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. no.: C/CTU/S/01/SRPC

Date : 16.02.2022

Shri Asit Singh
Member Secretary
Southern Regional Power Committee
Central Electricity Authority
No. 29, Race Course Cross Road,
Bengaluru, Karnataka – 560 009

Sub: CTU response towards observations of SR constituents on ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region – reg.

Dear Sir,

This is with reference to observations received from Southern Region constituents on the proposal for ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region. In this regard, CTU response on the observations / comments are enclosed herewith.

In view of urgent requirement of the "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region", the scheme may be recommended by SRPC to be taken-up for implementation to ensure timely availability for evacuation of power from RE projects.

Thanking you,

Yours faithfully,

Ashok Pal.

(Ashok Pal)
Dy COO (CTU)

Distribution List :

1. Additional Secretary, Ministry of Power, Government of India, Shram Shakti Bhawan, Rafi Marg, New Delhi - 1100 01	2. Chairman & Managing Director Power Grid Corporation of India Ltd Saudamini, Plot No. 2, Sector 29, Near IFFCO Chowk, Gurgaon - 122 001
3. Chief Engineer (PSP&A - I) Central Electricity Authority Sewa Bhawan, R.K. Puram New Delhi - 110 066	4. Chief Engineer (PSP&A - II) Central Electricity Authority Sewa Bhawan, R.K. Puram New Delhi - 110 066
5. Director (SO) POSOCO B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016	6. Member Secretary Western Regional Power Committee MIDC area, Marol, Andheri East, Mumbai - 400 093
7. Chief General Manager I/C Western Regional Load Despatch Centre F- 3, M.I.D.C. Area, Marol, Andheri East, Mumbai - 400 093	8. Executive Director Southern Regional Load Despatch Centre 29, Race Course Cross Road, Bengaluru - 560 009
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11. Director (Operation) Maharashtra State Electricity Transmission Co. Ltd., 4th Floor, "Prakashganga", Plot No. C-19, E Block, Bandra - Kurla Complex, Bandra (East), Mumbai - 400 051	12. Managing Director Chhattisgarh State Power Transmission Co. Ltd. Dangania, Raipur - 492 013
13. Executive Engineer Administration of Union Territory of Dadra & Nagar Haveli and Daman & Diu, Secretariat, Moti Daman - 395 220	14. Chief Engineer (Electricity Department) The Government of Goa, Malacca Rd, Patto Colony, Panaji, Goa - 403 001
15. Managing Director Tamil Nadu Transmission Corporation Ltd 6th Floor, Eastern Wing, 800 Anna Salai, Chennai - 600 002	16. Director (Trans. & System Op.), Kerala State Electricity Board Ltd. Vidyuthi Bhawanam, Pattom, P.B. No. 1028 Thiruvananthapuram - 695 004
17. Director (Transmission) Transmission Corp. of Andhra Pradesh Ltd. Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh - 520 004	18. Director (Transmission) Karnataka State Power Transmission Corporation Limited, Cauvery Bhawan, Bengaluru - 560 009
19. Director (Grid Operation) Transmission Corp. of Telangana Ltd. Vidyut Soudha Hyderabad - 500 082	20. Superintending Engineer - I First Floor, Electricity Department Gindy Salai, Puducherry - 605 001

CTU inputs towards the observations of SR constituents on 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 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. However, TANGEDGO had certain reservations in the matter.

Subsequently, the transmission scheme was taken-up in the 40th SRPC meeting held on 20.01.2022 for views as per the revised Resolution of Govt. of India for constitution of RPC vide gazette dated 03.12.2021. During the meeting KPTCL requested CTU to furnish additional system studies for the import scenario of Southern Region to check the loadings in KPTCL's network. Other constituents also expressed their observations, it was also decided during the meeting that the SR Constituents shall forward their observations / comments in writing on the CTU's proposal for getting the response / further clarifications from CTU. Based on the same, the proposal shall be considered in the next SRPC meeting for expressing the views of SRPC on the transmission scheme.

No observations / comments were received from TSTRANSCO, KSEB and KPTCL. However, as per the request of KPTCL and for the benefit of Southern Region beneficiaries, the system studies for import scenario of Southern Region has been carried-out wherein it is observed that the line loadings are generally in order. The study results are attached at **Annexure-I.**

Observations were received from POSOCO, APTRANSCO, TANGEDCO and Puducherry on the transmission scheme, copy of the same enclosed at **Annexure-II, III, IV, V** respectively. The CTU response on the observations is given in the subsequent paragraphs.

POSOCO has expressed & 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. The scheme would help in relieving transmission constraints in exporting surplus power from Southern Region during Solar period and off-peak period. Further, Puducherry has also expressed that they will go with the decision offered by the majority of the SR constituents.

Further, response towards the observations of TANGEDGO and APTRANSCO with respect to the subject transmission scheme is provided in the subsequent paras :

1. **Requirement of Transmission System** : Transmission system for integration and immediate evacuation for potential REZ of 18.5 GW REZ in Southern Region was evolved in consultation with constituents in the 1st and 2nd SRSCT held on 07.09.2018

& 10.06.2019 respectively. It was also decided that that all-India studies would be carried out with the participation of CEA, CTU, POSOCO and concerned beneficiaries/STUs for evolution of additional transmission system for export of power from Southern Grid to rest of Indian Grid. Subsequently, based on the All-India studies which were uploaded on CTU website 03.08.2021, it was accessed that constraints are observed beyond Kolhapur under RE surplus scenario of Southern region.

NLDC as part of operational feedbacks vide its letter dated 02.02.2021 (copy enclosed as **Annexure-VI**) has also highlighted high loadings beyond Kolhapur in case of high renewable generation in Southern Region. The issue was also highlighted by POSOCO in a number of Southern Region & Western Region meetings.

Subsequently, 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 was agreed in the meeting:

- Re-conductoring 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, based on the status of land acquisition and receipt of LTA applications, it was decided that 8 GW of REZ in Koppal, Gadag, Karur and Tuticorin REZ may be taken-up on priority and detailed studies for the same were discussed in the special SRPC meeting held on 14.07.2021. Transmission system for integration of 8 GW of REZ in Southern Region was also discussed in the 3rd SRPC(TP) meeting held on 24.08.2021 (copy of MoM enclosed at **Annexure-VII**), wherein following was informed:

> *"It was informed by CTUIL that system studies were carried out with the integration of total identified potential at the above REZ's for high RE scenario i.e., June 2023-24 Solar Max scenario by which time the identified schemes are expected to get commissioned. From the system studies, no transmission constraints have been observed with the already planned transmission system for integration of Koppal, Gadag, Karur & Tuticorin REZ. Line loading are found to be generally in order. Further, in the absence of land and LTA applications in Kurnool, Ananthapur and Bidar REZ, a reduction in net generation of Southern Region of the order of 10 GW has reduced the export from Southern Region to other regions. Accordingly, the requirement of upgradation of transmission corridor of Tuticorin-Salem, Salem-Madhugiri, Madhugiri-Narendra under "Common Transmission System Strengthening in Southern Region for export of power from Solar & Wind Energy Zone in Southern Region" as well as upgradation of Narendra-Kolhapur transmission line under "Transmission scheme for evacuation of 2500 MW from Gadag SEZ – Part B" to its*

rated voltage is not envisaged and may be deferred till the receipt of LTA applications at Kurnool, Ananthapur and Bidar REZ. ***Further, to address overloading beyond Kolhapur, Kolhapur – Kolhapur (PG) 400 kV D/c line has been agreed for reconductoring with twin HTLS in the 3rd WRPC(TP) meeting held on 14.06.2021 as regional system strengthening scheme. The same shall be required for evacuation of surplus power from generation projects in above prioritized REZ. In addition, deliberations are going on in Western Region for identification of additional strengthening beyond Kolhapur for export of surplus power from SR under high RE generation scenario.***"

Accordingly, a Joint study meeting of WR and SR constituents was held on 16.12.2021 wherein following two alternatives out of studied 7 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).

Subsequently, MSETCL vide e-mail dated 11.01.2022 informed that at present MSETCL do 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 of MoM enclosed at **Annexure-VIII**).

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 (GIS) • 765 kV, 330 MVAr SLR – 2 nos (6 X 110 MVAr) 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 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- 4 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)"***

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 and not an issue of local Intra-State overloading as observed by TANGEDGO.

Further, POSOCO and all other Southern Region constituents have agreed for the proposal during the 2nd Consultation Meeting for Evolving Transmission Schemes in Southern Region held on 29.12.2021.

2. **Submissions in Regulatory Approval petition in CERC**: TANGEDGO has alleged that the requirement of subject transmission system to facilitate export of surplus power from Southern Region has not been brought before the constituents nor the Hon'ble Commission in the Petition no. 200/MP/2019. The above allegations from TANGEDGO is misplaced and not correct, as CTU, throughout the entire process of planning and approval of the transmission system for integration of potential REZ in Southern Region, has maintained that additional transmission system would be required for export of surplus power from Southern Region towards NEW Grid.

   Transmission system for integration of 8 GW REZ in Southern Region was approved by Hon'ble Commission vide order dated 26.11.2021 in Petition no. 200/MP/2019. CTU, in the referred matter has maintained that the identified transmission system is the minimum transmission system required for integration and immediate evacuation of power from potential REZs in SR. During the 2nd SRSCT held on 10.06.2019, it was decided that all-India studies would be conducted for evolution of additional (over and above the proposed scheme) transmission scheme for export of power from Southern grid to rest of all-India grid (copy of the MoM enclosed at **Annexure-IX**).

   Further, CTU in its affidavit dated 14.10.2019 (copy enclosed at **Annexure-X**) in Petition no. 200/MP/2019 has also submitted that for export of large surplus power of Southern Region, additional inter-regional links and strengthening in NEW (North-East-West) Grid may be required for supply of power to beneficiaries in WR, NR & ER. The same shall be identified subsequently on the basis of all India system studies as per the requirements.

   It may also be mentioned that the requirement of additional system strengthening beyond Kolhapur was also highlighted in 3rd SRPC(TP) meeting held on 24.08.2021 (copy of MoM enclosed at **Annexure-VII**) 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, after deliberations through joint studies meeting of Western Region & Southern Region constituents for identification of additional strengthening beyond Kolhapur for export of surplus power from SR under high RE generation scenario in addition to approved reconductoring of Kolhapur –

Kolhapur (PG) 400 kV D/c line, the proposed two alternatives for transmission schemes were identified for export of power from REZs in SR.

3. **Linking of transmission system with grant of LTA** : Connectivity & LTA applications are being received from various developers in Southern Region including potential REZ of Koppal, Gadag, Karur and Tuticorin areas with drawl beneficiaries in WR, NR & ER.

Total LTA of 3850 MW has been granted from various generation projects for export of power from SR to NEW grid utilizing the existing/under-implementation inter-regional links between SR & NEW Grid. In addition to above, LTA of 600 MW for export of power from SR to NEW grid has been granted with reconductoring of Kolhapur (PG) – Kolhapur (MSETCL) 400kV D/c line in Western Region.

In addition to the above LTA of 4450 MW, CTU has received additional 1080 MW of LTA applications (Nov'21 onwards) seeking transfer of power from SR Grid to NEW Grid. CTU has always endeavored to utilize the margins available in the existing/under-implementation transmission system for grant of LTA. However in the instant case for grant of additional LTA exceeding 4450 MW, additional system strengthening between SR & WR Grid is required to facilitate transfer of power without any curtailment under any of the scenarios across various seasons of the year. Accordingly, "ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region" has been identified which shall enable transfer of surplus power from these REZs to respective beneficiaries in other regions.

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-540, 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	**5255**	**3850**	**600**	**1080**	**5530**

It may be mentioned that TANGEDGO, itself, in a number of meetings as well as through submission before Hon'ble Commission in Petition no. 200/MP/2019 has spearheaded the necessity of LTA applications for implementation of transmission system.

TANGEDCO, now, vide its present letter dated 09.02.2022, has stated that linking the grant of LTA with the new network upgradation which was not part of the transmission schemes is contrary to CERC's orders and would be highly detrimental to achieve the ambitious target of 175 GW and subsequent targets.

The above statement of TANGEDGO is in direct contradiction to the earlier stand taken by TANGEDGO in the Petition no. 200/MP/2019 wherein TANGEDGO has advocated that the implementation of transmission system should be taken-up only after grant of LTA. Moreover as per the directions of Hon'ble Commission, the transmission system for integration of potential REZ in SR has been prioritized and in the initial phase of the transmission system for integration with SR Grid & immediate evacuation for 8 GW is being taken-up for implementation on receipt of regulatory approval. Further, even the transmission system for 8 GW is also being undertaken in phased manner looking into the visibility of generation projects as per the bidding by SECI / receipt of LTA applications. It is to state that the transmission system for Gadag and Karur REZ has been segregated in 2 phases.

Further, the referred transmission system shall be implemented as ISTS Network Expansion scheme in line with the Electricity (Transmission System Planning, Development and Recovery of Inter-State Transmission Charges) Rules, 2021 and directions issued by MoP. Moreover, the identified transmission scheme shall facilitate transfer of power from RE generation projects in Southern Region to respective consumers and therefore shall go a long way in fulfilling the targets of integration of RE energy in the country. Further, CTU is making all efforts for planning/identification of required transmission system for integration of RE potential as indicated by MNRE/SECI. In the same background, the transmission system was identified for 18.5 GW REZs in Southern Region. In case, MNRE/SECI further identifies the RE potential/ pockets for achieving the Govt. of India target of 500 GW non-fossil fuel capacity by 2030, CTU shall be identifying the transmission system for integration with the Grid and transfer of power to indented beneficiaries without waiting for the corresponding LTA applications.

4. **LGB and System Studies for identification of transmission schemes:** TANGEDCO has raised objections to the system study approach & studies carried out for identification of the transmission scheme. Observations were also received from APTRANSCO with respect to the scenario and dispatches considered for the system studies.

In this regard, it may be mentioned that the transmission system has been evolved through detailed system studies in a transparent manner through consultation with participation from Southern and Western Region constituents. System Studies for "ISTS

Network Expansion beyond Kolhapur for export of surplus power during High RE scenario in Southern Region" was thoroughly discussed in the Joint Study meeting of Southern and Western Region constituents held on 16.12.2021. During the meeting, it was also informed that in order to simulate the pessimistic scenario which is quite probable for export of surplus power from Southern Region, Solar Max (Jun'24 Afternoon Peak) scenario has been simulated with high generations in Narendra complex (Kudgi, Raichur, Bellary, Gadag SEZ & Koppal WEZ). Further, out of 18.5 GW potential REZ in SR, only 8 GW (Koppal-2.5 GW, Gadag-2.5 GW, Karur-2.5 GW & Tuticorin-0.5 GW) has been considered. Out of 7GW REZ potential in Maharashtra, only 1 GW at Kallam has been considered. Further, additional 1 GW at Kallam is 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 other issues. It was also informed that diversity factors and generation dispatches have been considered as per the methodology finalized in the meeting held in CEA on 11.03.2021 regarding Load Generation Balance for All India Studies for 2024-25 for integration of RE projects (9 scenarios).

