexure-II.
 - Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-B), as per Annexure-III.
 - Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-C), as per Annexure-IV
 - Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-D), as per **Annexure-V**

Start date of Connectivity: 31.12.2025 (Tentative) with the availability of common transmission system required for effectiveness of GNA. The firm *date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.*

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 3 Crs. (Towards implementation of dedicated line bays under ISTS) + Conn-BG3 of Rs. 7.0 Cr. (@Rs.2 lakhs/MW)

Members may deliberate.

b.2 Connectivity Transmission system under GNA for M/s Serentica Renewables India 11 Private Ltd. (Application no. 2200000466 for 150 MW):

i. Dedicated Connectivity Tr. System:

- Generation Pooling Station of M/s Serentica Renewables India 11 Private Ltd. – Gadag-II PS 220 kV S/c line on D/c tower along with line bay at generation pooling station – under the scope of applicant
- 1 no. 220 kV line bay at Gadag-II PS for termination of above mentioned line – under the scope of ISTS

ii. Associated Transmission System for GNA: Nil

iii. Common Transmission system required for effectiveness of connectivity/GNA (augmentation other than ATS):

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I.**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase-A) in Karnataka, as per **Annexure-II.**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase-B), as per **Annexure-VI.**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag -II (Phase-C), as per **Annexure-VII**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag -II (Phase-D), as per **Annexure-VIII**

Start date of Connectivity: 31.12.2026 (Tentative) with the availability of common transmission system required for effectiveness of GNA. The firm *date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.*

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 3 Crs. (Towards implementation of dedicated line bays under ISTS) + Conn-BG3 of Rs. 3.0 Cr. (@Rs.2 lakhs/MW)

Members may deliberate.

b.3 Connectivity Transmission system under GNA for M/s Torrent Solar Power Private Ltd. (Application no. 2200000474 for 125.4 MW):

i. Dedicated Connectivity Tr. System:

- Generation Pooling Station of M/s Torrent Solar Power Private Ltd. – Koppal-II PS 220 kV S/c line along with line bay at generation pooling station –under the scope of applicant
- 1 no. 220 kV line bay at Koppal-II PS for termination of above mentioned line – under the scope of ISTS

ii. Associated Transmission System for GNA: Nil

iii. Common Transmission system required for effectiveness of connectivity/GNA (augmentation other than ATS):

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) in Karnataka, as per **Annexure-II**.
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-B), as per **Annexure-III**.
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-C), as per **Annexure-IV**
- Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-D), as per **Annexure-V**

Start date of Connectivity: 31.12.2025 (Tentative) with the availability of common transmission system required for effectiveness of GNA. The firm *date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.*

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 3 Crs. (Towards implementation of dedicated line bays under ISTS) + Conn-BG3 of Rs. 2.508 Cr. (@Rs.2 lakhs/MW)

Members may deliberate.

c. Details of the other applicants seeking connectivity is given below.

i. M/s Tata Power Renewable Energy Ltd. (application no. 2200000481) has sought connectivity for 2325 MW, as per above details, on the basis of LOA, SJVN/CC-Delhi/REIA/2023/FDRE-1/TATA/P2/65 dated 14.12.2023, issued by M/s SJVN for contract capacity of 260MW. The detailed breakup of contracted capacity of SJVN LOA is given below.

- 260MW(AC) (Budagumpi, Karnataka: 200 MW with 32.5MW /65 MWh ESS for connectivity at Koppal-2 SS; Kalasar, Rajasthan: 60 MW For connectivity at Bikaner-III SS)
- 396MW wind (Bijapur (Karnataka): 50.4 for connectivity at Bijapur Substation; Palayam, Tamil Nadu: 151.2 MW for connectivity at Pugalur Substation; Kallam, Maharashtra= 100.8 for connectivity at Kallam Substation; Karur, Tamil Nadu = 93.6 MW for connectivity at Karur Substation)

Applicant has requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS.

ii. M/s Ayana Renewable Power Pvt. Ltd. (application no. 2200000504) has sought connectivity for 100 MW at Koppal-II PS as per above details. Applicant has requested to implement 220 kV terminal line bay under the scope of applicant.

iii. M/s Renew Solar Power Pvt. Ltd. (application no. 2200000517) has sought connectivity for 300 MW at Gadag-II PS, as per above details, on basis of SJVN LOA (Contracted capacity of LOA is 234 MW), SJVN/CC-Delhi/REIA/2023/FDRE-1/RENEW/P2/68 dated 14.12.2023. As per LoA detailed break up of Installed capacity is as given below.

- Solar component of 300 MW (AC) at Jodhpur, Rajasthan with interconnection point at Bhadla-III PS
- Wind component of 300 MW (AC) at Indore and/or Gadag with interconnection point at Indore and/or Gadag-II
- BESS of 58.5 MWh at Jodhpur, Rajasthan with interconnection point at Bhadla-III PS.

