Annexure-III

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उदयम)
CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly owned subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref. no.: CTU/W/01/WRPC

Date: 10.03.2022

Shri Satyanarayan. S
Member Secretary
Western Regional Power Committee
MIDC area, Marol,
Andheri East, Mumbai - 400 093

Sub: CTU response to the comments of MSEDCL w.r.t transmission scheme "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region"

Dear Sir,

This is with reference to comments received from MSEDCL vide letter dated 28.02.2022 (copy enclosed) on the proposal for ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region. The response of CTU in respect of the comments are enclosed herewith.

Further, in view of urgent requirement of the "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region" for facilitating export of power under LTA to the identified beneficiaries in the NEW Grid from the RE generation projects in Southern Region, it is suggested that the scheme may be recommended by WRPC for taking up for implementation so as to ensure timely availability for evacuation of power from RE projects.

Thanking you,

Yours faithfully,

(Partha Sarathi Das)
Sr. General Manager

Distribution List:

1.	**Chief Engineer (PSP&A - I)** Central Electricity Authority Sewa Bhawan, R.K.Puram New Delhi-110 066	2.	**Director (SO)** POSOCO NLDC B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016
3.	**Executive Director** Western Regional Load Despatch Centre F-3, M.I.D.C. Area, Marol, Andheri East, Mumbai-400 093	4.	**Chairman & Managing Director** Madhya Pradesh Power Transmission Co. Ltd., Block No. 3, Shakti Bhawan, Rampur, Jabalpur-482 008
5.	**Director (Operation)** Maharashtra State Electricity Transmission Co. Ltd., 4th Floor, "Prakashganga", Plot No. C-19, E-Block, Bandra – Kurla Complex, Bandra (East), Mumbai- 400051	6.	**Managing Director** Gujarat Energy Transmission Corp. Ltd, Sardar Patel Vidyut Bhawan, Race Course, Vadodara -390 007
7.	**Executive Engineer** Electricity Department U.T. Administration of Dadar and Nagar Haveli and Daman and Diu Vidyut Bhavan, Somnath-Kachigam Road, Kachigam, Daman – 396210	8.	**Managing Director** Chhattisgarh State Power Transmission Co. Ltd., Dangania, Raipur- 492 013
9.	**Chief Engineer** Electricity Department The Government of Goa, Malacca Rd, Patto Colony, Panaji, Goa - 403001	10.	**Chief Engineer (Power Purchase)** Maharashtra State Electricity Distribution Company Limited 5th floor, Prakashgad, Plot No. G-9, Bandra East, Mumbai – 400051

Reply of CTU in respect of observations of MSEDCL w.r.t transmission scheme "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region"

The subject transmission scheme "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region" was deliberated and agreed in Joint Study Meeting held on 16.12.2021 amongst CEA, CTU, POSOCO, WR, and SR constituents. Subsequently, the scheme was discussed and agreed for implementation by all the Western and Southern Region constituents in the 2nd Consultation Meeting for Evolving Transmission Schemes in Western Region (CMETS-WR) held on 28.12.2021 and 2nd Consultation Meeting for Evolving Transmission Schemes in Southern Region held on 29.12.2021.

Further, pointwise replies to the observations of MSEDCL forwarded vide letter dated 28/02/2022 with respect to the subject transmission scheme is provided in the subsequent paras:

Sl.4(a): ISTS connected RE in Maharashtra considered for Study:
Out of 7GW REZ potential in Maharashtra, 1 GW at Kallam has been considered. Additional 1 GW at Kallam under Intra State and balance 5 GW (Wardha – 2.5 GW, Solapur – 2.5 GW) has not been considered due to non-availability of land and no visibility of RE generation. The same has already been mentioned in MoM of joint study meeting referred above (Copy enclosed at Annexure-1).

Sl.4(b): Need for reducing the intrastate generation of Maharashtra to 10000MW under huge deficit condition:
It may be mentioned that diversity factors and generation dispatches have been considered as per the methodology finalized in the meeting held on 11.03.2021 amongst CEA, CTU and POSOCO regarding Load Generation Balance for All India Studies for 2024-25 for integration of RE projects (9 scenarios).