With respect to consideration of 100% injection at identified REZ in Southern Region, it may be mentioned that transmission system is planned to ensure evacuation of entire power from a generation project commensurate to the LTA sought by the generator under 24x7 power supply scenario and the LTA should not be curtailed under normal operating scenarios meeting the CEA's Manual on Transmission Planning Criteria. Moreover, regarding the Capacity Factor following is provided in the Transmission Planning Criteria "*Capacity factor, considering diversity in wind/solar generation, is the ratio of maximum generation available at an aggregation point to the algebraic sum of capacity of each wind machine / solar panel connected to that grid point.* ***Actual data, wherever available, should be used****. In cases where data is not available the Capacity factor may be calculated using following factors:*". As RE generation projects have been commissioned in the area, the data as per the past experience has used for the system study purposes.

Further the area specific Load-Generation balance (Koppal, Gadag area of Karnataka) was created to avoid any curtailment under LTA under probable operational scenarios and the power from the RE generation project may be evacuated and transferred to intended beneficiary under all probable scenarios. This has been the consistent approach of CTU for evolution of the transmission system for a specific conventional generation project or the potential REZ.

TANGEDCO has time and again raised the matter of High Capacity Power Transmission Corridor (HCPTC) of Tuticorin – Dharmapuri – Madhugiri – Narendra – Kolhapur 765kV corridor (presently being operated at 400kV level) without providing the complete facts and details. For completeness of information to all the Southern Region beneficiaries, it is to state that the HCPTC was initially planned with 4 nos. of IPP generation projects in the Tuticorin and Nagapattinam / Cuddalore area of Tamil Nadu with total LTA of 2000 MW and 2067 MW respectively. Out of 2 nos. generation project, one generation project in each area has been commissioned and Tamil Nadu itself is the firm beneficiary for power. The other two IPPs have relinquished their LTA and relinquishment charges have

been levied on them, however matter pertaining to the relinquishment charges in pending in APTEL. On the other side, for utilization of HCPTC, Tuticorin has also been interconnected with the Tuticorin-II GIS Pooling Station established for 2.5 GW RE potential in the area. Upto Jan, 2022, CTU has already granted LTA of 2170 MW at Tuticorin-II GIS PS utilizing the HCPTC and with the further grant of LTA the HCPTC may have to be upgraded to its rated voltage of 765kV level.

TANGEDCO has also raised the matter pertaining to the 5 nos. of EHV AC & DC corridors between SR Grid & NEW Grid to cater the inter-regional exchanges. In this regard, it is to mention that these corridors were identified on the initiative of CTU under the circumstances when the State of Tamil Nadu was facing unprecedented crisis of power deficit and Central Agencies were alleged for inaction and non-responsiveness (copy of Tamil Nadu Chief Minister enclosed at **Annexure-XI**). CTU as per its assessment worked out in Sept, 2013 that Southern Region would have deficit of the order of 7000 to 11000 MW of power by 2016-17 and shall remain in deficit situation during the peak demand conditions (copy of Agenda & MoM of the 36th Standing Committee Meeting is enclosed at **Annexure-XII**). Subsequently, transmission scheme for "*System for increasing capacity of Inter-State Transmission system for import of power into SR up to 2018-19*" was discussed an approved in 37th Standing Committee held on 31.07.2014 and Joint Meeting of Standing Committee of Southern Region & Western Region held on 20.04.2015 (copy MoM enclosed at **Annexure-XIII & XIV**). Form these it may be seen that the inter-regional links were planned for import of power, however in the Raigarh – Pugalur HVDC link provision were kept for reversal of the link for export of about 3000 MW power which also required additional augmentation in Western Region. This additional investment towards export of power from SR was deferred until CTU received the projections under certain scenarios wherein SR is in surplus of power and is to be exported to NEW grid. The suitable strengthening has been identified and is being implemented for facilitating such export of power utilizing Raigarh – Pugalur HVDC link.

Further TANGEDCO has also raised about the increase in the Transmission Charges towards the ISTS. In this regard, it is to mention that the transmission charges are applicable as per the CERC Sharing Regulations, 2020 considering allocations from CGE and LTA/MTOA. The details pertaining to CGS allocation and LTA/MTOA granted to Southern Region states are as given below:

States	CGS	LTA+MTOA (from NEW Grid)	LTA+MTOA (within SR)	Total
Andhra Pradesh	1325	0	2141	**3465**
Karnataka	2715	870	3144	**6729**
Kerala	1635	1224	135	**2995**
Tamil Nadu	5724	2707	1781	**10211**
Telangana	1548	3145	1382	**6075**
Puducherry	392	230	4	**626**
Total	**13339**	**8176**	**8587**	**30101**

5. **Proposal suggested by TANGEDCO to resolve constraints :** 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) 400kV 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). Further, TANGEDCO and APTRANSCO have expressed that the options for operating HVDC links under reverse modes during surplus scenario may be explored.

   In this regard, it is to mention that the assessment as well as the system studies submitted by TANGEDCO is 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 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, other circuit loading is about 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 not complying 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 as 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).

Further, POSOCO in various operational feedbacks has highlighted that high loadings beyond Kolhapur which 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 mitigating measures proposed by POSOCO are short term mitigating measures. As per POSOCO suggestions, in order to mitigate the operational constraints being faced in Kolhapur (PG) – Kolhapur (MSETCL) 400kV D/c line under real-time and to export RE power from SR under high RE scenario, additional 765kV outlet to Pune or Padghe is required.

Under the current scenario also, 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 Kopal / Gadag area in Karnataka.

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:

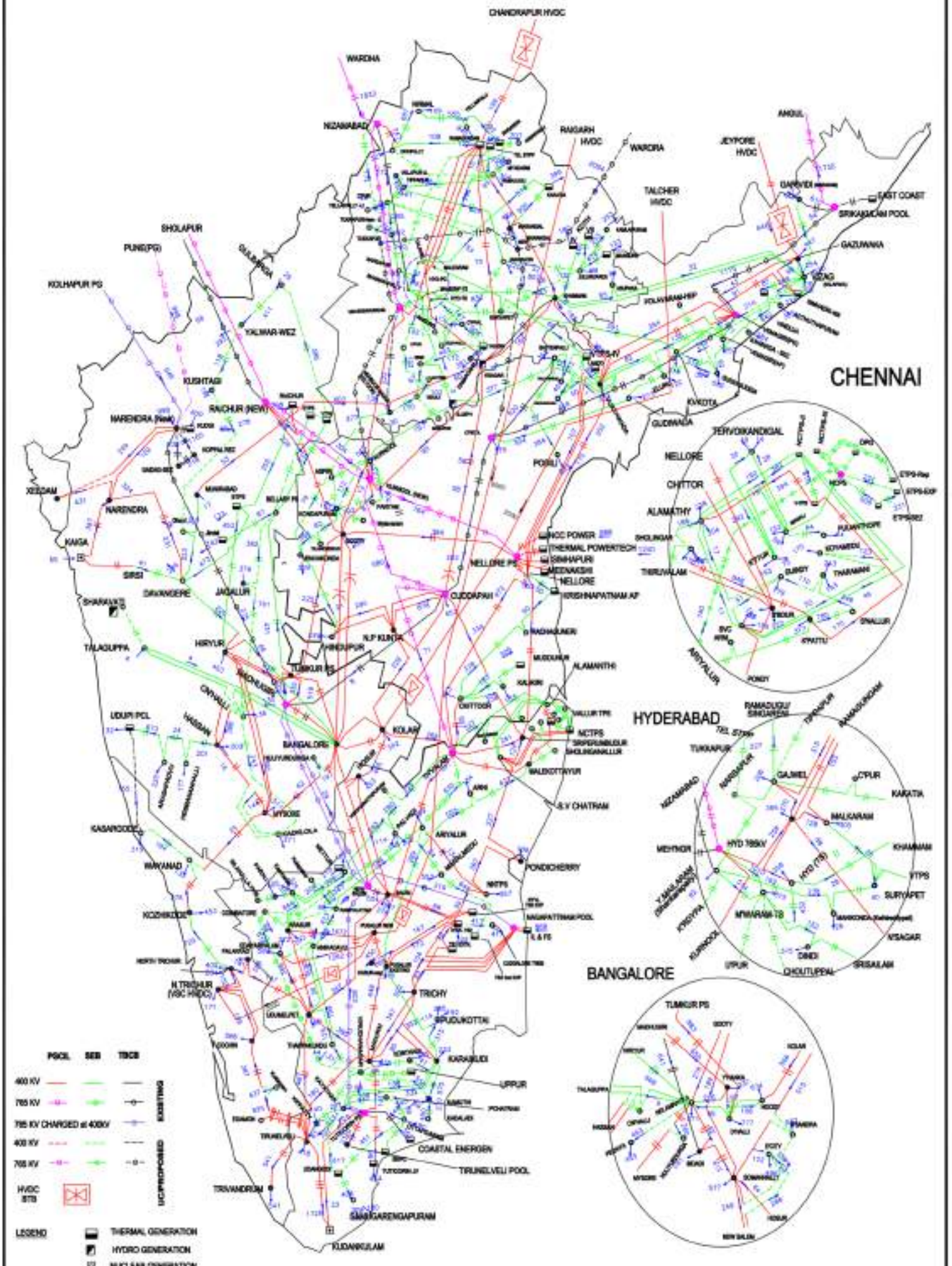
- Raigarh-Pugalur reverse flow of 3000 MW has already been considered in the study with proposed 1x1500MVA ICT at Section-A and 2x1500MVA ICTs at Section-B of 400kV Raigarh (Kotra) 765/400kV S/s. From the system studies, it has been observed that the sensitivity of operating Raigarh - Pugalur HVDC in export mode (3000 MW) is only about 5% on Narendra (New) – Pune 765kV D/c line.

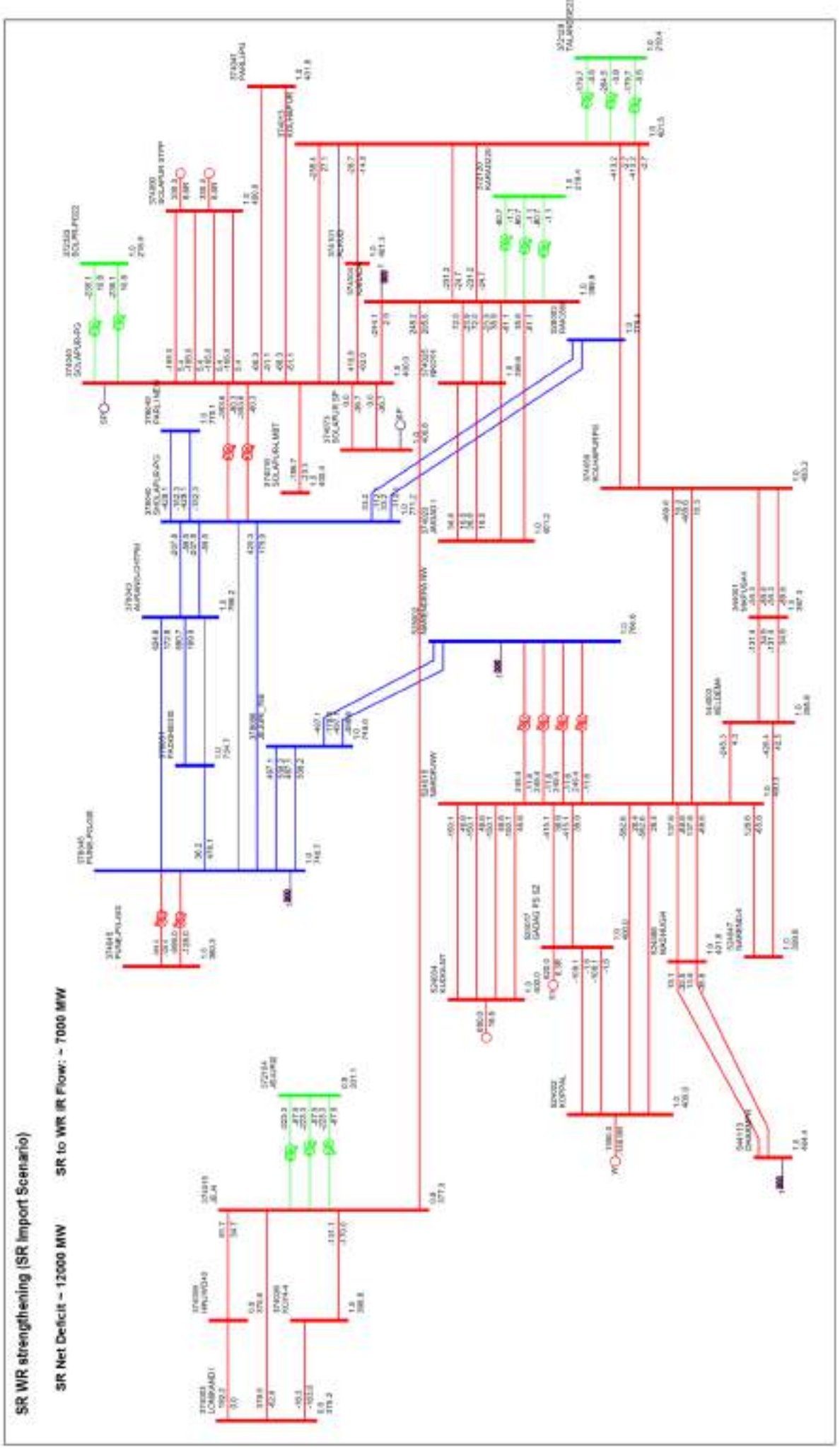
- Regarding operation of Talcher – Kolar HVDC in block mode / reverse mode which is not possible due to non-implementation of Talcher-II back-up transmission system at Talcher and low voltage issues at Kolar. Further in case of blocked mode / reverse mode of operation of Talcher – Kolar HVDC, loading on Talcher - Meramundli line increases which trigger the SPS at Talcher-II generation of NTPC (details of SPS enclosed at **Annexure-XV**) 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 the benefit of ISTS network 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.

6. **Conclusion** : In view of the above looking into the 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, the scheme may be recommended by SRPC to be taken-up for implementation to ensure timely availability for evacuation of power from RE projects at Koppal, Gadag, Karur and Tuticorin.

System Studies for import scenario of SR

ANNEXURE-I




SR WR strengthening (SR Import Scenario)
SR Net Deficit ~ 12000 MW
SR to WR IR Flow: ~ 7000 MW

ANNEXURE-II

POSOCO comments on proposed transmission scheme of "Narendra(New) – Pune (GIS) 765kV D/c line"

POSOCO/NLDC in the letter dated 02.02.2021(attached as annexure-1), addressed to SRPC/WRPC and in the quarterly Operational feedbacks, it was highlighted that transmission constraints are observed during high export of Southern Region. During solar hours on many days it is observed that SR export schedule and actual flow on SR→WR corridor is close to ATC limits and limiting constraint for SR Export TTC is N-1 violation of loading on 400 kV Kolhapur(PG)-Kolhapur(MSETCL)-D/C line.