Applicant has requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS.

iv. M/s Renew Solar Power Pvt. Ltd. (application no. 2200000519) has sought connectivity for 200 MW at Gadag-II PS, as per above details, on basis of SJVN LOA (Contracted capacity : 184 MW), SJVN/CC-Delhi/REIA/2023/FDRE-1/RENEW/P1/43 dated 24.11.2023. As per LoA detailed break up of Installed capacity is as given below.

- Solar component of 200 MW (AC) at Jodhpur, Rajasthan with interconnection point at Bhadla-III PS
- Wind component of 200 MW (AC) at Indore and/ Gadag with interconnection point at Indore / Gadag-II
- BESS of 46 MWh at Jodhpur, Rajasthan with interconnection point at Bhadla-III PS.

Applicant has requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS.

v. M/s Serentica Renewables India 11 Pvt. Ltd. (application no. 2200000532) has sought enhancement in connectivity by 50MW, as per above details. Enhancement in connectivity is sought for connectivity requested for 150MW (application no. 2200000466, mentioned at Si. No. 2 of the above table).

vi. M/s Serentica Renewables India 11 Pvt. Ltd. (application no. 2200000536) has sought enhancement in connectivity by 50MW, as per above details. Enhancement in connectivity is sought for connectivity requested for 150MW (application no. 2200000466, mentioned at Si. No. 2 of the above table).

vii. M/s Vena Energy Aura Pvt. Ltd. (application no. 220000513) has sought enhancement in connectivity by 40 MW, as per above mentioned details, to the already agreed grant of connectivity for 50 MW (application no. 2200000282). Further, it may be noted that it has already been agreed to grant connectivity to M/s Vena Energy Aura Pvt. Ltd. (applications no. 2200000127 : 50 MW & no. 2200000282 : 50 MW) at Koppal-II PS through sharing of dedicated Connectivity transmission system of M/s VEH Green Energy Pvt. Ltd. (application no. 2200000126 153.6 MW). However, M/s Vena Energy Aura Pvt. Ltd. has not submitted yet the copy of sharing agreement with M/s VEH Green Energy Pvt. Ltd. It may also be noted that M/s VEH Power Nirman Pvt. Ltd. has also been granted connectivity for 76.8 MW (application no. 22000003820) through sharing of dedicated connectivity infrastructure of s VEH Green Energy Pvt. Ltd.

As these connectivity applications cannot be accommodated in the Koppal-II/Gadag-II, the grant of Connectivity can be considered at nearby Bijapur PS, Chitradurga / Davanagere PS and Bellary PS in the same vicinity. These Polling Stations have been identified for RE potential of 2 GW, 4 GW and 1.5 GW, respectively. The transmission schemes has been submitted to NCT for approval/recommendation with implementation schedule of 24 months and accordingly expected tentatively by 31.07.2026 (with implementation schedule of 24 months and other administrative & bidding process). The applicants may opt for grant of

connectivity at any of the above pooling stations. The transmission scheme for evacuation of power from Bijapur PS, Chitradurga / Davanagere PS and Bellary PS given at **Annexure-IX**.

2. Connectivity Related proposal at Pugalur PS

Sl.	Application ID, date & time of submission	Name of the Applicant	Project Location	Application for: Connectivity/ GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Connectivity / GNA requested	Installed Capacity/ GNA (Break up)	Power injection to ISTS (MW)	Start date of Connectivity/ GNA (requested)
i.	2200000533 27.01.2024	Tata Power Renewable Energy Limited	Karur, Tamil Nadu	Connectivity	Land BG Route	Generating station(s), including REGS(s), without ESS	Pugalur SS	288 (Wind)	288	01.06.2025

M/s TATA Power Renewable Energy Ltd. has sought Connectivity for 288 MW, as per above details. Applicant has requested to implement 220 kV terminal line bay for termination of DTL at ISTS end under the scope of ISTS. Pugalur S/s has been closed for grant of additional connectivity due to non-availability of bays/margins, Connectivity is proposed to be granted at Karur PS. Karur PS is under operation with 2x500 MVA, 400/230 kV ICTs. The Karur PS is being augmented with 2x500 MVA, 400/230 kV ICTs (3rd & 4th) alongwith granted Connectivity / Connectivity agreed for grant for about 1110 MW. Accordingly, margins are available for grant of the Connectivity. The augmentation of 3rd & 4th ICTs are expected by 31.10.2025 (considering implementation schedule of 18 months and time period for administrative & bidding processes).

System studies have been carried out for grant of additional connectivity of 288 MW at Karur PS. Connectivity may be granted along with existing/under-construction/under-bidding/planned transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure - I**).