For export of surplus power from Southern Region during high RE, Solar Max (Jun'24 Afternoon Peak) scenario has been considered for studies and LGB has been set accordingly. RE has been considered as must run and thermal plants have been dispatched in merit order basis.

Sl.4(c), 4(j), 4(i) & 4(l) and Pt.(5) & Pt.(6): POSOCO suggestions vide letter dated 02.02.2021 and transmission scheme evolution/consent/justification:
NLDC as part of operational feedbacks vide its letter dated 02.02.2021 (copy enclosed at Annexure-2) has highlighted that high loadings beyond Kolhapur is attributable to multiple factors viz. high generation at Kudgi TPS, low generation at plants in southern Maharashtra, high load around Kolhapur area, high renewable (Solar) generation in Southern Region etc. The measures proposed by POSOCO at Sl.4(j) are short term operational measures towards mitigation of the above. Regarding long term measures i.r.o planning for transmission system augmentation, POSOCO has suggested that order

to mitigate the operational constraints being faced in Kolhapur (PG) – Kolhapur (MSETCL) 400kV D/c line and to export RE power from SR under high RE scenario, additional 765kV outlets to Pune or Padghe are required in addition to reconductoring of Kolhapur(PG)–Kolhapur(MH) 400kV D/c line.

Presently, SR to WR TTC during SR export under high RE generations is limited due to constraints on 400kV Kolhapur PG - Kolhapur (MH) D/c line and beyond. Further, the pattern of power flow on Kolhapur (PG) - Kolhapur (MH) is always from Kolhapur (PG) to Kolhapur (MH) irrespective of export or import scenario of SR. The problem of over loading of Kolhapur (PG) – Kolhapur (MH) shall further aggravate with the increase in renewable generations in SR especially in Koppal / Gadag area in Karnataka.

Considering the above, detailed system studies were carried out to assess the adequacy of existing Inter-Regional corridors between Southern Region & Western Region to cater to export of surplus power from potential REZs in Southern Region to Western Region and beyond under SR export scenario. The same was discussed in the 3rd WRPC(TP) meeting held on 14.06.2021 and after deliberations, the following were agreed in the meeting:

- Reconductoring of Kolhapur (PG) – Kolhapur 400 kV D/c line with conductor of minimum capacity of 2100 MVA/Ckt at nominal voltage along with bay upgradation work at Kolhapur (MSETCL)
- The strengthening requirement beyond Kolhapur other than reconductoring of Kolhapur (PG) – Kolhapur 400 kV D/c line would be studied in a separate joint study meeting with CEA, CTU, WRPC & POSOCO

Subsequently, the reconductoring of Kolhapur (PG) – Kolhapur 400 kV D/c line was allotted to POWERGRID vide MoP OM dated 01.12.2021.

It may be further noted that the requirement of additional system strengthening beyond Kolhapur was also highlighted in 3rd SRPC(TP) meeting held on 24.08.2021 wherein the Transmission system for integration of 8 GW of REZ in Southern Region was discussed. During the meeting, it was categorically stated that though the proposed transmission system is sufficient for integration of potential REZ in Koppal, Gadag, Karur and Tuticorin REZ, transmission system strengthening shall be required beyond Kolhapur for evacuation of surplus power from RE generation projects in SR.

Accordingly, a Joint study meeting of WR and SR constituents was held on 16.12.2021 wherein following two alternatives out of studied seven alternatives were found to be technically in order:

- Narendra(New) – Pune (GIS) 765kV D/c line (Alternative-VII)
- Narendra(New) – Jejuri – Pune (GIS) 765kV D/c line wherein a new S/s at Jejuri was proposed for improved reliability and for mitigating of low voltage issues in Jejuri and adjoining areas (Alternative -V).

During the joint study meeting, MSETCL informed that LILO of Karad- Lonikand 400kV is now being proposed at Jejuri (MSETCL) S/s instead of earlier planned Kesurdi S/s along with some changes in downstream network around Pune due to proposed shifting of loads to Pune (PG) GIS S/s. Subsequently, MSETCL vide e-mail dated 11.01.2022 informed that at present MSETCL does not require 400 kV feeds from proposed 765/400 kV Jejuri (PG) S/s.