Further, it was observed that on 19th August, 6th September and 10th October 2021 market split occurred in Real Time Market due to SR export ATC limitation.

Following remedial measures were suggested in the feedback to remove the constraints in SR export

1. Carrying out Transmission augmentation to remove constraints in 400 kV Kolhapur(PG)-Kolhapur(MSETCL)-D/C line.
2. Upgrading of Kolhapur (PG) at 765kV level and planning additional outlets from Kolhapur towards Pune or Padghe may be considered.

In 3rd SRPC(TP) meeting, it was agreed for re-conductoring of 400 kV Kolhapur (PG) – Kolhapur (MSETCL) D/c line with conductor of minimum capacity of 2100 MVA/Ckt at nominal voltage along with bay upgradation work at Kolhapur (MSETCL). It was suggested that the scheme be implemented on urgent basis. It is understood that this project has been allocated to POWERGRID under RTM with anticipated completion of Mar'23. In 3rd SRPC(TP) meeting , it was also decided that the strengthening requirement beyond Kolhapur other than reconductoring of Kolhapur (PG) – Kolhapur(MSETCL) 400 kV D/c line would be studied in a separate joint study meeting with CEA, CTU, WRPC & POSOCO.

Accordingly, CTU has conducted a joint study meeting on Transmission Planning of Western Region and Southern Region on 16th December 2021, where in CTU has proposed 7 alternative transmission schemes for relieving the transmission constraints beyond 400kV Kolhapur. Among all seven options, the following two transmission schemes are found to be technically in order:

i. 400kV Kolhapur (PG)– Kolhapur (MSETCL) D/C reconductoring and Narendra(New) – Pune (GIS) 765kV D/c line**(Alternative-VII)**
ii. 400kV Kolhapur (PG)– Kolhapur (MSETCL)reconductoring and Narendra(New) – Jejuri – Pune (GIS) 765kV D/c line wherein a new S/s at Jejuri was proposed for improved reliability and for mitigating low voltage issues in Jejuri and adjoining areas.**(Alternative V)**

In 2nd Consultation Meeting for Evolving Transmission Schemes in Southern Region held on 29.12.2021, it was agreed in-principle by constituents for implementation of scheme mentioned at Sr.No. ii above.

Subsequently, MSTCEL has informed that they do not require any 400kV bays at the proposed 765/400kV Jejuri SS at present. Considering the MSTCEL request, proposal of 765kV substation at Jejuri has been dropped and the scheme mentioned above at (i) was considered for implementation.

In current scenario also SR to WR TTC is limited due to constraints on 400kV Kolhapur PG-Kolhapur(MSETCL) D/C line and beyond. This constraint would further aggravate with the increase in renewable generation in SR especially in Kopal/Gadag area. Hence, the proposed scheme of 765kV Narendra(New)-Pune(GIS) D/C line and Reconductoring of 400kV Kolhapur (PG)– Kolhapur (MSETCL) D/C line need to be taken up for implementation on urgent basis. The scheme would help in relieving transmission constraints in exporting surplus power from Southern Region during Solar period and off peak period.

In addition to above, TANTRANSCO had made the following observations regarding the SR to WR export capability

- Status of reviving 400kV Sholapur-Karad line at 400 kV level

Regarding the above, it is understood that 400 kV Sholapur-Karad S/c line belongs to WTPL/MSETCL and the same has been charged at 220kV to mitigate the low voltage issue in Jeur area. The issue was taken up several times with MSETCL, WRPC & in planning meetings by WRLDC and it is expected that the line would be charged at 400 kV level by March 2022 as per recent WR CMETS.

ANNEXURE-III

Comments of APTRANSCO on the proposal of ISTS Network Expansion scheme between Southern Region & Western Region for Export of surplus power during high RE scenario in Southern Region:

1) In the System Studies, following were observed.

- High Generation at Kudgi TPS. 90% Despatch was considered.
- Low Generation at plants in Southern Maharashtra
- High Load around Kolhapur area
- High renewable (Solar) Generation in Southern Region etc. – 100% Despatch was considered from RE Power Plants connected to ISTS Network.

"During the Deliberations, APTRANSCO raised the query that the Despatch from RE Stations and ISGS Stations is not as per the CEA Guide Lines communicated. CTU informed that this is the worst Scenario. In this connection, APTRANSCO opined that, Planning the Network taking all the worst Scenarios at a time into consideration duly violating the CEA guide lines is not realistic".

2) System Studies were carried by APTRANSCO in the "**Scenario**" communicated by the CTU by the Operation of Raigarh-Pugalur & Kolar-Talcher HVDC Lines. It is observed that, Power Flows from the SR to WR varies from 4709MW to 8206MW and the Power Flows from SR to ER varies from -3150MW to 568MW.

INTER REGION LINES POWER FLOWS BY OPRATING HVDC RAIGARH-PUGALUR & KOLAR -TALCHER LINKS								
SR REGION	**GENERATION:59,027MW**		**LOAD:52152MW**			**SURPLUS:5148MW**		
CHANDRAPR 400.00- BHADR4 400.00 1	-100	-100	-100	-100	-100	-100	-100	-100
CHANDRAPR 400.00- BHADR4 400.00 2	-100	-100	-100	-100	-100	-100	-100	-100
PUGALUR 400.00 - RAIGARH_POOL 400.00 1	**2796**	**1909**	**OFF**	**1909**	**OFF**	**1909**	**1909**	**-100**
PUGALUR 400.00 - RAIGARH_POOL 400.00 2	**OFF**	**1909**	**OFF**	**1909**	**OFF**	**OFF**	**1909**	**-100**
NIZAMABAD 765.00 - WARDHA 765.00 1	-391	-519	-237	-692	-428	-647	-886	-56
NIZAMABAD 765.00 - WARDHA 765.00 2	-391	-519	-237	-692	-428	-647	-886	-56
WARN800 765.00 - WARORA 765.00 1	-436	-546	-285	-716	-475	-688	-907	-109
WARN800 765.00 - WARORA 765.00 2	-436	-546	-285	-716	-475	-688	-907	-109
NARDR-NW 400.00- XELDEM4 400.00 1	371	372	370	373	371	373	375	369
NARDR-NW 400.00- KOLHAPURPG 400.00 1	810	798	820	769	788	764	738	849
NARDR-NW 400.00- KOLHAPURPG 400.00 2	810	798	820	769	788	764	738	849
NARDR 400.00- XELDEM4 400.00 1	537	507	563	442	493	432	368	627

NARENDERA NW765.00-PUNE 765.00 1	**1869**	**1817**	**1914**	**1702**	**1789**	**1683**	**1573**	2028
NARENDERA NW765.00-PUNE 765.00 2	**1869**	**1817**	**1914**	**1702**	**1789**	**1683**	**1573**	**2028**
RAIC800 765.00 - SHOLAPUR 765.00 1	424	305	572	101	348	114	-129	**778**
RAIC800 765.00 - SHOLAPUR 765.00 2	424	305	572	101	348	114	-129	778
TOTAL SR TO WR FLOWS	**8056**	**8206**	**6299**	**6762**	**4709**	**4963**	**5138**	**7576**
GAZU-SR 400.00 - GAZUWAKA-ER 400.00 1	-323	-323	-323	-323	-323	-323	-323	**-323**
GAZU-SR 400.00 - GAZUWAKA-ER 400.00 2	-323	-323	-323	-323	-323	-323	-323	-323
KOLAR 400.00 - TALCHER 400.00 1	**-1005**	**-1005**	**OFF**	**OFF**	**1010**	**1010**	**1010**	**-1015**
KOLAR 400.00 - TALCHER 400.00 2	**-1005**	**-1005**	**OFF**	**OFF**	**1010**	**1010**	**1010**	**-1015**
SRI_POOL 765.00 - ANGUL-765.00 1	-248	-328	-173	-550	-402	-601	-785	**51**
SRI_POOL 765.00 - ANGUL-765.00 2	-248	-328	-173	-550	-402	-601	-785	51
TOTAL SR TO ER FLOWS	**-3152**	**-3311**	**-991**	**-1747**	**568**	**171**	**-198**	**-2574**

In view of the above, it is requested to explore the following.

Taking the Dispatch from RE Generators and ISGS as per the norms of the CEA OR at least not considering all the worst conditions at a time. It is also requested to explore the operation of HVDC Links to the full extent in such a way that the Power Flows from SR-WR is minimal. After considering the above, Network Augmentation/Rearrangement may be proposed to overcome the contingencies, if any.

Chief Engineer
Planning, Power Systems
Vidyuth Soudha / Vijayawada 08-02-2022

ANNEXURE-IV

From

RAJESH LAKHONI, IAS,
Principal Secretary,
Chairman and Managing Director,
TANGEDCO & TNEB Ltd., and
Chairman, TANTRANSCO,
TANTRANSCO HQ Building,
6th Floor, 144, Anna Salai, Chennai – 600 002
email :- chairman@tnebnet.org

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 Member Secretary,
   Southern Regional Power Committee,
   29, Race Course Cross road,
   Bengaluru,
   Karnataka- 560009

Lr. No. CFC /RC /SE / CERC /EE1/ F. CTU Proposals /D. 34/22 dt: 09.02.2022

Dear sir,

Sub: SRPC- 40th meeting – Proposal of CTU on ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region and constraints at Raigarh (Kotra) under various operating conditions – Comments and views of TANGEDCO – Dropping of the redundant Inter –Regional augmentation proposal- Regarding.

Ref:
1) Minutes of the second consultation meeting dated 29.12.2021
2) CTU's letter Ref.No.CTU/S/00/SRPC dated 21.01.2022
3) SRPC's letter No.SRPC/SE-III/ISTS/2022 dated 01.02.2022
4) SRPC's letter No.SRPC/40(SRPC)/2022 dated 08.02.2022

1) This has reference to the above. Based on the deliberations during the 40th SRPC meeting held on 31.01.2022 regarding the proposal of the CTU on ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region, the comments and views of TANGEDCO are furnished below:
2) TANGEDCO reiterates that the network expansion proposal of CTU is not gratuitous as per TANGEDCO's study and the outcome of case studies under various options carried out by TANGEDCO reveals that the proposal for up gradation of the Narendra SS to 765/400 kV SS and Narendra-Pune 765 kV line for a length of 340 KM is totally unwarranted (Annexure-1).

3) Further, the same is objected by TANGEDCO based on the following facts detailed in Annexure-2:

   i) The issue of overloading of the Kolhapur(PG)-Kolhapur 400 kV DC line under N-1 condition was a pre existing problem in the State network of Maharashtra prior to approval of transmission scheme for 8 GW RE capacity addition in SR, as per the communications of CTU and POSOCO.

   ii) CTU had affirmed before Hon'ble CERC that this problem would be resolved by re-conductoring of the Kolhapur (PG)-Kolhapur 400 kV DC line.

   iii) CTU's approach in linking the grant of LTA with the new network upgradation which was not part of the transmission schemes approved by Hon'ble CERC in 200/MP/2019 is contrary to the approval accorded by CERC. Further the approach is misleading and will be detrimental to achieve the GoI's ambitious target of 175 GW.

   iv) The power system planning studies carried out by CTU are based on illogical and unrealistic scenario and inconsistent with the approaches of CTU itself in other regional studies. The dispatches for RE and conventional generators adopted by CTU for this study are contrary to planning criteria and erroneous (details furnished in the report).

   v) The optimal feasible solution to resolve the overloading in Kolhapur (PG)-Kolhapur(MS)- 400 kV DC line is to make LILO of any one of the 400 kV lines between Kolhapur SS(MS) and any other 400 kV SS in Maharashtra(ie. Karad, Ankud, Sholapur etc..) at Kolhapur (PG) substation. This option would require very minimal investment.

4) In view of the above, it is requested to drop the proposal of up gradation of the Narendra SS(PG) to 765/400 kV SS and Narendra-Pune 765 kV D/c line and implement the most economic feasible solution of making LILO of any one 400 kV line emanating from Kolhapur (MS) SS.

Yours faithfully,

B. Rajeswari 09/02/2022

(B.Rajeswari)