In view of above, it is proposed to grant connectivity with following connectivity transmission system.

a. Connectivity Transmission system under GNA for M/s TATA Power Renewable Energy Ltd. (application no. 2200000533 for 288 MW):

i. Dedicated Connectivity Tr. System

- Generation Pooling Station of M/s TATA Power Renewable Energy Ltd. – Karur PS 220 kV S/c line along with line bay at generation pooling station – under the scope of applicant
- 1 no. 220 kV line bay at Karur PS for termination of above mentioned line – under the scope of ISTS

ii. **Associated Transmission System for GNA: Nil**

iii. **Common Transmission system required for effectiveness of connectivity/GNA (augmentation other than ATS) :**

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme for evacuation of power from RE sources in Karur/ Tirupur wind Energy Zone (Tamil Nadu) (1000 MW) under Phase-II as per **Annexure-X**.

Start date of Connectivity: 31.10.2025 with the availability of common transmission system required for effectiveness of Connectivity/ GNA.

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 3.0 Crs. (towards implementation of terminal bay under ISTS) + Conn-BG3 of Rs. 5.76 Cr. (@Rs.2 lakhs/MW).

Members may deliberate

3. Connectivity Related proposal at Kurnool-III PS

Sl.	Application ID, date & time of submission	Name of the Applicant	Project Location	Application for: Connectivity/ GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Connectivity / GNA requested	Installed Capacity/ GNA (Break up)	Power injection to ISTS (MW)	Start date of Connectivity/ GNA (requested)
i.	2200000508 20.01.2024	Adani Renewable Energy Fifty One Ltd.	YSR Kadapa, Andhra Pradesh	Connectivity	As per Regulation 5.8 (xi)	Standalone ESS (PSP)	Kurnool-III PS	Maximum drawl : 1250	1000	31.12.2027
ii.	2200000535 27.01.2024	Tata Power Renewable Energy Ltd.	Kurnool, Andhra Pradesh	Connectivity	Land BG Route	Generating station(s), including REGS(s), without ESS	Kurnool-III PS	400 (Solar)	400	01.06.2025

Kurnool-III PS is under implementation with 3x1500 MVA 765/400 ICTs, as per transmission scheme mentioned at **Annexure-X**, with commissioning scheduled of Nov'2024. Further, augmentation of 3x1500 MVA, 765/400 kV ICTs (4th, 5th & 6th) along with Kurnool - III PS – C'Peta 765 kV D/c line have been considered for implementation with tentative commissioning schedule of 31.07.2026 (considering implementation period of 24 months and other time period for administrative/ bidding process). Further, Connectivity corresponding to 6090 MW has already been granted at Kurnool-III PS, which includes PSP of 600 MW.

1. M/s Adani Renewable Energy Fifty One Ltd. (application o. 2200000508) has sought connectivity for 1250 MW (PSP), as per above details. Applicant has requested to implement the terminal bays for termination of DTL at ISTS end under the scope of ISTS. As per planning criteria, N-1 contingency connectivity system is required for immediate Connectivity system of PSP.
2. M/s TATA Power Renewable Energy Ltd. has connectivity for 400 MW. As per above details. Applicant has requested to implement the terminal bays for termination of DTL at ISTS end under the scope of ISTS.

In view of above, it is proposed to grant that cconnectivity may be granted along with existing/under-construction/under-bidding/planned transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure - I**). Connectivity transmission system for grant of connectivity is given below.

a. Connectivity Transmission system under GNA for M/s Adani Renewable Energy Fifty One Ltd. (application no. 2200000508 for 1250 MW):

i. Dedicated Connectivity Tr. System :

- Generation Pooling station of M/s Adani Renewable Energy Fifty One Ltd. – Kurnool-III PS 400 kV D/c line along with line bays at generation pooling station – under the scope of applicant.
- 2 nos. of 400 kV line bay at Kurnool-III PS for termination of dedicated line - under the scope of ISTS

ii. Associated Transmission System for GNA: Nil

iii. Common Transmission system required for effectiveness of connectivity/GNA (System strengthening without ATS):

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.

- Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-A and Part-B, as per **Annexure-XI**.
- Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-C, as per **Annexure-XII**.

Start date of Connectivity : 31.12.2027 (Tentative) with the availability of common transmission system required for effectiveness of GNA. Firm date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.

Further, applicant is required to submit BGs as per following details within one month of intimation for in-principle grant of Connectivity.