Accordingly, following transmission system was agreed as "ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region" in the 2nd Consultation Meeting for Evolving Transmission Schemes in Western Region (CMETS-WR) held on 28.12.2021 and 2nd Consultation Meeting for Evolving Transmission Schemes in Southern Region held on 29.12.2021. (Copy enclosed at Annexure-3)

Sl. No.	***Scope of the Transmission Scheme***	***Capacity /km***
1.	Narendra New (GIS) – Pune(GIS) 765kV D/c line with 1x330MVAr switchable line reactor on each ckt at both ends	340 km 765 kV line bays -2 (GIS) (at Narendra New) 765 kV line bays -2 (GIS) (at Pune) 765 kV, 330 MVAr SLR – 2 nos (7 X 110 MVAr incl. 1 switchable spare unit) at Pune 765 kV, 330 MVAr SLR – 2 nos (6 X 110 MVAr) at Narendra (New)
2.	Upgradation of Narendra (New) (GIS) to its rated voltage of 765 kV level alongwith 4x1500 MVA transformer and 2x330 MVAr Bus Reactor.	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- 2 nos.(GIS)^ 765 kV, 330 MVAr BR – 2 nos. (7 X 110 MVAr inc. 1 switchable spare unit to be used for both bus/line reactors) 765 kV Bus Reactor bays – 2 nos. (GIS)

**Narendra (New)(GIS) - Kolhapur 765kV D/c line to be kept charged at 400kV level*
^Out of required 04 nos. of 400kV ICT bays (GIS) for 765/400kV ICTs, 02 nos. of 400 kV ICT bays (GIS) for 765/400kV ICTs are under implementation through TBCB route under the scheme "Evacuation of Power from RE Sources in Koppal Wind Energy Zone (Karnataka) (2500 MW)"

It was further decided that the Narendra New (GIS) – Pune 765kV D/c line may be LILOed in future at a suitable location as per requirement of MSETCL.

In view of the above, it is quite evident that the requirement of aforementioned transmission system is on account of export of surplus power from Southern Region. Further, CEA, POSOCO and all other Western Region constituents including MSETCL have agreed for the proposal in the Joint study meeting of WR and SR constituents held on 16.12.2021 and 2nd Consultation Meeting for Evolving Transmission Schemes in Western Region held on 28.12.2021.

POSOCO has also expressed and agreed for requirement of the proposed transmission system and has requested to take up the implementation on urgent basis to address the constraints beyond Kolhapur during the SR export scenario (copy enclosed at Annexure-4). The scheme would help in relieving transmission constraints in exporting surplus power from Southern Region during high RE and off-peak period.

Sl.4(d), 4(e), 4(h) & 4(k): Proposal suggested by TANGEDCO to resolve constraints, upgradation of Kolhapur to 765kV and operation of HVDCs of SR in reverse mode:

TANGEDCO has stated that additional 765kV corridor from Narendra to Pune is not required to mitigate the issue of overloading of Kolhapur (PG) – Kolhapur (MH) 400 kV D/c line and the same can be accomplished by LILO of any one of the circuits emanating from Kolhapur (MH) S/s to other substations at Kolhapur (PG) so as to form an additional circuit between Kolhapur (MS)-Kolhapur (PG).

In this regard, it is to mention that the assessment as well as the system studies submitted by TANGEDCO are unrealistic, as several MSETCL intra-state transmission lines are loaded much beyond their thermal limits and critically loaded in the base case itself. It is to mention that evacuation of proposed generations at Narendra (New) through only Kolhapur (PG) – Kolhapur (MH) reconductoring and one 400kV LILO at Kolhapur (PG) is not at all technically feasible. Accordingly, additional 765kV corridor in form of Narendra New–Pune (PG) GIS 765kV D/c line is required for export of surplus RE power of SR with reliability under the Transmission Planning Criteria.