Chief Financial Controller/ Regulatory Cell

For CMD / TANGEDCO

Encl: As above

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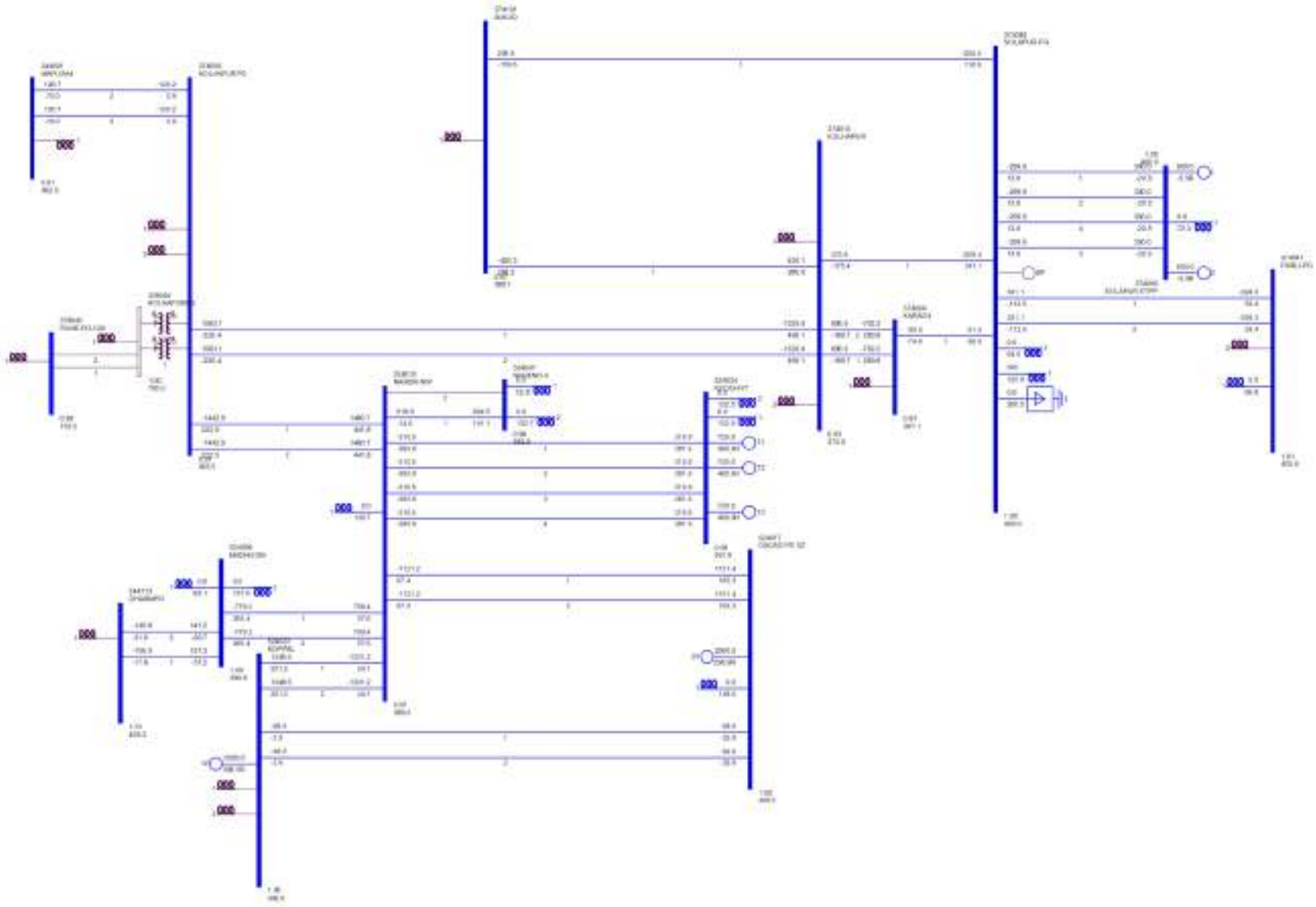
3.	**Director (SO)** POSOCO B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016	4.	Member Secretary Western Regional Power Committee MIDC area, Marol, Andheri East, Mumbai 400 093
5.	Chief General Manager I/C Western Regional Load Despatch Centre F-3, M.I.D.C. Area, Marol, Andheri East, Mumbai-400 093	6.	**Additional Secretary,** Ministry of Power, Government of India, Shram Shakti Bhawan, Rafi Marg, NEW DELHI – 110001
7.	**Executive Director** Southern Regional Load Despatch Centre 29, Race Course Cross Road, Bangalore-Karnataka-560009	8.	**Managing Director** Gujarat Energy Transmission Corp. Ltd, Sardar Patel Vidyut Bhawan, Race Course, Vadodara -390 007
9.	**Director (Operation)** Maharashtra State Electricity Transmission Co. Ltd., 4th Floor, "Prakashganga", Plot No. C-19, E-Block, Bandra — Kurla Complex, Bandra (East), Mumbai- 400051	10.	Managing **Director** Chhattisgarh State Power Transmission Co. Ltd., Dangania, Raipur- 492 013
11	**Executive Engineer** Administration of Union Territory of Dadra & Nagar Haveli and Daman & Diu, Secretariat, Moti Daman-395220	12.	**Chairman & Managing Director** Madhya Pradesh Power Transmission Co. Ltd., Block No. 3, Shakti Bhawan, Rampur, Jabalpur-482 008
13	Chief Engineer Electricity Department The Government of Goa, Malacca Rd, Patto Colony, Panaji, Goa — 403001	14.	**Director (Trans. & System Op.),** Kerala State Electricity Board Ltd. Vidyuthi Bhawanam, Pattom, P.B. No. 1028 Thiruvananthapuram — 695 004
15	**Director (Transmission)** Transmission Corp. of Andhra Pradesh Ltd. (APTRANSCO) Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh - 520004	16.	**Managing Director** Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) 6th Floor, Eastern Wing, 800 Anna Salai, Chennai — 600 002
17.	**Director (Grid Operation)** Transmission Corp. of Telangana Ltd. Vidyut Soudha Hyderabad — 500 082	18.	**Director (Transmission)** Karnataka State Power Transmission Corporation Limited, Cauvery Bhawan, Banglore-560009
19.	**Chairman & Managing Director** Power Grid Corporation of India Ltd Saudamini, Plot No.2, Sector 29, Near IFFCO Chowk, Gurgaon – 122001 Haryana	20	**Superintending Engineer -I** First Floor, Electricity Department Gingy Salai, Puducherry — 605 001

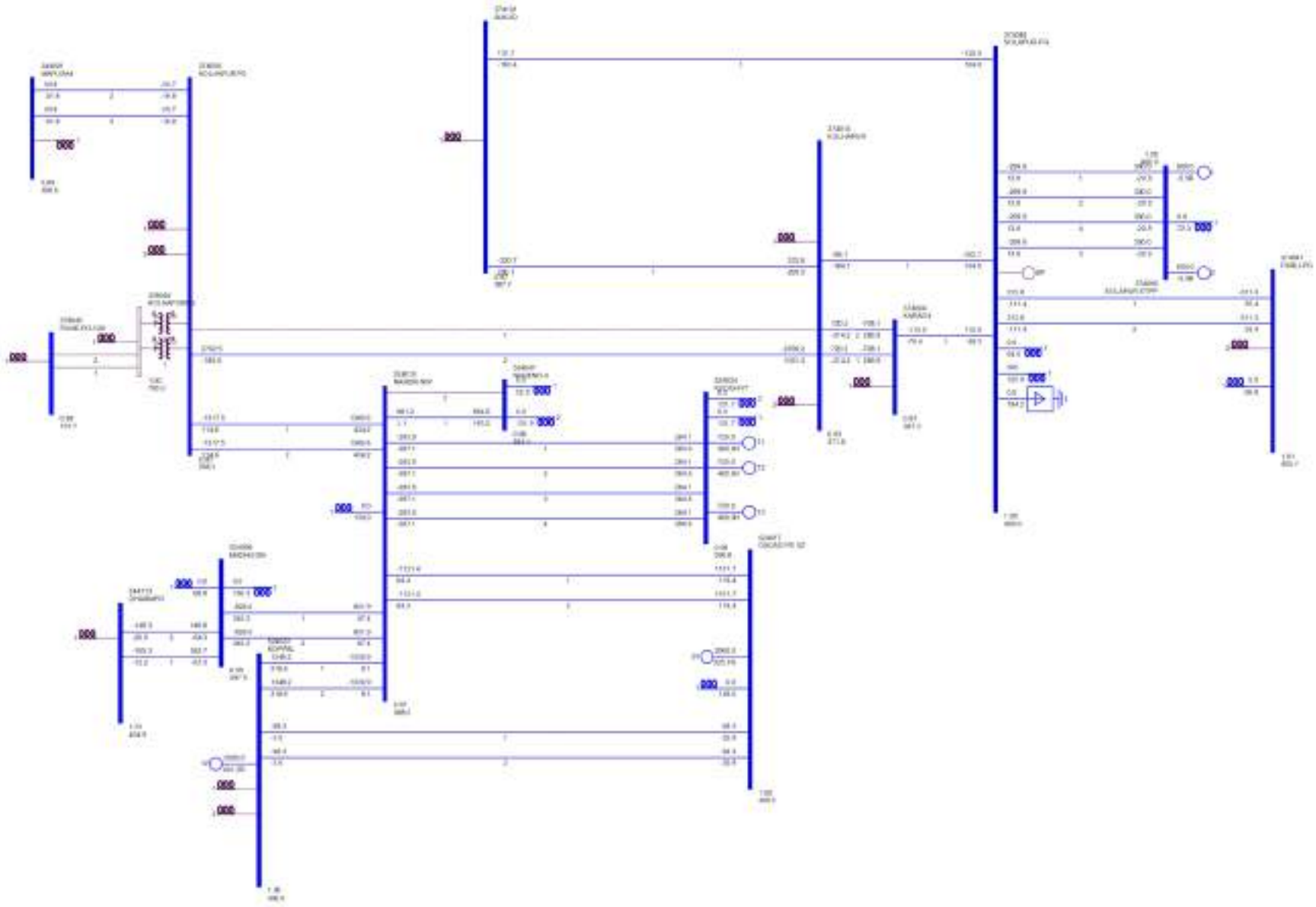
Base case:

Without upgradation of Narendra (PG) under Full RE generation+ All HVDC systems in SR import mode



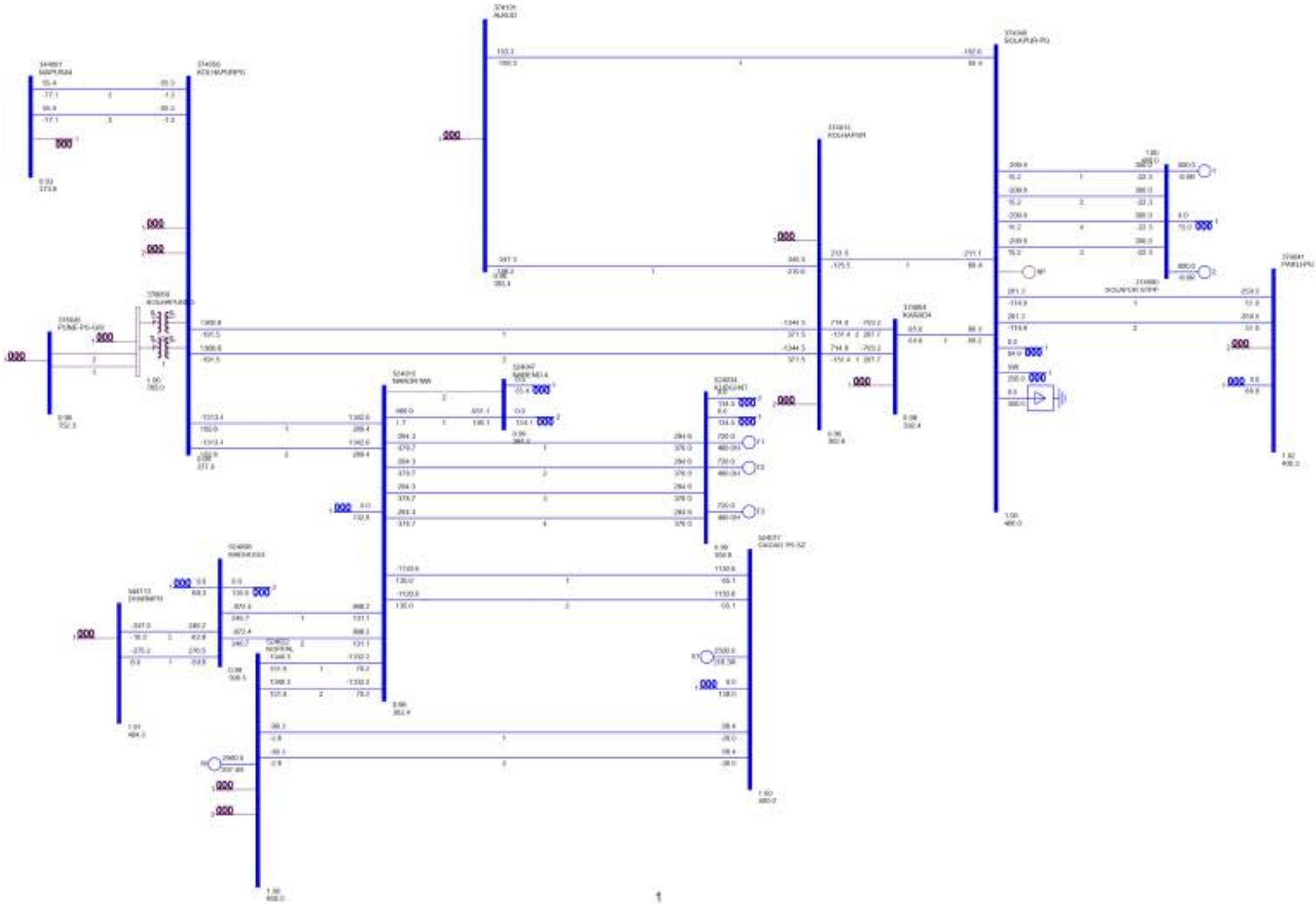
Base case: N-1 in Kolhapur(MS)-Kolhapur(PG) 400KV line

Without upgradation of Narendra (PG) under Full RE generation+ All HVDC systems in SR import mode



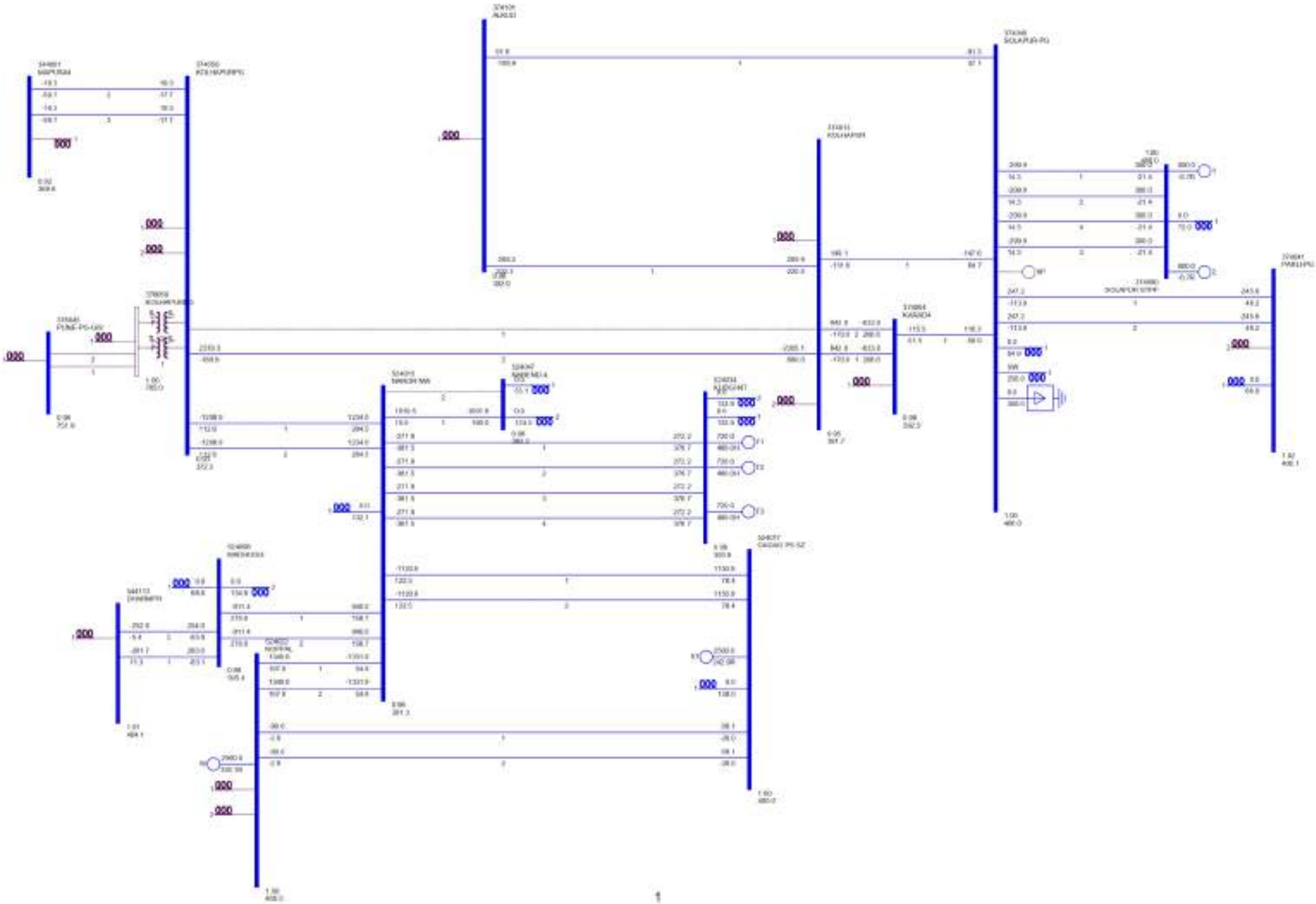
Case 1:

Base case+ Raigarh-Pugalur in export(3000MW) mode+ Talcher-Kolar and Jaipore-Gazhuvakka in block mode

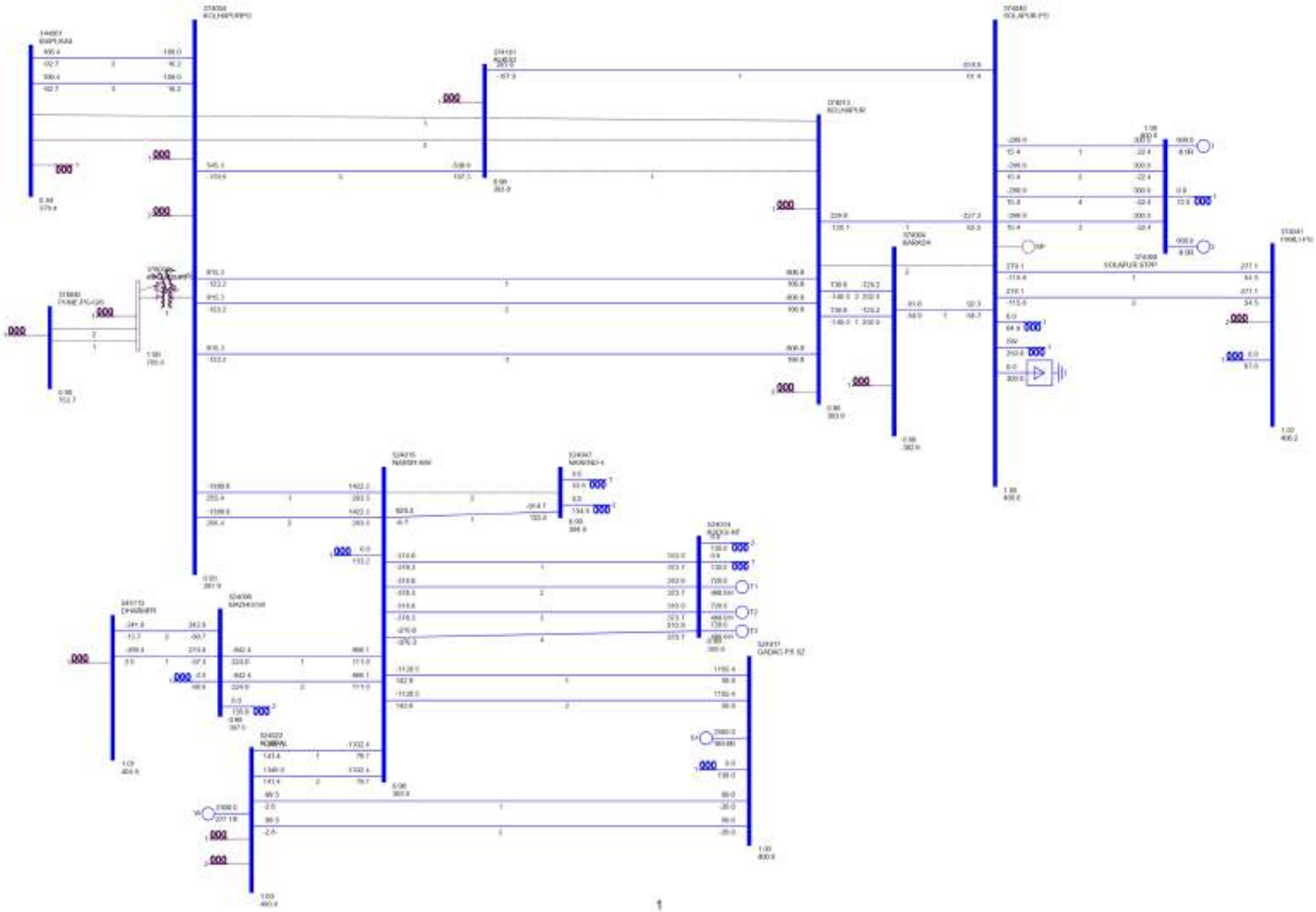


Case 1: N-1 condition in Kolhapur(MS) - Kolhapur (PG) 400KV line

Base case+ Raigarh-Pugalur in export(3000MW) mode+ Talcher-Kolar and Jaipore-Gazhuvakka in block mode

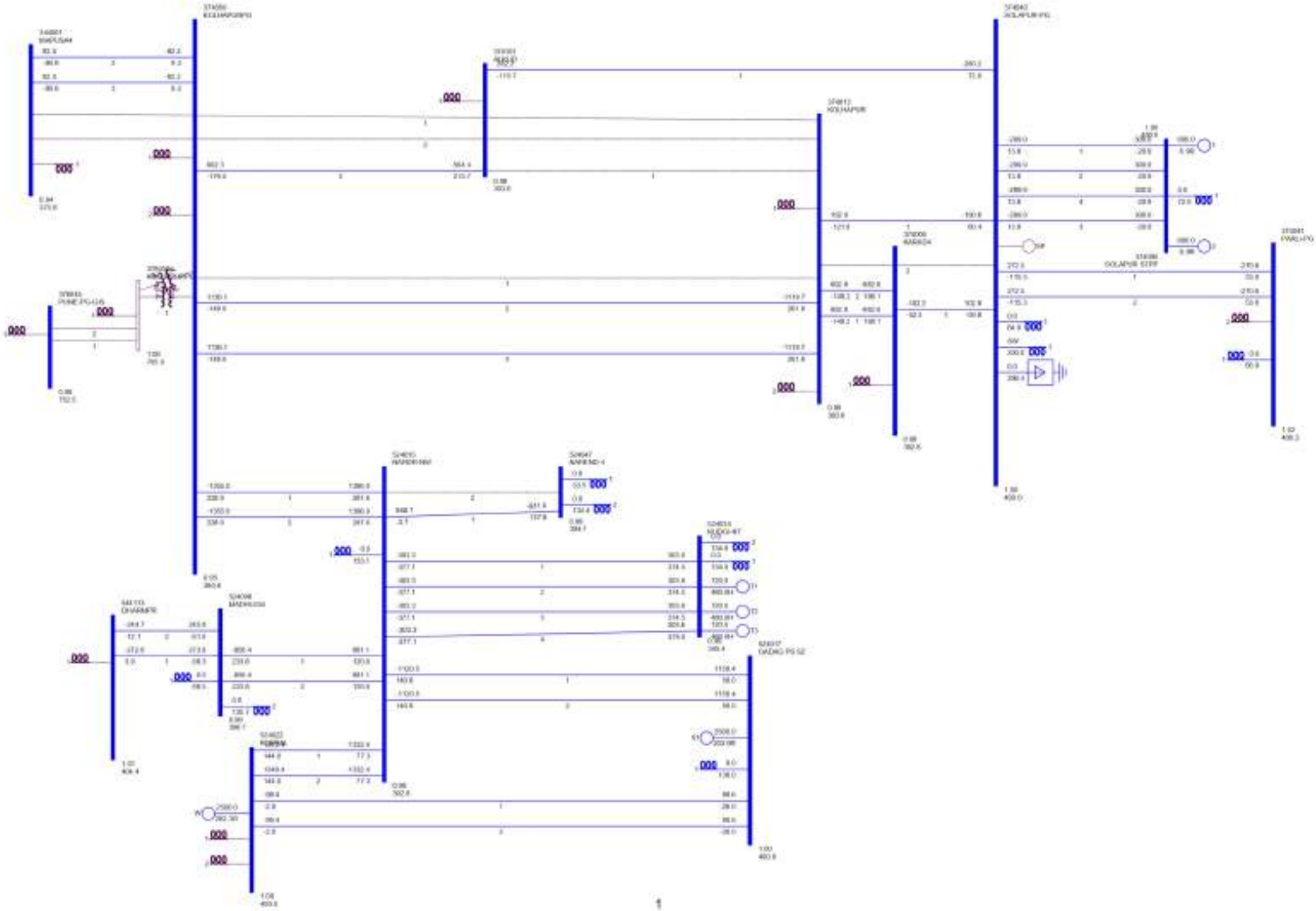


Case 2: Case 1+ LILO of Kolhapur (MS)- Alkud 400 kV S/c line at Kolhapur (PG)

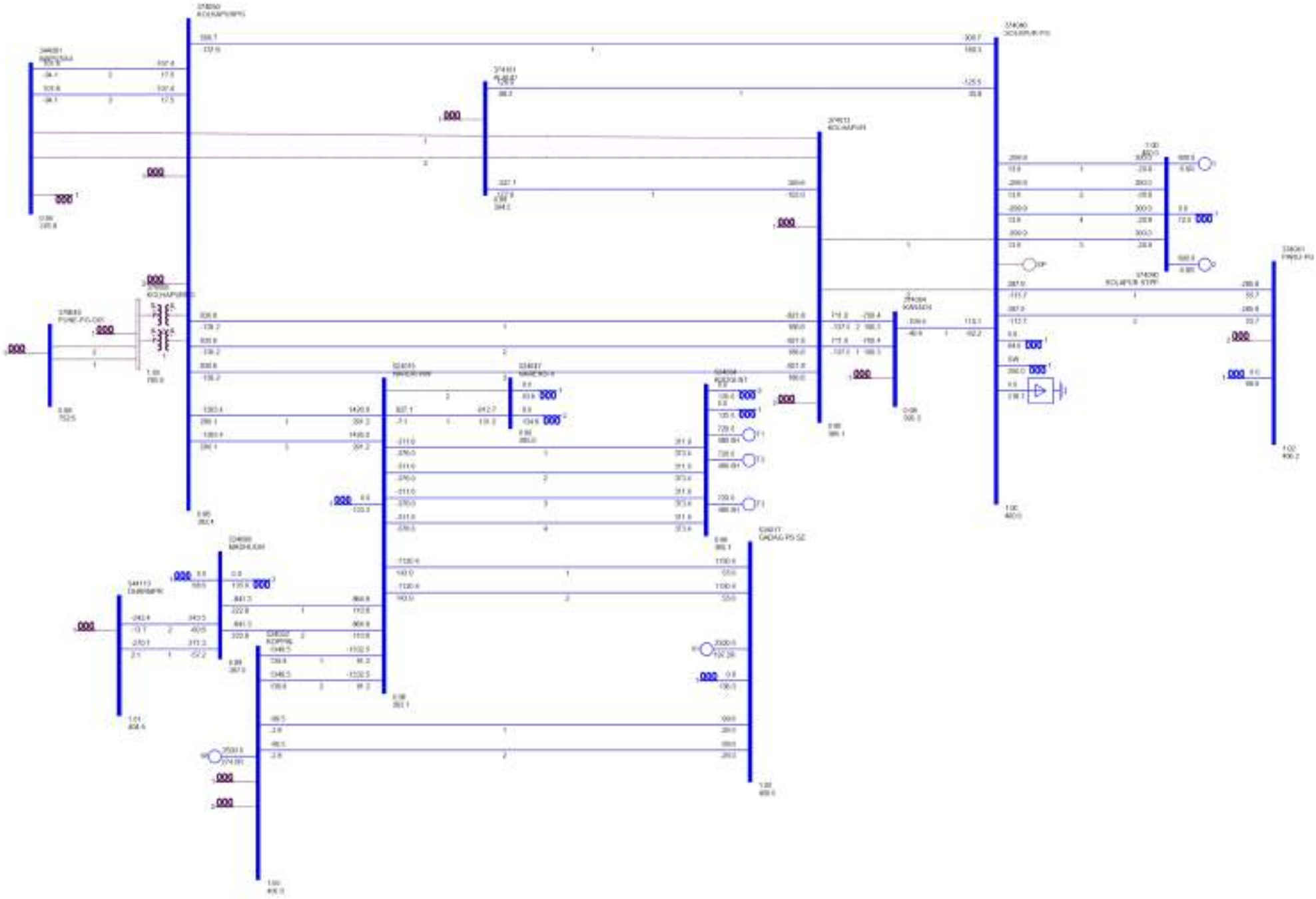


Case 2: Case 1+ LILO of Kolhapur (MS)- Alkud 400 kV S/c line at Kolhapur (PG)

N-1 in Kolhapur(MS)-Kolhapur(PG) 400KV line

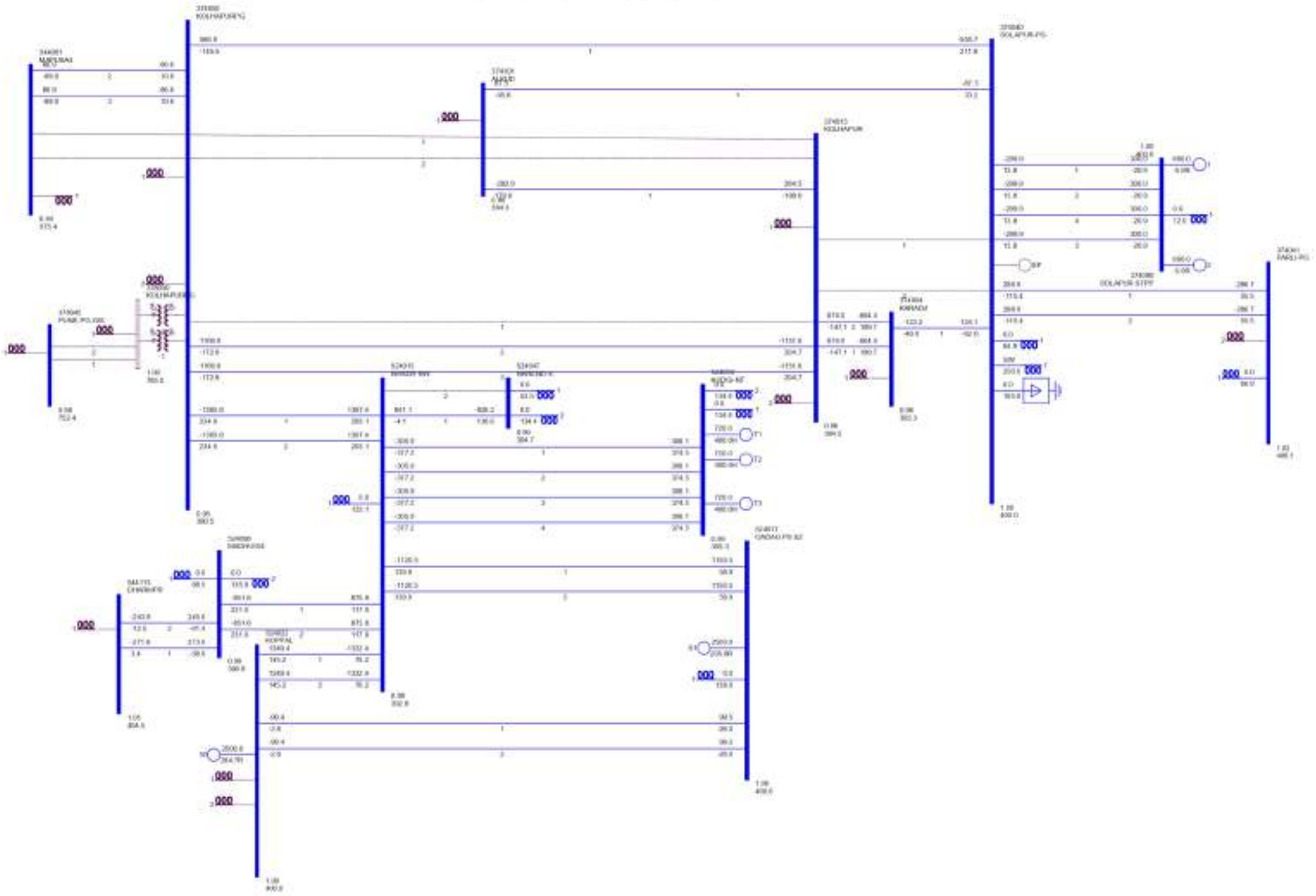


Case 3: Case 1+ LILO of Kolhapur(MS) – Sholapur 400 kV S/c line at Kolhapur (PG)