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 12 Crs. (Towards implementation of 2 nos. of 400 kV termination bay under ISTS) + Conn-BG3 of Rs. 25.0 Cr. (@Rs.2lakhs/MW)

Members may deliberate.

b. Connectivity Transmission system under GNA for M/s TATA Power Renewable Energy Ltd. (application no. 220000535 for 400 MW):

i. Dedicated Connectivity Tr. System :

- Generation Pooling station of M/s Tata Power Renewable Energy Ltd. – Kurnool-III PS 220 kV S/c line [with stringing of both circuit of D/c tower and bunching of both circuits at both ends to form S/c line] along with line bays at generation pooling station – under the scope of applicant.
- 1 no. 220 kV line bay at Kurnool-III PS for termination of dedicated line – under the scope of ISTS

ii. Associated Transmission System for GNA: Nil

iii. Common Transmission system required for effectiveness of connectivity/GNA (System strengthening without ATS):

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-A and Part-B, as per **Annexure-XI**.

- Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-C, as per **Annexure-XII**.

Start date of Connectivity : 31.07.2026 (Tentative) with the availability of common transmission system required for effectiveness of GNA. Firm *date for start date of Connectivity shall be confirmed subsequently after transfer of SPV.*

Further, applicant is required to submit BGs as per following details within one month of intimation for in-principle grant of Connectivity.

- Conn-BG1 of Rs. 50 lakhs + Conn-BG2 of Rs. 3 Crs. (Towards implementation of 220 kV termination bay under ISTS) + Conn-BG3 of Rs. 8.0 Cr. (@Rs.2lakhs/MW)

Members may deliberate.

Annexure-I

ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region

Sl.	Scope of the Transmission Scheme	Capacity /km
1.	Narendra New (GIS) – Pune (GIS) 765kV D/c line with 1x330MVA switchable line reactor on each ckt at both ends	340 km <ul style="list-style-type: none"> • 765 kV line bays -2 (GIS) (at Narendra New) • 765 kV line bays -2 (GIS) (at Pune) • 765 kV, 330 MVA SLR – 2 nos (7 X 110 MVA incl. 1 switchable spare unit) at Pune (GIS) • 765 kV, 330 MVA SLR – 2 nos (6 X 110 MVA) at Narendra (New) (GIS)
2.	Upgradation of Narendra (New) (GIS) to its rated voltage of 765 kV level along with 4x1500 MVA transformer and 2x330 MVA Bus Reactor.	<ul style="list-style-type: none"> • 765/400 kV, 1500 MVA- 4 no. (13 X 500 MVA incl. 1 spare unit) • 765 kV ICT bays- 4 nos. (GIS) • 400 kV ICT bays- 4 nos. (GIS) • 765 kV, 330 MVA BR – 2 nos. (7 X 110 MVA incl. 1 switchable spare unit to be used for both bus/line reactors) • 765 kV Bus Reactor bays – 2 nos. (GIS)

Annexure-II

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) and Gadag-II (Phase- A) in Karnataka

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-A) in Karnataka :

- Establishment of 765/400 kV 2x1500 MVA, 400/220 kV, 2x500 MVA Koppal-II PS
- Koppal-II PS – Narendra (New) 765 kV D/c line with 240 MVA SLR at Koppal-II PS end
- 2x330 MVA (765 kV) & 2x125 MVA (400 kV) bus reactors at Koppal-II PS
- 04 nos. of 220 kV line bays- Under the scope of ISTS

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase- A) in Karnataka :

- Establishment of 400/220 kV, 2x500 MVA Gadag-II PS
- Gadag-II PS – Koppal-II PS 400 kV (Quad Moose) D/c line
- 2x125 MVAr 420kV bus reactors at Gadag-II PS

Annexure-III

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-B)

- Koppal-II PS – Raichur 765 kV D/c line with 330 MVAr SLR at Koppal-II PS end
- Augmentation by 2x1500 MVA, 765/400 kV ICTs at Koppal-II PS
- Augmentation by 2x500 MVA, 400/220 kV ICTs at Koppal-II PS

Annexure-IV

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-C)

- Augmentation by 2x1500 MVA, 765/400 kV ICTs (5th & 6th) at Koppal-II PS
- Augmentation by 3x500 MVA, 400/220 kV ICTs (5th, 6th and 7th) at Koppal-II PS

Annexure-V

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Koppal-II (Phase-D)

- Augmentation by 2x1500 MVA, 765/400 kV ICTs (7th) at Koppal-II PS
- Augmentation by 3x500 MVA, 400/220 kV ICTs (8th and 9th) at Koppal-II PS

Annexure-VI

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase- B) in Karnataka

- Augmentation of 3x500 MVA, 400/220 kV transformation capacity (3rd, 4th and 5th ICTs) at Gadag-II PS

Annexure-VII

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase- C) in Karnataka

- Augmentation of 2x500 MVA, 400/220 kV transformation capacity (6th & 7th ICTs) at Gadag-II PS
- Gadag-II PS – Koppal-II PS 400kV (Quad) 2nd D/c line.