It may be mentioned that at Narendra complex, potential REZ (Koppal-2.5 GW, Gadag-2.5 GW) along with thermal generations (Kudgi, Raichur & Bellary) are getting pooled. In the Joint study meeting held on 16.12.2021, with Raigarh - Pugalur HVDC 3000MW in reverse mode (SR to WR) and Kolhapur (PG) – Kolhapur (MH) reconductoring and without upgradation of Narendra (PG), under N-1 of Kolhapur (PG) – Kolhapur (MSETCL) 400kV D/c line, loading of other circuit is around 2520MW (2100MW is the thermal limit). Further, under N-1 of Kolhapur (MSETCL) – Karad 400kV D/c line, about 1020MW (850MW thermal limit) flows on other circuit. The above loadings are further aggravated under upgradation of Narendra New – Kolhapur (PG) to 765kV level. From the studies, it has been observed that with proposed generations at Narendra (New), power flows into the MSETCL network which creates overloading in the intra-state network. Accordingly, additional high capacity corridor is required to take care of long-term requirements.

From the options proposed by TANGEDCO to resolve the constraint beyond Kolhapur, it may be mentioned that from the studies over loadings are observed in base case itself and they are not complying with the planning criteria. Further, LILO of 400kV S/c lines at Kolhapur(PG) is not serving the purpose and in turn aggravating the loadings on the lines. The detailed observations on the study results are given below:

- With respect to Case-1, under N-1 of Kolhapur (PG) - Kolhapur (MSETCL) 400kV D/c line, other circuit loading is about 2379 MW (2100MW is thermal limit) and the same is N-1 non-compliant.
- With respect to Case-2, Kolhapur - Alkud 400kV S/c line thermal limit is 850MW. With the proposed LILO of Kolhapur (MH) - Alkud 400 kV S/c line at Kolhapur (PG) S/s, it becomes N-1 non-compliant as 1136MW flows under N-1 of Kolhapur (MH)-Kolhapur (PG) 400KV line on other two circuits. Further, Kolhapur (MSETCL) – Karad 400kV D/c line is highly loaded (736 MW per circuit) and the same is N-1 non-compliant (850MW thermal limit).
- With respect to Case-3, Kolhapur (MH) - Sholapur (PG) 400 kV S/c line thermal limit is 850MW. With the proposed LILO of Kolhapur(MH) – Sholapur 400 kV S/c line at Kolhapur (PG) S/s, it becomes N-1 non-compliant as 1169 MW flows under N-1 of Kolhapur (MH) - Kolhapur (PG) 400KV line on other two circuits. Further, Kolhapur (MSETCL) - Karad 400kV D/c line is highly loaded (711 MW per circuit) and the same is also N-1 non-compliant (850MW thermal limit).
- With respect to Case-4, Kolhapur (MH) - Karad 400 kV S/c line thermal limit is 850MW. With proposed LILO of one circuit of Kolhapur (MH) - Karad 400 kV D/c line at Kolhapur PG becomes N-1 non-compliant as 1026MW flows under N-1 of Kolhapur (MH) - Kolhapur (PG) 400kV line on other two circuits. Further, Kolhapur (PG) - Karad 400kV S/c line is also critically loaded near to its thermal limits (850MW thermal limit).

It may be noted that loading on Kolhapur (MH) – Kolhapur (PG) 400kV D/c line has very little sensitivity w.r.t generation at Wardha SEZ (2.5GW) & Solapur SEZ (2.5GW) and remains critically overloaded even after considering the above generations.

Further, with regard to reverse mode / block mode operation of Raigarh-Pugalur, Talcher-Kolar and Gazuwaka Back-to-Back HVDC interconnections, following may be noted:

- Raigarh-Pugalur reverse flow of 3000 MW has already been considered in the study with proposed 1x1500MVA ICT at Section-A and 2x1500MVA ICTs at Section-B of 400kV Raigarh (Kotra) 765/400kV S/s. From the system studies, it has been observed that the sensitivity of operating Raigarh - Pugalur HVDC in export mode (3000 MW) is only about 5% on Narendra (New) – Pune 765kV D/c line.
- Regarding operation of Talcher – Kolar HVDC in block mode / reverse mode the same is not possible due to non-implementation of Talcher-II back-up transmission system at Talcher and low voltage issues at Kolar. Further in case

of blocked mode / reverse mode of operation of Talcher – Kolar HVDC, loading on Talcher - Meramundli line increases which will trigger the SPS at Talcher-II generation of NTPC (details of SPS enclosed at Annexure-5) and shall lead to tripping of generation units which ultimately leads to depriving of Southern region constituents of cheapest power available to Talcher-II generation beneficiaries. CTU cannot propose such sub-optimal transmission system which deprives of such benefits to Southern Region beneficiaries.