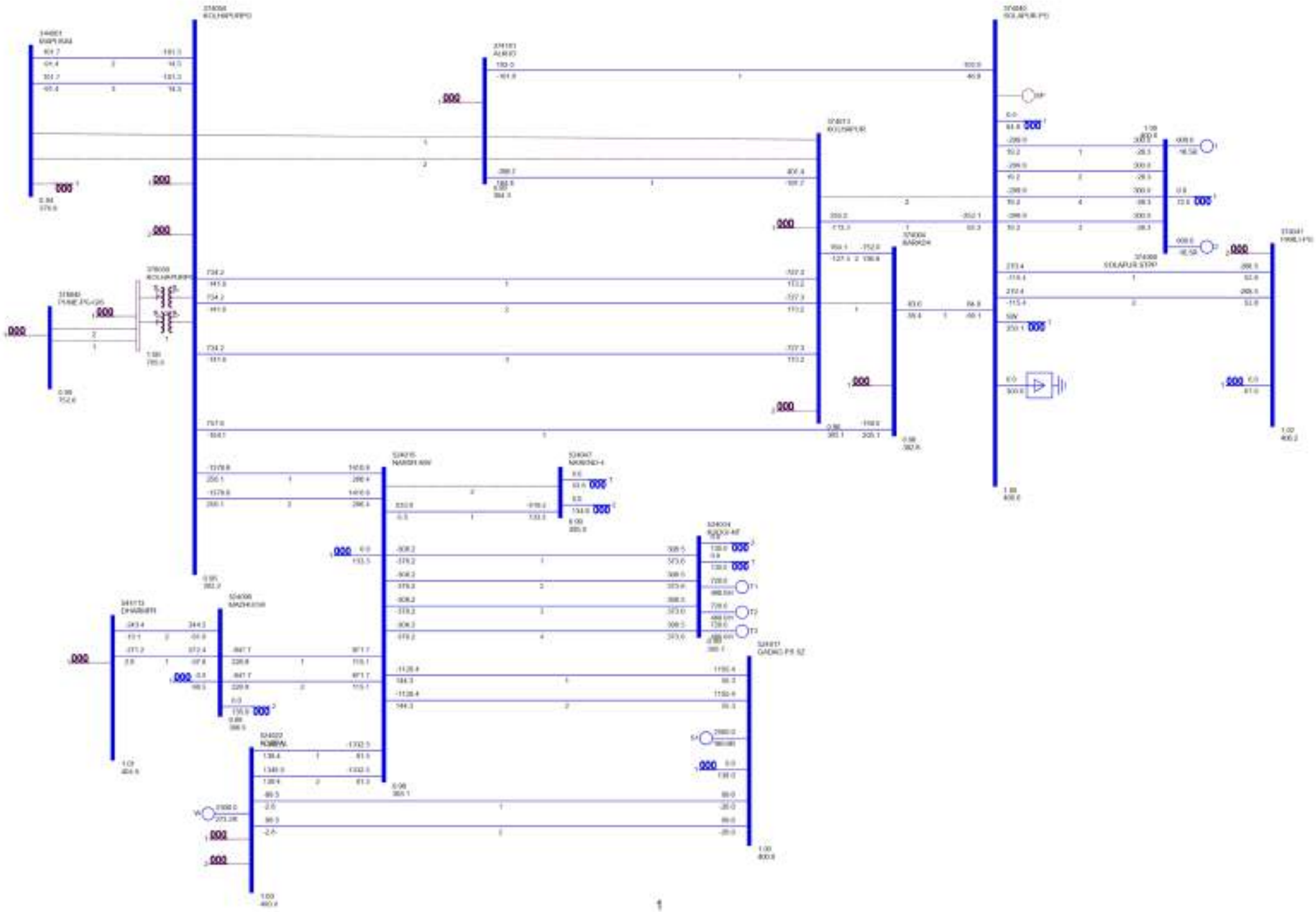


Case 3: Case 1+ LILO of Kolhapur(MS) – Sholapur 400 kV S/c line at Kolhapur (PG)

N-1 in Kolhapur(MS)-Kolhapur(PG) 400KV line

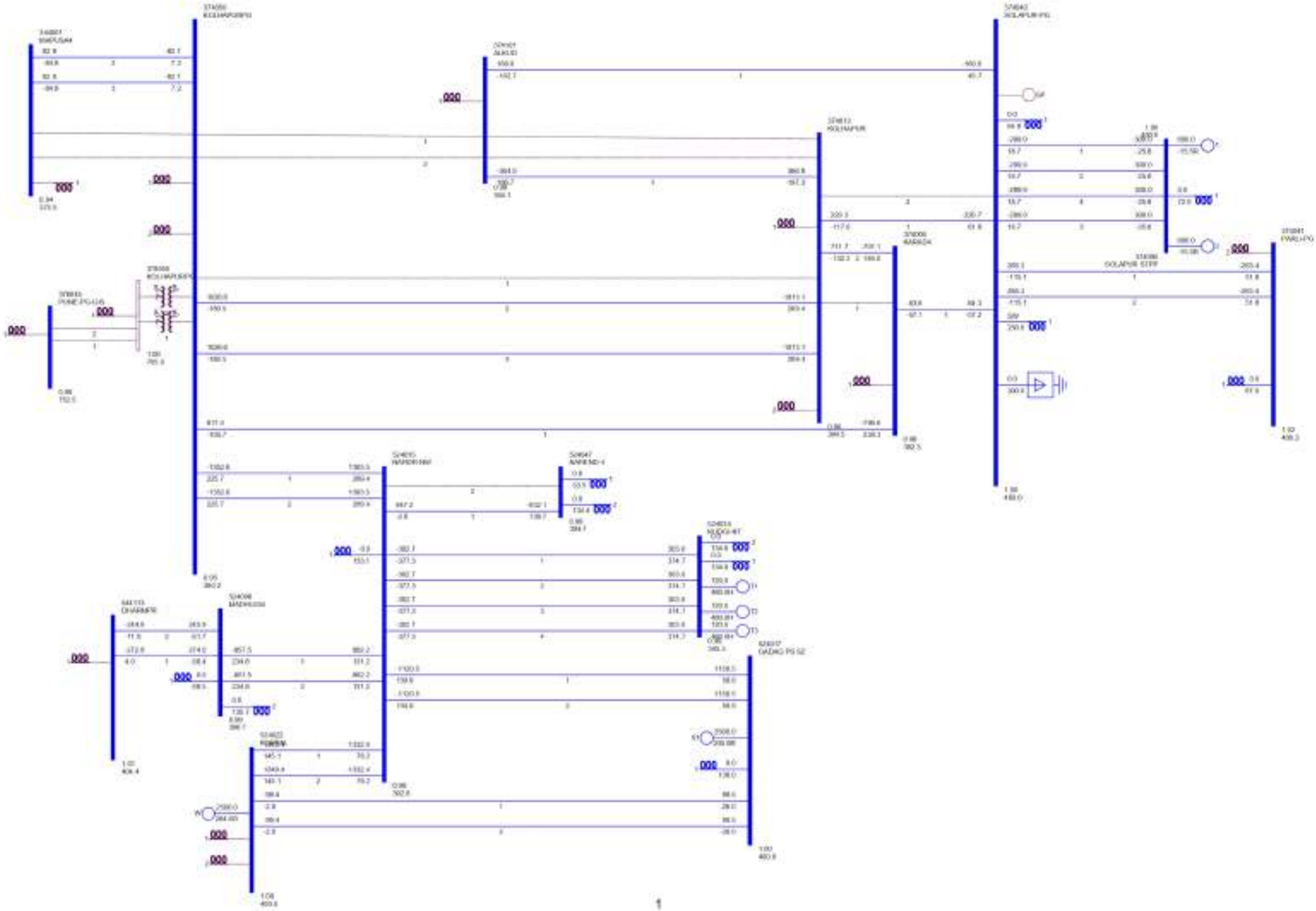


Case 4: Case 1+ LILO of Kolhapur(MS) – Karad 400 kV S/c line at Kolhapur (PG)



Case 4: Case 1+ LILO of Kolhapur(MS) – Karad 400 kV S/c line at Kolhapur (PG)

N-1 in Kolhapur(MS)-Kolhapur(PG) 400KV line



Annexure-2

Comments and observations of TANGEDCO on the proposal of CTU for ISTS Network Expansion scheme between Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region discussed during the 40th SRPC meeting held on 31.01.2022

1. It has been stated in the agenda that the scheme was agreed in the 2nd Consultation Meetings for Evolving Transmission Schemes in Western Region (CMETS-WR) held on 28.12.2021 & Southern Region (CMETS-SR) held on 29.12.2021 at an estimated cost of Rs. 2374 Crores. The fact is that the scheme of proposing new 765 kV line between Narendra- Pune was not approved/ agreed in the said 2nd consultation meeting and TANGEDCO raised objections against the proposal of Narendra- Jejuri – Pune 765 kV line and upgradation of Narendra (PG) SS to 765 kV level and establishment of new 765/400 kV SS at Jejuri under the banner of RE evacuation.
2. The proposal is said to be evolved to export RE power from SR under high RE scenario as well as to mitigate operational constraints being faced in Kolhapur(PG) – Kolhapur(MSETCL) 400kV D/c line under real-time.
3. In the objective / justification for the proposed upgradation and new 765 kV line, it has been stated that NLDC as part of operational feedbacks has highlighted that high loadings beyond Kolhapur which 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.
4. Further it is stated that a number of large RE based generation projects are envisaged in Southern Region especially in the prioritized REZs of Koppal, Gadag, Karur and Tuticorin areas. Stage-II Connectivity and LTA applications have already been received / granted from a number of generation projects in these areas. Transmission system for integration and immediate evacuation of power from these REZs has already been planned and is under different phases of implementation. However, constraints are observed for export of surplus power from REZs in Southern Region to Western Region under high RE scenario in SR. It has been stated that considering above aspects, the subject network expansion scheme has been proposed between WR and SR for export of surplus power from SR.
5. In this context, the observations and views of TANGEDCO are deliberated under various heads as furnished below:

I. CTU's study reports for integration and evacuation of power from the REZs in Southern Region for 8 GW capacity addition and Regulatory approval of Hon'ble CERC in petition No.200/MP/2019.
II. Need for considering the RE capacity addition and associated transmission system in Western Region and Northern Region approved by Hon'ble Commission in petition No.197/MP/2019 and 23/MP/2019 and 269/MP/2019
III. Need for delinking the transmission line constraint mitigation prevailing in Maharashtra from the RE evacuation in SR
IV. Discrepancies in the database and study approach
V. Options proposed by TANGEDCO to resolve the constraint beyond Kolhapur
VI. Cost benefit analysis and commercial impact on Discoms
VII. Suggestions
VIII. Conclusion

I. CTU's study reports for integration and evacuation of power from the REZs in Southern Region for 8 GW capacity addition and Regulatory approval of Hon'ble CERC in Petition No.200/MP/2019.

a. CTU had initially evolved transmission schemes for evacuation of power from the RE capacity addition of 18.5 GW and subsequently modified the scheme for integration and evacuation of power from the 8 GW RE capacity addition in SR based on the objections raised by TANGEDCO in various forums and also due to non availability of land and non firming up of the generators / LTA. The projected capacity addition in SR is furnished below:

REZ	Capacity
Koppal	2.5 GW
Gadag	2.5 GW
Karur	2.5 GW
Tirunelveli /Tuticorin	0.5 GW

b. Based on the submissions made by the CTUIL, SECI and TANGEDCO, Hon'ble CERC approved the transmission schemes for evacuation of power from the proposed 8 GW RE generators based

on target region. The details of approved transmission schemes are enclosed as Annexure-I. It has been ascertained by CTU that during the course of hearing of the Petition, 9 number scenario studies were conducted by CTU evolving transmission system for 8 GW RE capacity addition in SR. Further it was ascertained that, as per the studies, there was no constraint in exporting RE power from SR to other regions except the constraint in Kolhapur(PG) – Kolhapur(MSETCL) 400kV D/c line under N-1 condition with full RE generation, which was planned to be mitigated by re-conductoring the same (Copy of affidavit enclosed as Annexure II). TANGEDCO had been consistently insisting to carry out All India Case study, considering the RE generation in All Regions as per the Planning criteria.

c. POSOCO had also raised large number of queries / issues in considering different LGB for different Regional Studies. The core issue raised by POSOCO was that CTU has considered different LGB for different Regional studies which was not correct. Further, POSOCO had pointed out many manipulations / discrepancies in modelling as well as dispatch schedules. The copy of the POSOCO report is enclosed as Annexure-III.
d. CTU confirmed that Phase-II of the transmission system for REZ in SR will be taken up for implementation only after receipt of Connectivity / LTA application beyond 1000 MW each in Koppal and Karur and beyond 1500 MW in Koppal pooling stations.
e. Thus transmission scheme for evacuation of 8GW RE power was approved by CERC and freezed during 2021.