Annexure-VIII

Transmission Scheme for integration of Renewable Energy Zone (Phase-II) in Gadag-II (Phase- C) in Karnataka

- Augmentation of 1x500 MVA, 400/220 kV transformation capacity (8th ICT) at Gadag-II PS

Annexure-IX

Transmission system for integration of Davanagere/Chitradurga, Bijapur and Bellary REZs

a. Transmission Scheme for integration of Davanagere / Chitradurga REZ in Karnataka

- i) Establishment of 765/400kV 4x1500 MVA, 400/220kV 4x500 MVA Pooling Station near Davanagere / Chitradurga, Karnataka with provision of two (2) sections of 4500 MVA each at 400kV level and provision of four (4) sections of 2500 MVA each at 220kV level
- ii) Upgradation of Narendra New – Madhugiri 765kV D/c line (presently charged at 400kV level) at its rated 765kV voltage level
- iii) Upgradation of Madhugiri {Tumkur(Vasantnarsapura)} to its rated voltage of 765kV level alongwith 3x1500 MVA, 765/400kV ICTs and 2x330 MVA, 765kV bus reactors
- iv) LILO of Narendra New – Madhugiri 765kV D/c line at Davanagere / Chitradurga 765/400kV PS (~35 km) {with 240 MVA SLR at both ends on Narendra New – Davanagere section (~280 km) and 330 MVA SLR at Davanagere end on Davanagere – Madhugiri section (~200 km)}
- v) 400 kV line reactors (80 MVA) on both ends of Narendra New – Madhugiri 765kV D/c line shall be utilized as bus reactors at respective 400kV substations based on availability of bays or may be utilized as line reactor / bus reactor at other line / substation as per requirements.
- vi) 2x330 MVA (765kV) bus reactors at Davanagere/ Chitradurga PS

b. Transmission Scheme for integration of Bellary REZ in Karnataka

- i) Establishment of 4x500 MVA, 400/220kV Pooling Station near Bellary area (Bellary PS), Karnataka
- ii) Bellary PS – Davanagere / Chitradurga 400kV (Quad ACSR moose) D/c line (~100 km)

iii) 2x125MVA 420 kV bus reactors at Bellary PS

c. Transmission Scheme for integration of Bijapur REZ in Karnataka

- i) Establishment of 2x500 MVA, 400/220kV Pooling Station near Bijapur (Vijayapura) area, Karnataka
- ii) Bijapur PS – Raichur New 400kV (Quad ACSR moose) D/c line with 80 MVA SLR at Bijapur end on both circuits (~150 km)
- iii) 2x125MVA 420 kV bus reactors at Bijapur PS

Annexure-X

Transmission Scheme for evacuation of power from RE sources in Karur/ Tirpur wind Energy Zone (Tamil Nadu) (1000 MW) under Phase-II

- Augmentation of 2x500 MVA, 400/220 kV transformation capacity (3rd & 4th ICT) at Karur PS

Annexure-XI

Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-A and Part-B

- Establishment of 765/400/220kV 3x1500 MVA, 9x500 MVA Kurnool-III PS.
- Kurnool –III PS – Kurnool(new) 765 kV D/c line
- Kurnool –III PS – Maheshwaram (PG) 765 kV D/c line

Annexure-XII

Transmission Scheme Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-C

- Augmentation of 765/400/220kV 3x1500 MVA, transformation capacity (4th, 5th and 6th ICTs) Kurnool-III PS.
- Kurnool –III PS – C’Peta 765 kV D/c line

**Record of Discussion for the meeting on 'Offshore Wind' held on 14.06.2023
under the chairmanship of Hon'ble Minister**

A meeting on "Offshore Wind Development" was held the Chairmanship of Shri R. K. Singh, Hon'ble Minister of Power and New & Renewable Energy on 14th June, 2023 in the conference room, 2nd Floor, SSB, New Delhi to discuss the issues related to grid connection, time line and bidding of offshore wind energy projects under various models. The meeting was attended by Secretary (MoP), Secretary (MNRE), Chairman, CEA, CMD, PGCIL along with senior officials of CTU, PGCIL and CEA. The list participants is attached as annex.

Hon'ble Minister mentioned that the scope of the offshore grid evacuation infrastructure and its cost implication needs to be deliberated in detail. Chairman, CEA mentioned that, the cost of 4 GW transmission and evacuation infrastructure off the coast of Tamilnadu including the offshore substation is estimated around Rs. 20,000 crore which translated to a transmission tariff of Rs. 1.0 to Rs. 1.25 per kWh.

After detailed deliberations the following was decided;

1. The evacuation infrastructure up to the offshore substation (including the offshore substation) may be built as part of ISTS network by CTU.
2. For development of this evacuation infrastructure, both Tariff Based Competitive Bidding (TBCB) and RTM methods will be adopted.
3. Initial 2 GW offshore evacuation infrastructure (1.0 GW in Gujarat and 1.0 GW in Tamilnadu) may be developed by PGCIL under Regulated Tariff Mechanism (RTM) and further 4.0 GW evacuation infrastructure will be developed under TBCB.
4. Bidding documents for projects with VGF (Model-1) and without VGF (Model-3) will be prepared and shared with CEA for vetting.
5. A bidding calendar specifying the dates for block wise bidding under Model-III shall be prepared and put up for approval.