- Reversal or block mode of the Gazuwaka Back-to-Back HVDC link do not provide any relief on the constraints beyond Kolhapur, as it has no sensitivity on the loading on transmission system beyond Narendra / Kolhapur.

Sl. 4(f) & 4(g): Study Considerations/assumptions about 28GW addition in WR and 8GW addition in SR:

Status of 28GW REZ in WR

Location of REZ	REZ Potential (GW)	Status
Bhuj-II	2	Transmission System is under implementation.
Dwarka (Jam Khambaliya)	1.5	
Lakadia	2	On hold/ deferred
Khavda	8	Transmission System for Khavda (3GW) is under implementation. Transmission System for Khavda (5GW) is under tendering.
Khavda	2.5	Transmission scheme is under finalization
Gujarat	**16**	
Rajgarh	2.5	Transmission System for Rajgarh (1.5GW) is under tendering. Transmission System for balance 1GW REZ has been planned.
Neemuch	1	Transmission System is under tendering.
Chattarpur	1.5	Transmission System is under tendering.
Madhya Pradesh	**5**	
Sholapur	2.5	On hold/ deferred
Wardha	2.5	
Osmanabad	1 + 1 (Intra-state)	Transmission System is under implementation.
Maharashtra	**7**	
Grand Total	**28**	

Transmission schemes which are under hold/deferred has not been considered due to non-availability of land and no visibility of RE generation. In addition to above, 4GW potential at Bhuj has also been considered.

Status of 8GW REZ in SR

Location of REZ	REZ Potential (GW)	Status
Koppal	2.5	Transmission System is under implementation.
Gadag Phase-I (1000 MW)	2.5	Transmission System is under tendering.
Gadag Phase-II (1500 MW)		Transmission System is under tendering.
Karnataka	**5**	
Karur Phase-I (1000 MW)	2.5	Transmission System is under implementation.
Karur Phase-II (1500 MW)		Transmission System is under tendering.
Tuticorin	0.5	Transmission System is under implementation.
Tamil Nadu	**3**	
Grand Total	**8**	

Transmission schemes which are under hold/deferred have not been considered due to non-availability of land and no visibility of RE generation. In addition to that, 2 GW potential at Tuticorin-II has also been considered.

Details of LTA involving transfer of power from SR to other regions as follows:

REZ	Stage-II Conn-ectivity (MW)	LTA (existing IR links) (MW)	LTA (recon. of Kolhapur line) (MW)	LTA (Narendra – Pune 765kV D/c line) (MW)	Total (MW)
Koppal (2.5 GW)	1655	600 (WR-175, NR-250, ER-175)	600 (NR)	130 (WR)	1330
Gadag (2.5 GW)	810	460 (WR-235, NR-150, ER-75)	-	180 (WR)	640
Karur (2.5 GW)	420	100 (ER)	-	320 (NR-150, WR-170)	420
Tuticorin (2.5 GW)	2370	1640 (WR-640, NR-500, ER-450, NER-50)	-	450 (NR)	2090
Tumkur (Pavagada)	2050	200 (NR)	-	-	200
Hiriyur (existing)	300	300 (ER)	-	-	300
Pugalur (existing)	300	300 (NR)	-	-	300
Nellore PS		250 (ER – Bangladesh)			250
Total		**3850**	**600**	**1080**	**5530**

In view of the above it is emphasized that there is an urgent requirement of the Transmission Scheme “ISTS network expansion beyond Kolhapur for export of surplus

power during high RE scenario in Southern Region" to facilitate integration and evacuation of power various from various REZs in SR and to cater to SR export requirements under high RE scenario as well as to mitigate operational constraints being faced presently. Thus, the scheme acts as an enabler towards achieving the Govt. of India target of establishing 500 GW capacity from non-fossil based energy sources by 2030.