II. **Need for considering the RE capacity addition and associated transmission system in Western Region and Northern Region approved by Hon'ble Commission in Petition No.197/MP/2019, 23/MP/2019 and 269/MP/2019:**

a. Simultaneously, CTU evolved transmission schemes for RE capacity addition of 28 GW in WR and 20 GW in NR to achieve GoI's target of 175 GW by 2021. The schemes were approved by Hon'ble CERC vide orders dated 10.10.2019, 09.08.2019 and 12.05.2020 respectively. CTU has stated vide affidavit dated 25.02.2020 in petition No.296/MP/2019 that out of the 20 GW proposed in NR, application for stage II connectivity has been received for14.3 GW. Similarly in the petition for WR, CTU has mentioned that out of 28 GW, Stage II connectivity application had been received for only

7.5 GW. Despite the mismatch in Connectivity / LTA applications and the envisaged transmission capacity, approval was granted for the transmission schemes for 28 GW in WR and 20 GW in NR.

b. The schemes were evolved based on projected capacity addition by the year 2020-21.

c. As the timeline has already lapsed, CTU has to bring on record the comprehensive details covering the following:

Region/ State/ Location	RE Potential envisaged	Connectivity granted	LTA granted/ application pending	Transmission schemes status

d. Since there is a huge RE capacity addition to the tune of 48 GW envisaged in WR and NR, and the associated transmission schemes are being implemented / at different stages of implementation, it is essential to model all the approved /envisaged RE generators along with the associated transmission elements in the All India base case considered by CTU for the 2024-25 planning horizon.

e. The LGB of SR, WR and NR under 2024-25 Peak solar scenario plays a key role in deciding the network requirement for evacuation and transfer of surplus power across regions. It is observed from the study considerations that only 1 GW RE under State connectivity alone has been considered and rest of the capacity envisaged under ISTS in Maharashtra has not been considered. The RE capacity in respect of rest of the States in WR and NR considered for the study has not been specified.

f. Without considering the already planned / implemented RE capacity addition in WR and NR, the study for export of surplus power in SR would only give a mythical picture rather a realistic one.

g. Further, it is inevitable to furnish the details of total RE capacity State-wise (Both ISTS and Intra State) considered for the study horizon so as to ascertain the factual details and decide on the requirement of any additional transmission capacity requirement. In addition, the roof top solar considered should also be indicated.

III. Need for delinking the issue of transmission line constraint prevailing in Maharashtra from the RE evacuation scheme in SR:

a. It is evident from various operational feed back / deliberation in various meetings as well as CTU's submissions in the Regulatory approval petition for 8 GW RE capacity addition in SR that the overloading of Kolhapur(PG) – Kolhapur(MSETCL) 400kV D/c line under N-1 condition has been a perennial problem.
b. Since the overloading of Kohlapur-Kohlapur was a pre-existing condition, ie., prior to approval of RE evacuation scheme for SR, linking of this problem to SR evacuation scheme and bringing the expenditure under the ambit of National RE component is illegitimate and expenses fall squarely on the State of Maharashtra only.
c. POSOCO vide their letter dated 02.02.2021 has given operational feedback on high loading of Kolhapur-Kolhapur(PG) 400 kV D/c line in which number of measures have been suggested including reconductoring of the lines.
d. It is not associated with evacuation and transfer of RE power from the envisaged 8 GW in SR.
e. Since it is a prevailing operational issue pertaining to the State of Maharashtra, the concerned State has to take appropriate measures to mitigate the constraint for maintaining the grid stability. It is also pertinent to mention that to resolve the overloading issue, the conductor strengthening work has already been approved and taken up for implementation, as stated by CTU in the agenda.
f. Linking of the local constraint with the already approved RE capacity addition in SR would be contrary to the study results / affidavits filed by CTU before CERC. It will also be illegitimate to include a new scheme in a proposal already approved by CERC taking into consideration of all factors stated by CTU.

IV. Discrepancies in the database and study approach

1. The study approach of CTU raises serious queries on the genuineness and legitimacy of the planning process due to the following reasons:
2. A huge capacity transmission corridor viz. Tuticorin –Dharmapuri – Madhugiri - Narendra - Kolhapur (765 kV rated volage being operated at 400 kV) has already been created for a total length

of 1183 Km from Southern part of Tamil Nadu to Southern Maharashtra. Similarly, there are 5 Nos. EHV AC inter Regional corridors between SR-WR, SR-ER which have been created to cater the inter regional exchanges. The TTC between SR-WR and SR-ER is 17300 MW.

3. The Raigarh- Pugalur -Trissur HVDC corridor with a design capacity of 6000 MW at a cost of Rs. 20,000/- crores has been created to transfer power between Western Region and Southern Region. This HVDC system provides greater flexibility in dispatching power bi-directionally and the same 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.
4. The core of the issue is that the commissioning /commercial operation of Tuticorin –Dharmapuri – Madhugiri - Narendra – Kolhapur corridor did not commensurate with the generation capacity addition for which the corridor was planned and executed resulting in creation of huge redundant transmission capacity and unnecessary investment of huge public money.
5. Under such circumstances, it is essential and inevitable to plan optimal transmission system using well proven scientific approaches / methodologies /strategies to avoid / defer wasteful investment of public money. One of the key aspects of optimal planning is to explore all possible options to fully utilise the existing resources/ capacities.
6. On cursory examination of the proposal of CTU for strengthening of WR-SR inter regional corridors, it would be evident that the scenarios and the assumptions considered are unrealistic and improbable.
7. The following major discrepancies are observed in the study approach, modelling and dispatches:
    i) It has been stated in the study assumptions/ consideration that out of 7 GW of RE capacity addition envisaged (approved) in Maharashtra, only 1 GW under Intra State has been considered and balance RE capacity has not been considered for the study due to land availability issue. CTU has not given any details on the RE capacity considered in rest of WR and NR for the study. The export of surplus RE power from SR to WR and from WR to NR largely depends on the RE generation available under 2024-25 scenario in WR and NR. Non consideration

of the RE capacity envisaged in WR and NR would create an unrealistic / false scenario of export of surplus power from SR to WR and NR. This is a major flaw in the study approach.

ii) The second major issue is non adoption of uniform dispatches among the ISTS connected RE generators and Intra State embedded RE generators. It is stated that full RE capacity under June 2024 afternoon solar peak has been considered for the study, whereas the generation from state embedded RE generators are dispatched at hugely varying ranges (lowest being 46% and upto 83%). Details extracted from Study report enclosed as Annexure IV.

iii) It is also noticed that the Capacity factor adopted by CTU is 100% for the RE Projects at Koppal, Gadag and Karur. In this regard, the CEA's Transmission Planning criteria provides as below:

*"11.3 For evolving transmission systems for integration of wind and solar generation projects, high wind/solar generation injections may also be studied in combination with suitable conventional dispatch scenarios. In such scenarios, the Intra-State generating station of the RES purchasing State may be backed-down so that impact of wind generation on the ISTS grid is minimum**. **The maximum generation at a wind/solar aggregation level may be calculated using capacity factors as per the norms given in Table-II at Annexure - III.** "*

As per the Planning criteria, the following capacity factors have to be adopted:

Voltage level/ Aggregation level	132kV / Individual wind/solar farm	220kV	400kV	State (as a whole)
Capacity Factor (%)	80 %	75 %	70 %	60 %

Hence, the logic behind considering 100% capacity factor for both wind and solar generation projects is not judicious and not inline with the planning criteria. Under no circumstances, the coincidental simultaneous peak generation of both wind and solar generation farms would reach 100% of the combined capacity.

iv) Further, there is no justification for keeping the thermal generation to its maximum capacity (excluding Aux) under maximum RE generation scenario who enjoy 'Must run Status'. This is impractical as the dispatches are based on MOD, and during surplus conditions, States would be

forced to backdown their thermal generation as well as schedules from ISGS. This adoption by CTU has been criticised by POSOCO in the earlier studies also. Hence it leads to conclude that this study case is very peculiarly simulated to create a scenario of maximum export to Maharashtra through the Narendra -Kolhapur corridor.

v) The statements of CTU, viz. **"constraint beyond Kolhapur under surplus RE scenario in SR" and "in case the network expansion schemes for enabling export of power from REZs in Southern Region to Western Region are not identified timely, it may not be possible to grant LTA to these applicants and generation may get stranded"** are misnomers and misleading in the context of RE capacity addition.

vi) The fact of the matter is that it **is only one element of the network pertaining to Maharashtra is getting overloaded in the present conditions** (as reported by POSOCO) even without any additional RE capacity in SR.

vii) The next statement that it may not be possible to grant LTA to the applicants without identifying expansion schemes in addition to the already approved schemes is not appreciable, as no constraint other than overloading of Kolhapur(PG)-Kolhapur(MS) line was reported. Even this constraint was a pre-existing condition in the State of Maharashtra and the same has to be resolved in consultation with MSETCL exploring various options suggested by POSOCO as extracted 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.

viii) Without exploring the above options which are supposed to be carried out by MSETCL to address the overloading issue in their network, it is not a proper and optimistic approach to propose a huge 765 kV corridor for resolving a local issue in a particular segment.

8. It is pertinent to mention the observations of Hon'ble CERC in 200/MP/2019 on the laxity in planning process. The relevant portion of the order in extracted below:

> *"54. We observe that after a number of hearings in the matter over a period of two years, on the persistent queries of constituents in various RPC meetings and in the hearings of the Commission and on the analysis of various factors including availability of land, comprehensive All India study and applications for LTA as directed by the Commission, CTUIL has finally scaled down the proposal of transmission system for regulatory approval from 18.5 GW to 8 GW.*
>
> *55. We are of the view that this scaling down of the proposal of transmission system for regulatory approval from 18.5 GW to 8 GW raises a serious question mark on the entire process of transmission planning and approval.* ***In our view, there was gross lack of due diligence by statutory planning agencies such as CTUIL and intermediary agency like SECI and the competent authority which approved the scheme for the 18 GW. The basic ingredients of planning, namely availability of land, applications for LTA, comprehensive All India study and respecting the view-points of stakeholders, especially those who finally bear the cost of the transmission system through transmission charges were conveniently neglected and overlooked****. It was the persistent nudging by the Commission and repeated voicing of concerns of the stakeholders that led these agencies to accept the reality, albeit reluctantly, and revise the scheme downwards.*
>
> *56. We observe that the estimated cost of the originally proposed 18.5 GW transmission system was Rs.9,485 crore, whereas the estimated cost of the scaled down transmission system of 8 GW is only Rs.1,628 crore. Thus, because of scaling down of the transmission system to 8 GW, the expected additional annual transmission charges would be substantially lower than what would have been with the transmission system of 18.5 GW. Thus, had the Commission not taken the view that it took, the consumers would have been unnecessarily burdened with additional transmission charges and there would have been un-necessary capital expenditure incurred and in addition, there could have been stranded assets.*

9. Further, CTU has committed before Hon'ble CERC that the transmission systems associated with RE projects in all Regions shall be taken up for implementation only after grant of LTA matching with the generation. As per CTU's statement, the application received for LTA by CTU so far is only 4250 MW out of the envisaged capacity addition of 10000 MW in SR. Among this, for the envisaged capacity of 7500 MW in Koppal, Gadag and Karur area, application have been received only for 2080

MW so far. The details of LTA granted has not been furnished. Even after a lapse of one year from the study scenario of 2020-21, the firmed-up capacity is less than one third of the envisaged capacity. Furthermore, the drawal points / entities are not firmed up for the said capacity. There is no possibility of exceeding the envisaged capacity of 8 GW in the near vicinity. Hence, linking the LTA applications within the capacity of 8GW in SR to any network augmentation is contrary to the commitments made by CTU before CERC and also against the planning criteria.

10. Furthermore, a huge investment has already been made to establish number of 765/400 kV substations (initially operated at 400 kV) in all the Regions based on the anticipated generation capacity addition by IPPs. Due to non firming up of generation projects, most of the substations are not upgraded and are being operated at 400 kV despite the transmission lines are established at 765 kV. The bitter fact is that these 765 kV lines operated at 400 kV are lightly loaded / underloaded or in floating condition even after five years of commissioning and the investment already is being recovered from the discoms. The Kolhapur 765 /400 kV substation is one among the substations being operated at 400 kV.
11. If there is absolute requirement based on firmed up generation /demand then these substations could be upgraded within a short gestation period of 12 months to 18 months. But, as of now there is a huge redundancy in the entire national grid and any further expansion without firmed up generation / demand would be a national waste at the cost of public exchequer.
12. Further, it is pertinent to mention that it would be wise to upgrade the Kolhapur (PG) if there is huge RE capacity addition beyond 10 GW in SR and linking the Kolhapur (PG) with Pune or any other substation in Maharashtra would be an optimal

solution. Bringing in an additional 765 KV corridor between Narendra and Pune would create huge redundancy and the other inter regional corridors already created would remain underutilised.

13. It is ascertained from the database that (due to shortage of time, scrutinising the entire database and modelling was not done) the dispatches schedules in Karnataka is contrary to the dispatch schedules in other States.
14. It is also seen that the Raigarh-Pugalur HVDC, Talcher-Kolar HVDC and Jaipore -Gazuwaka HVDC are operated in SR import mode instead of reverse mode during high RE scenario. This is highly unjustifiable. POSOCO has insisted during many discussions and meetings to explore the options for operating these HVDC systems under reverse modes during surplus scenario.

V. OPTIONS PROPOSED BY TANGEDCO TO RESOLVE THE CONSTRAINT BEYOND KOLHAPUR:

i) Despite the fact that the generation dispatches in the scenarios study case are unrealistic and improbable, TANGEDCO has examined a few options to mitigate the overloading issues in Kolhapur(MS)-Kolhapur(PG) 400 kV line under the same dispatch conditions. The case studies are detailed below:

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

The study exhibits along with abstract of results are enclosed as Annexure V.

ii) The following observations are made from the above case studies:

- ✓ In the Base case (without upgradation) under normal operation condition, the loading of Kolhapur(MS)-Kolhapur(PG) 400 kV line and other 400 kV lines emanating from Kolhapur are within limits.
- ✓ Under N-1 condition, Kolhapur(MS)-Kolhapur(PG) 400 kV line is loaded to 2702 MW, while the other EHVAC inter regional lines are under loaded.
- ✓ In Case 1 scenario under normal conditions, the loading of the lines / ICTs are generally in order.
- ✓ Under contingency condition in Case-1 scenario, the Kolhapur(MS)-Kolhapur(PG) 400 kV line is loaded to 2379 MW.
- ✓ In Case 2 scenario under normal conditions, the loading of the lines / ICTs are generally in order. Further under outage of one circuit of Kolhapur (MS)- Kolhapur (PG) 400 kV line, the other two lines are carrying 1136 MW each and the constraint **beyond Kolhapur is resolved.**
- ✓ Another option under Case 3 scenario under normal conditions, the loading of the lines / ICTs are generally in order. Further under outage of one circuit of Kolhapur(MS)-Kolhapur(PG) 400 kV line, the other two lines are carrying out 1169 MW each and the constraint **beyond Kolhapur is resolved.**
- ✓ Similarly, in the other option of LILO of one circuit of Kolhapur(MS) – Karad 400 kV DC line at Kolhapur PG under Case 4 scenario, the overloading issue of Kolhapur(PG) – Kolhapur(MS) **gets resolved under N-1 condition**.
- ✓ Apart from the above three probable options /solutions to mitigate the local over loading issue of Maharashtra owned Intra State line, there could be number of other options as explained in earlier paragraphs to resolve any constraint within the State of Maharashtra.

VI. Cost benefit analysis and commercial impact on Discoms

The above proposed options would be executed with allocation of two numbers 400 kV bays at Kolhapur (PG) which is a new substation and there would not be any issue in allocating 400 kV bays to Maharashtra. The investment required for the LILO arrangement of their own line shall be borne by Maharashtra.