6. A call for proposal/advertisement to carry out studies and surveys by interested developers to be issued.
7. The EFC proposal for the VGF scheme to support the initial 500 MW off Gujarat coast and 500 MW off Tamilnadu coast to be expedited.
8. The necessary studies/survey for 500 MW offshore wind project off Tamilnadu coast to be carried out by NIWE. Necessary budgetary resource for the purpose shall be allocated to NIWE. Accordingly, the strategy paper may be modified doing away with Model-2.
9. The identified ports (Tuticorin, Tamilnadu and Kandla, Gujarat) may be asked to initiate actions for upgradation of port facilities required for offshore wind along with developing a process to lease out areas within the port for setting up of offshore wind manufacturing facilities.

The meeting ended with a vote of thanks to the chair.

Annex

List of participants for the meeting on 'Offshore Wind' held on 14.06.2023 under the chairmanship of Hon'ble Minister

Name	Designation	Organization
Shri Alok Kumar	Secretary	MoP
Shri Bhupinder Singh Bhalla	Secretary	MNRE
Shri Ghanshyam Prasad	Chairman	CEA
Dr. D. Sai Baba	Jt. Secretary	MoP
Shri Dinesh Dayanad Jagdale	Jt. Secretary	MNRE
Shri Deepak Rao	Director	MoP
Shri Prabir Kumar Dash	Scientist-D	MNRE
Shri. K. Sreekant	CMD	PGCIL
Shri Ashok Pal	Dy. COO	CTU
Shri Subir Sen	ED	PGCIL
Shri. Anil Kumar Meena	GM	CTU

Meeting between MNRE and CTUIL held on 16th August 2023 regarding Offshore Transmission Planning

Record of Discussion

A meeting was held between with Central Transmission Utility of India Limited (CTUIL) under the chairmanship of the Joint Secretary MNRE on 16th August 2023. The meeting was convened to discuss the planning for development of evacuation and transmission infrastructure for the upcoming offshore wind energy projects in India. The list of participants is annexed. A short presentation was made by MNRE regarding the recent development in Offshore Wind Energy sector. After detailed discussion, the following points emerged:

- CTUIL shall stagger the offshore transmission project timelines according to the tentative date of commissioning of the offshore wind energy projects so as to ensure optimum utilization of the transmission assets or *vice versa*.
- CTUIL clarified that vide Hon'ble Minister meeting dated 14.06.23, it was decided that initial 02 GW transmission capacity (01 GW each off the coast of Gujarat and Tamil Nadu) shall be developed under Regulated Tariff Mechanism(RTM) and further 04 GW each off the coast of Gujarat and Tamil Nadu shall be developed under Tariff Based Competitive Bidding (TBCB) method.
- The voltage level of the system between the secondary side of the offshore substation and the primary side of the onshore pooling substation shall be decided based on the specifications of the cables available in the market.
- The onshore pooling substations shall be designed to allow for expansion of capacity up to 5 GW each of the coast of Gujarat and Tamil Nadu. This will allow for evacuation of power from future offshore wind projects.
- NIWE to demarcate the offshore sites of 01 GW capacity into 2 x 500 MW blocks each (500 MW for VGF Project and remaining 500 MW for Non-VGF Project) off the coast of Gujarat and Tamil Nadu and finalize the probable coordinates of the offshore pooling substations. These coordinates of the

offshore pooling substations shall also be provided in the proposed tender document.

- MNRE to share with CTUIL the sites details with probable coordinates of the offshore substations and commissioning timelines for initial 06 GW offshore wind energy projects.
- MNRE to share with CTUIL the consent of TN govt. to procure the power from offshore wind projects @ Rs. 4.00 per unit. Further a cost benefit analysis study may be taken up specifically highlighting the benefit of supply during peak hours.
- A meeting to be organized between MNRE, CTUIL and the representative official from Gujarat Power Corporation Limited (GPCL) to discuss Gujarat state's plans for development of offshore wind energy projects and their transmission requirements.
- CTUIL to prepare and share with MNRE the list of newly developed onshore substations where connectivity applications have not been received from renewable energy developers. The list will be shown to developers at the industry stakeholders meeting and sought the comments of developers on the same.