Accordingly. It is suggested that the scheme may be recommended by WRPC to the NCT for taking up for implementation to ensure timely availability of transmission system for evacuation of power from RE projects at Koppal, Gadag, Karur and Tuticorin.

Annex 34.1c

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

Maharashtra State Electricity Distribution Co. Ltd.
CIN = U40109MH200SSGC153645
5th floor, Prakashgad, Plot No.G-9, Bandra (East), Mumbai – 400 051 ☎ (O) 26474211
Email: ceppmsedcl@gmail.com Website: www.mahadiscom.in

Ref. No: CE/PP/WRPC/ No 04706 Date: 28 FEB 2022

To,
The Member Secretary,
Western Regional Power Committee,
F-3, MIDC Area, Marol,
Opp. SEEPZ, Central Road,
Andheri (East), Mumbai- 400093

Subject: MSEDCL comments on CTUIL's proposal of ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region.

Dear Sir,

The clause 6(3) of new Resolution dated 03.12.2021 of MoP is related to facilitate all functions of planning relating to inter-state/ intra-state transmission system with CTU/STU. Accordingly the same item was included in the Supplementary Agenda item 1 with heading "Planning of Inter-state transmission" for 41st TCC/WRPC meeting.

During the meeting the issue of proposed ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region was discussed. It is to note that, prior to this, no communication was done with the members regarding the proposed ISTS scheme having estimated cost of Rs.2374 Crs.

As per new Resolution dated 03.12.2021 of MoP, ISTS schemes costing more than 500 Crs. needs to be consulted with RPC whose views are then put before NCT and finally the approval would be accorded by MoP. Further, it is to note that MSEDCL still do not have the details about the study conducted by CTUIL while finalizing the proposed ISTS scheme and the proposal of CTUIL.

MSEDCL is in receipt of TANGEDCO's letter to CTUIL and Member Secretary, SRPC dated 09.02.2022 in which it has provided its views about the proposal.

In this regard, MSEDCL comments on the CTU's proposal of ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region, based on the limited information are as follows;

1) The proposed ISTS network expansion scheme seems to have been evolved based on the following assumptions / considerations by CTUIL:
   a. CTUIL has considered 100% RE dispatch in Karnataka state considering the anticipated RE capacity addition in Koppal and Gadag area along with 100% thermal generation which is impossible under any worst scenario.
   b. Huge mismatch in Load-Generation Balance in Maharashtra – Considering the projected demand of 26853 MW and only 10000 MW of generation which is also practically impossible scenario
   c. CTUIL has not considered already planned / implemented RE capacity addition in WR and NR.
   d. The diversity factors and generation dispatches are totally against the CEA's Transmission planning criteria.

e. The projected RE capacity addition in Maharashtra is not matching with the State's RE capacity addition program as well as CTU's approved plans for RE capacity addition by 2023-24
f. The loads considered in various substations of MSETCL as well as the PGCIL substations contiguous to the proposed EHV corridor are erroneous and unrealistic.

2) Due to the unrealistic scenario considered for this specific case study, numbers of 400 kV and 220 KV lines might have found to be over loaded. Hence, the proposal for upgradation needs to be reviewed technically.
3) The overloading in Kolhapur- Kolhapur(PG) D/c (2100MW each circuit) projected under N-1 condition seems to be unrealistic. Even if the unrealistic condition occurs, other options needs to be explored to reduce the overloading under high RE scenario by reconfiguration of MSETCL network and shifting of loads (to be studied in consultation with MSETCL).