Annex

SI.No	Name and Designation
CHAIRMAN & MNRE Officials	
1.	Shri Dinesh Dayanand Jagdale, Joint Secretary (Wind), MNRE - Chairman
2.	Dr. Prabir Kumar Dash, Scientist 'D', Wind Power Division, MNRE
3.	Dr. Rahul Rawat, Scientist-C, Wind Power Division, MNRE
4.	Shri Rishikesh Vaishnav, Scientist-B, Wind Power Division, MNRE
NIWE Officials	
5.	Dr. Rajesh Katyal, Director General, NIWE
CTU Officials	
6.	Shri PC Garg, COO, CTU
7.	Shri Ashok Pal, Dy. COO, CTU
8.	Shri Anil Meena, GM, CTU
9.	Shri P S Das, CTU

Meeting between MNRE and CTUIL held on 22nd December 2023

Record of Discussion

A meeting was held with Central Transmission Utility of India Limited (CTUIL) on 22 December 2023 to discuss specifics regarding the development of evacuation and power transmission infrastructure for the upcoming offshore wind energy projects in India.

DG, NIWE presented tentative locations of offshore substation in the identified blocks for development of 500 MW capacity each off the Gujarat and Tamil Nadu coast through VGF support and 04 GW sites identified off the coast of Tamil Nadu for project development under Open Access without any financial support. The tentative offshore substation locations consist both at central location and an edge location for each block. The charts, coordinates, distances from shore and distance to onshore substations for each block were shared by NIWE.

After detailed discussion and deliberation on the matter, the following points emerged:

- The tentative timelines for the offshore wind energy projects are as follows:
 - 500 MW VGF project off-Gujarat coast to be commissioned by March 2028. Tender for the project to be published by March 2024
 - 4 GW non-VGF project off-Tamil Nadu coast to be commissioned by in FY 2029-30. Tender for the projects to be published on 01.02.2024
 - 500 MW VGF project off-Tamil Nadu coast to be commissioned by March 2029. Tender for the project to be published by March 2025.
 - Non-VGF project off-Gujarat coast will be tendered based on the response for the Tamil Nadu non-VGF project.
- Offshore substation and subsea transmission line will be planned for the block-edge locations presented by NIWE in order to reduce conflicts with operations of offshore wind power developers, and reduce the investment by PGCIL.
- PGCIL shall ensure that the overall plan for development of offshore transmission infrastructure at the VGF project sites are developed for 1 GW capacity each off the coast of Gujarat and Tamil Nadu in a phased manner. First phase of 500 MW each to be completed in line with the commissioning of offshore wind energy projects planned to be supported through VGF.
- The project planning process shall take into account the weather windows where sailing and construction activities may not be possible at the offshore site and along the cable route.
- The tentative specifications of the transmission infrastructure were agreed upon, and are as follows:
 - Operating voltage for the substation and the transmission line to be kept 220 kV.
 - Substation transformer configuration of 2 x 315 MVA to be used in order to allow for safety margins and evacuation of additional capacity if awarded capacity increases beyond 500 MW
 - 2 x 300 MVA capacity subsea cables to be used for power evacuation
- It was noted that, subsea transmission cable is the most critical component of the transmission infrastructure due to bottlenecks in the global manufacturing industry and limited availability of cable laying vessels
- PGCIL to prepare a DPR for development of the proposed transmission infrastructure drawing from their experience of a similar DPR prepared for a cross-border transmission link between India and Sri Lanka.

The meeting ended with a thanks to the chair.

Manoj Patel
Additional Secretary



No.SLR/11/2017/1673/B1
Government of Gujarat
Energy & Petrochemicals Department
Sachivalaya, Gandhinagar.
Phone : 079-23250779
Fax No: 079-23250797
15th October, 2022

To,
Secretary
Ministry of New & Renewable Energy
Government of India
Block-14, CGO Complex
Lodhi Road, New Delhi-110003

Sub: Procurement of power from Offshore Wind Projects @ Rs. 4.00 per unit.
Ref.: Secretary- MNRE's D.O. letter No. 225/3/2018-Wind dated 01/09/2022.

Respected Sir,

I would like to draw your kind attention to your above reference letter regarding to give consent for off-taking power from the 2 GW offshore wind projects to be installed off the coast of Gujarat at Rs. 4.00/ unit instead of Rs. 3.50/ unit.

In this context, I am directed to convey the State Government's "in-principle" approval to procure 2000 MW (2 GW) power by GUVNL from the Offshore Wind Projects off the coast of Gujarat at the tariff of Rs. 4.00/unit with following conditions:

- 1) Offshore wind projects must be nearby coast of Gujarat as mentioned in coastal location as shown in figure-2 on Page no. 3 of "**Strategy Paper for Establishment of Offshore Wind Energy Projects**" issued by MNRE (Pls. see attached annexure).
- 2) 100% Power Evacuation to be carried out onshore coast of Gujarat.
- 3) The interconnection metering point/ delivery point shall be ex-bus Gujarat state as decided by GoG/GUVNL
- 4) All the losses upto the delivery point/interconnection point shall be borne by project developer.
- 5) Minimum Round the Clock (RTC) PLF should be guaranteed, For example, if overall PLF is ranging from 45% to 60%, atleast 20% of the PLF Round The Clock should be confirmed from developers.