4) In view of the above, CTU may clarify and bring on record about the following issues:
   a) ISTS connected RE in Maharashtra considered for the study and approved by the CERC.
   b) Need for reducing the intrastate generation of Maharashtra to 10000 MW under a huge deficit condition.
   c) Reason for neglecting the various suggestions of POSOCO vide letter dated 02.02.2021 including reconductoring of transmission lines to mitigate high loading of Kolhapur- Kolhapur (PG) 400 kV D/C line.
   d) The Raigarh- Pugalur -Trissur HVDC corridor with a design capacity of 6000 MW has been created to transfer power between Western Region and Southern Region. This HVDC system provides greater flexibility in dispatching power bi-directionally. However, it is underutilized. Similarly, the other HVDC systems viz. Talcher- Kolar, Jaipore-Gazuwaka has the flexible power transfer capability on either direction to exchange power between SR and WR. In view of this, constructing a new EHV transmission corridor may end up in creating redundant transmission assets. CTU may clarify on the same.
   e) CTUIL may also clarify as to why the HVDC transmission lines of SR region can not be operated in reverse mode (from import to export mode) in high RE scenario.
   f) Study considerations/ assumptions about the 28 GW RE capacity addition in WR
   g) Study considerations /assumptions in the 8GW RE study in SR (as per the approval of CERC)
   h) Reason / Justification for not bringing the Kolhapur (PG) 765/400 kV SS into beneficial use / not upgrading under RE capacity addition beyond 8 GW in SR
   i) Justification for the investment of huge public money to the tune of Rs2400 Crore to avoid over loading of 400 kV Kolhapur-Kolhapur (PG) 400 kV line (being strengthened as per the plan of CTU) without exploring alternate economical options.
   j) Various options as suggested by POSOCO are as given below;
      - Operationalisation of 220 kV Kolhapur-Chikodi 220 kV line and Mudshigi -Chikodi lines for transfer of power from SR to WR under SR surplus condition.
      - Rearrangement of loads in the substation in and around Kolhapur area(Southern Maharashtra)
      - Exploring possibility of increasing generation in southern / western Maharashtra.
      - Reconfiguration of network of MSETCL to mitigate the problem.

However, CTUIL has not considered above options. CTUIL may please give reasons for not considering the above options.

k) Various options were also suggested by TANGEDCO to mitigate the overloading issues in Kolhapur(MS)-Kolhapur(PG) 400 kV line under the same dispatch conditions. Those are as below;

- Base case: Without upgradation of Narendra (PG) under Full RE generation+ All HVDC systems in SR import mode.
- Case 1: Base case+ Raigarh-Pugalur in export(3000MW) mode+ Talcher-Kolar and Jaipore-Gazuwaka in block mode.
- Case 2: Case 1+ LILO of Kolhapur (MS)- Alkud 400 kV S/c line at Kolhapur (PG)
- Case 3: Case 1+ LILO of Kolhapur(MS) – Sholapur 400 kV S/c line at Kolhapur (PG)
- Case 4 : Case 1 + LILO of one circuit of Kolhapur(MS) – Karad 400 kV DC line at Kolhapur PG

CTUIL may clarify why these options can not be considered.

l) CTUIL may also clarify whether approval given by Maharashtra STU was for upgradation of Narendra New GIS 400 kV SS to 765 kV and a new 765 kV D/c line between Narendra New – Pune (GIS).

5) CEA opinion may be sought whether the considerations / assumptions of CTUIL are in line with the Planning criteria and whether general planning philosophy is followed.

6) POSOCO may clarify whether they support for the upgradation of Narendra SS when the RE capacity addition is well within the 8GW already approved by CERC

In view of the above, MSEDCL submits that there is a need to review the proposal of CTUIL on ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region and withholds its consent till satisfactory clarification from CTUIL, as redundant/underutilised assets will result in unnecessary financial burden on MSEDCL and thereby on the end consumers.

Further, it is worth to mention that CTUIL being the apex body in transmission planning should always consider the techno-commercial aspects while proposing any transmission scheme rather than only looking from technical aspects since end consumers will be the ultimate bearers of the hike in the power cost due to such assets.

Thanking You.

Yours faithfully,

Chief Engineer (Power Purchase)
MSEDCL

Copy s.w.rs. to:

The Director (Commercial), MSEDCL, Prakashgad, Bandra (E), Mumbai – 51.

Copy f.w.c.s to:

1) The Chief Operating Officer, Central Transmission Utility India Limited, Saudamini, Plot No.2, Sector 29, Near IFFco Chowk, Gurgaon (Haryana) – 122001
2) The Chief Engineer, State Transmission Utility, MSETCL, Prakashganga, Bandra Kurla Complex, Bandra (East), Mumbai- 400 051.