(Explanation: if minimum 20% RTC PLF is provided then Gujarat has benefit of 400 MW (Out of 2000 MW (2GW)) renewable capacity available round the clock this will greatly ease out Gujarat for Daily Power Procurement planning)

- 6) In the e-reverse auction bidding if Reverse option needs to be carried out on fixed Viability Gap Funding (VGF) amount then whatever the maximum reduction benefit in VGF, atleast 50% should be shared with Govt. of Gujarat for the purpose of setting up internal power transmission evacuation system from offshore ISTS substation.
- (Explanation: Govt of India would provide initial capital Viability Gap Funding based on the tariff offered by DISCOM. For Example. If Govt. of Gujarat offers Rs. 4/- unit tariff and say Govt. of India decide max. Viability Gap Funding sharing of Rs. 5 Crores per MW. If selected bidder has offered reduction of 3 Crore per MW in VGF then Govt. of India should share the saving at least 50 % of the saving in VGF funding that is 1.5 Crore per MW. This would help the state to reduce the transmission cost of offshore power within State and hence ultimate tariff to consumer would also be reduced to that extent. Further, it will greatly help to state for strengthening and expanding Intra State Power Evacuation system.
- 7) Further, in e-reverse auction, Tender condition should also allow reduction in fixed tariff, if aggressive bidder demands zero VGF. Further reduction in tariff during e reverse auction would benefit directly to state.
- 8) In case this e- reverse option is to be carried out by SECI then SECI should not ask trading charges of Rs. 0.07 per unit from GoG/State DISCOM towards transaction charge as per their normal RE procurement policy.
- 9) GOI will set up offshore and onshore Substation as well as onshore transmission lines as mentioned in figure-3 on Page No. 9 of the "Strategy Paper for Establishment of Offshore Wind Energy Projects".
- 10) GUVNL is ready to procure 2000 MW (2 GW) power from the Offshore Wind Projects off the coast of Gujarat at the tariff of Rs. 4/ unit with additional cost (if any) to be covered under the VGF Mechanism by MNRE, GoI instead of Rs. 3.50/unit.

With regards,

Encl.: As above.

Yours faithfully,



(Manoj Patel)

**Additional Secretary
Energy & Petrochemicals Department**

Bhakti Shamal
Deputy Secretary

EPCD/OSW/e-file/20/2023/0374/B1
Government of Gujarat
Energy & Petrochemicals Department
Sachivalaya, Gandhinagar

To.

Joint Secretary
Ministry of New and Renewable Energy
Atal Akshay Urja Bhawan, CGO Complex,
Lodhi Road, New Delhi.

Subject: Procurement of Power from Offshore Wind Projects

Reference: Your office letter No.225/3/2018-wind, Dt. 25/10/2022

Respected Sir,

With reference to the above subject and the reference letter, I am directed to convey that the State Government is "in-principle" agree upon relaxation on conditions no.3 to 6 as requested by above referred letter.

With regards,

Yours faithfully

Bhakti Shamal

(Bhakti Shamal)

Deputy Secretary

Energy and Petrochemicals Department





Energy (E1) Department
Secretariat, Chennai - 9

Letter No.8486/E1/2022, dated 31.01.2023

From
Thiru. Ramesh Chand Meena, I.A.S.,
Additional Chief Secretary to Government.

To
Thiru Bhupinder Singh Bhalla,
Secretary,
Government of India,
Ministry of New and Renewable Energy,
Akshay Urja Bhawan,
Behind National Investigation Agency,
Lodhi Road, New Delhi-110 003.

Sir,

Sub: Energy – Allocation of the power generated from the Offshore Wind Power Project proposed on the coast of Tamil Nadu - Requested - Regarding.

- Ref:1. From the Joint Secretary to Government of India, Ministry of Power and Renewable Energy, New Delhi, D.O. letter No.117/21/2021-wind-part(1), dated 01.02.2022.
2. Government letter No.8486/E1/2022, Energy (E1) Department, dated 7.6.2022.
 3. Your D.O.No.225/3/2018-Wind, dated 1.9.2022

I am directed to invite your kind attention to your letter 3rd cited and to state that the State Government is interested to purchase the offshore wind power to be generated off coast of Tamil Nadu at the flat rate of Rs.4.00 per unit.

2. In this connection, I am to request you to allocate 100% of the power to be generated from the offshore wind power projects proposed off the coast of Tamil Nadu to the State of Tamil Nadu to meet the future load growth, industrial development and Renewable Power Obligation (RPO) in Tamil Nadu as a special case.

Yours faithfully,

D. S. Rajan
31.1.23
for Additional Chief Secretary to Government

BT
31.1.23