With the above proposal, a huge redundant investment to a tune of Rs.2347 Cr could be averted and the tariff shock to all the beneficiaries across the country could be avoided.

VII. Suggestions:

1) In consultation with MSETCL, CTU may make LILO of any one of the circuits emanating from Kolhapur (MS) SS to other MSETCL substations at Kolhapur (PG) so as to form an additional circuit between Kolhapur(MS)-Kolhapur(PG).
2) All the HVDC systems terminating in SR shall be operated in export mode / block mode under SR surplus condition.
3) The options for providing intra-state connectivity (400 or 220 KV side) to the RE pooling stations so as to disperse the RE power within the State at local load centres shall be explored / implemented.
4) All the case study results along with data base under different scenarios shall be shared among all the constituents well in advance of deliberations.

VIII. Conclusion

i) TANGEDCO has observed that the present proposal is evolved based on unrealistic scenarios and there is no possibility of occurrence of such dispatch scenario in real time.

ii) The Intra state overloading issues shall have to be resolved locally.

iii) The proposal of up gradation of the Narendra SS(PG) to 765/400 kV SS and Narendra-Pune 765 kV D/c line in unwarranted and hence shall be dropped

iv) Non consideration of the already approved RE capacity addition in WR and NR is wrong and would end up with creation of

inefficient power system. Hence, the planning studies should be carried out taking into consideration of all the approved / under implementation projects. Any deviation / modification is considered then it shall be specifically mentioned with justification.

v) The move to link the grant of LTA with the new network upgradation which was not part of the transmission schemes is contrary to CERC's orders and would be highly detrimental to achieve the ambitious target of 175 GW and subsequent targets and hence CTU shall avert such approaches.

vi) CTU shall implement the most optimal solution of making LILO of any one of the circuits emanating from Kolhapur (MS) SS to other MSETCL substations at Kolhapur (PG)

Annexure-IV

Email

भारतस रकार केंद्रीय विद्युत प्राधिकरण **दक्षिण क्षेत्रीय विद्युत समिति** 29, रेसकोर्स क्रास रोड बेंगलूर- 560 009		Government of India Central Electricity Authority **Southern Regional Power Committee** 29, Race Course Cross Road Bengaluru - 560 009	
Web site: www.srpc.kar.nic.in	Email: mssrpc@yahoo.com		Phone: 080-22287205
सं/No.	SRPC/MS/2021-22/	दिनांक/ Date	**07th March 2022**

To

The Chief Operating Officer
Central Transmission Utility of India Limited (CTUIL)
Saudamini, 1st Floor,
Plot No.2, Sector-29,
Gurugram, Haryana-122 001

Subject: ISTS Network Expansion scheme between Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region –reg.

Sir,

Kind reference is invited SRPC letter dated 04.03.2022 communicating SRPC views in respect of the *"ISTS Network Expansion scheme between Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region*" for taking up the transmission scheme for consideration in the NCT Meeting along with the views of SRPC. Kindly ignore the views furnished vide letter dated 04.03.2022.

Chairperson, SRPC & CMD, TANGEDCO vide mail dated 07.03.2022 has communicated the approved Minutes of the 41st SRPC Meeting held on 02.03.2022 and the views of the SRPC to be communicated to CTUIL. The MoM and views of SRPC are attached with the mail. CTUIL may submit the proposed transmission scheme along with the views of SRPC (07.03.2022) (at **Appendix**) for consideration in the NCT meeting.

Thanking You,

भवदीय/Yours faithfully,

(असित सिंह / Asit Singh)
सदस्य सचिव / Member Secretary

Appendix

Southern Regional Power Committee

Chairperson SRPC approved view of SRPC on CTU's proposal of ISTS Network Expansion scheme between Western Region & Southern Region

1. CTUIL vide letter dated 21.01.2022 had furnished the ISTS Network Expansion scheme between Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region for viewsof Southern Region Power Committee (SRPC).

S 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 along with 4x1500 MVA transformers and 2x330 MVAr Bus Reactors	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 MVArinc. 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. ^ Two nos. equipped 400kV bays (opposite Koppal line bays) under implementation under TBCB route (Koppal WEZ scheme) to be utilised for 400kV side of 2 nos. 765/400kV Transformers The Narendra New (GIS) – Pune 765kV D/c line may be LILOed in future at a suitable location as per requirement of MSETC	

CTUIL had requested that SRPC may forward views in respect of "*ISTS Network Expansion Scheme between WR & SR for export of surplus power during highRE Scenario in Southern Region*" at the earliest so that the transmission scheme may be taken up promptly for consideration in the NCT meeting along with the views of SRPC.

2. In the 40th Meeting of SRPC held on 31.01.2021 (relevant extract is enclosed at **Annexure A**), the scheme proposed by CTUIL has been deliberated in detail and it

was concluded that comments/observation received from POSOCO/ other utilities would be furnished to CTUIL & other members, CTUIL in turn furnish the clarification in writing and the same would be circulated to the members. Subsequently a technical meeting would be convened and the outcome would be put up to SRPC in the next meeting.

3. Subsequently, POSOCO, APTRANSCO, KPTCL, TANGEDCO and Puducherry ED had furnished their comments. CTUIL had furnished their observations on the comments of SR constituents. Based on the comments/ clarifications received as above, a special TCC meeting of SRPC was convened on 18.02.2022 through VC to discuss them in detail with a view to ascertain the orderliness of the CTUIL's proposal, and suggest suitable recommendations for SRPC so that their considered views may be conveyed to CTUIL for further pursuance with NCT.

4. The minutes of the Special TCC meeting held on 18.02.2022 were issued vide SRPC letter dated 24.02.2022 **(Annexure-B)**. The summarized views of SR-Constituents, POSOCO & CTUIL are given below for kind reference:

Constituents	Comments/Observations
TANGEDCO:	a) Remarked that the issue of overloading of the Kolhapur (PG) - Kolhapur 400 kV D/C line under N-1 condition was a pre-existing constraint in the State network of Maharashtra prior to the approval of transmission scheme for 8 GW RE capacity additions in SR. b) CTU's approach in linking the grant of LTA with the new network upgradation which was not part of the transmission schemes approved by CERC is contrary to the approval accorded by CERC for 8 GW. c) The optimal feasible solution to resolve the overloading in Kolhapur (PG)-Kolhapur(MS) 400 kV DC line is to make LILO of any one of the 400 kV lines between Kolhapur SS (MS) and any other 400 kV SS in Maharashtra at Kolhapur (PG) substation. d) Underlined that the power system planning studies carried out by CTU are not based on realistic scenario and noticed that the dispatches for RE and conventional Generators adopted by CTU for this study are contrary to CEA's Planning Criteria. All generation from stations in Maharashtra had been reduced whereas in Karnataka entire generation is taken at maximum level apart from ISGS. The same percentage of generation from different sources of generators needed to be adopted in all the states. Informed that after analyzing the LGB considered in the WR, SR and NR in studying the proposal, many issues had been noticed in the data base considered. The projection gives a picture that there is a huge surplus in SR and huge deficit in WR.

	e) Since the generation in Maharashtra was not considered fully, revised study with all SR beneficiaries, POSOCO, Maharashtra state Transco, Distribution companies with presence of CEA may be conducted. f) Requested to drop the proposal of up-gradation of the Narendra SS (PG) to 765/400 kV SS and Narendra-Pune 765 kV D/C line
APTRANSCO:	a) Stated that they are in agreement with views of TANGEDCO b) Highlighted the skewed Load Generation Balance considered for the analysis, and remarked that norms of CEA planning criteria are not followed in spirit. c) Requested to explore operating Raigarh – Pugalur HVDC link in reverse mode, and other HVDC links (Talcher-Kolar, Gajuwaka, Bhadrawati) in reverse/ block mode. d) The option of considering 765 kV Narendra New – Raichur-PG option with bus-sectionalizer along-with series reactor at Narendra by CTUIL.
KPTCL:	a) Observed that CTUIL had considered full generation from thermal Power Plants & maximum RE generation in SR and suggested that scenario with import of power from Western Region to Southern Region needs to be conducted considering peak RE generation in Western Region. b) Necessary joint study needed to be conducted with participation from CEA, CTU and Southern Region constituents for arriving at an optimal ISTS network expansion scheme between WR & SR. c) Also the financial impact in terms of transmission charges which may be incurred in this regard on the SR constituents needed to be looked into and suggested that detailed techno-economical analysis needed to be carried before finalizing the subject transmission scheme.
PCKL:	a) PCKL representative opined that the addition of network should not financially burden Karnataka state. *b) PCKL vide letter dated 22.02.2022(**Annexure- C**) has submitted their comments on the CTUIL proposal. All the observations are discussed in the Special TCC meeting held on 18.02.2022.*
TSTRANSCO:	c) There is a necessity to relook the LGB and generation dispatch and they are in agreement with views of TANGEDCO in this regard. d) Regarding the 400 kV Kolhapur PG – Kolhapur (MSETCL) D/C line, there is necessity to plan the proper intra-state network i.e, instead of LILO of the line at Kolhapur (PG), a 400 kV SS may be planned and network reconfiguration may be done.

KSEBL:	a) Enquired CTUIL about the assumptions, LGB and dispatches that went into the calculation and based on that they can have a relook into the system about the assumptions that went into the calculation. Based on that they can have a relook into the system. b) Enhancements in ATC, TTC that would happen with these additions may be furnished by CTUIL. c) They are in agreement with other SR constituents on being burdened unnecessarily and the cost of supply must be reasonable
Puducherry ED:	Electricity Department Puducherry would go by the decision taken/ comments offered by the majority of the Southern Region Constituents.
SRLDC:	Observed that in current scenario also SR to WR TTC is limited due to constraints in 400kV Kolhapur (PG) – Kolhapur (MSETCL) D/C line and beyond. This constraint would further get aggravated with increase in renewable generation in SR especially in Koppal /Gadag area. Hence, the proposed scheme of 765kV Narendra (New) – Pune (GIS) D/C line and re-conductoring of 400 kV Kolhapur (PG) – Kolhapur (MSETCL) D/C line needed to be taken up for implementation on urgent basis. The scheme would help in relieving transmission constraints in exporting surplus power from Southern Region during Solar period and off-peak period.
NLDC:	Mentioned that they have furnished the actual flow on Kolhapur (PG)-Kolhapur (MSETCL) lines and the real time constraints were being faced during export of power from SR. Pune and Mumbai are the load centers in Western Maharashtra and the generation complex is in north Karnataka area comprising generation from Kaiga, Kudgi, hydro generation and the new renewable generation coming to that particular area. As more renewable in the Gadag, Koppal areas get added, line loadings towards the WR side would increase. Even during high import scenario of SR, this situation may continue. Therefore, it has been highlighted that apart from 400 kV Kolhapur PG – Kolhapur (MSETCL) D/C line there are other constraints beyond Kolhapur also. If it is possible to directly transfer power to Pune or Mumbai it will be helpful for the system
CTUIL:	a) Informed that the important considerations for carrying out the study had been furnished by CTUIL for transparency in the proposal. The following were noted w.r.t. important considerations for the study: i) Scenario: Solar Max (Jun'24 Afternoon Peak) with high generations in Narendra complex (Kudgi, Raichur, Bellary, Gadag SEZ & Koppal WEZ) ii) Out of 18.5 GW potential REZ in SR, only 8 GW (Koppal-2.5 GW, Gadag-2.5 GW, Karur-2.5 GW & Tuticorin-0.5 GW) has been considered. Balance 10.5

	GW (Bidar-2.5 GW, Kurnool & Anantapur – 8 GW) has not been considered due to non-availability of land and other issues. iii) Out of 7GW REZ potential in Maharashtra, only 1 GW at Kallam has been considered. Further, additional 1 GW at Kallam is 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 other issues. iv) All India Demand of 224 GW has been considered and demand for WR & SR is considered as 69 GW & 54 GW respectively as per the Load Generation Balance considered for All India Studies for 2024-25 timeframe, as per the methodology finalized with CEA, CTU and POSOCO. v) For simulating the worst case: ➢ 100% Despatch has been considered at Gadag and Koppal REZs (2500 MW each) ➢ 90% Thermal Despatch has been considered at Kudgi TPS (3x800 MW) b) The LTA (existing IR links) had been utilized for exporting power up to 3850 MW from SR. With the re-conductoring of Kolhapur (PG)- Kolhapur (MS), additional 600 MW had been granted. The worst scenario is considered by CTUIL to ensure that LTA is not curtailed and CEA's Planning Criteria is complied. They have LTA applications of around 1080 MW. c) It was pointed out that in case of SR, only 8 GW is considered against the proposed potential of 18.5 GW and w.r.t Maharastra, only 1 GW is considered against the proposal of 7 GW due to non availability of land etc. If CTUIL had considered the full capacity it could have been noted as a skewed generation w.r.t dispatches considered. d) Generators are approaching for LTA for their full capacity and if LTA is granted for the same it is a commitment ensured to dispatcher that they can transfer the full LTA quantum granted and are liable for billing for the same. e) W.r.t. using Raigarh - Pugalur HVDC in reverse direction, the limit is 3000 MW and up-gradation of ICTs at both buses (A & B) are required. The sensitivity of the Raigarh – Pugalur HVDC link for the proposed link is only about 5%, while the same for HVDC-Gakuwaka link is zero. Similarly, Talcher-Kolar HVDC link cannot used in reverse direction since no backup transmission system has been planned for the same due to which the 400 kV Talcher-Meramudali lines would get

	overloaded. f) On the issue of overloading of Kolhapur (PG) – Kolhapur (MH) 400kV D/C line and the same can be accomplished by LILO of any one of the circuits emanating from Kolhapur (MS) S/s to other substations at Kolhapur (PG) CTUIL had stated that these lines are state lines and very old which are designed to operate at 45^0C ambient temperature and limited to 75^0C max temperature limiting the thermal loading to 850 MW. Several MSETCL intra-state transmission lines are loaded much beyond their thermal limits and critically loaded in the base case itself (going beyond 1100 MW in base case itself). g) On APTRANSCO suggestion of 765 kV D/C Line from Narendra New to Raichur with Bus Sectionalization along-with series reactors It was pointed out that the Narendra New 765/400kV substation is a GIS substation and Bus Sectionalization may not be feasible due to the Short Circuit Levels at 400kV bus of Narendra New is about 48 kA which is very close to its design limits of 50 kA. h) CTUIL informed that the present TTC declared is 19,650 MW and the ATC is 18,900 MW. That is for the present with Raigarh - Pugalur as 6000 MW. By April 2023, with the availability of Warora-Warangal, the TTC would be 21,450 MW and ATC would be 20,700 MW. The constraint is on Warora- Warangal. With the addition of 765 kV Narendra (new) – Pune GIS D/C line, an estimated 1500-2000 MW enhancement in ATC is anticipated. But the exact TTC and ATC numbers would be worked out and shared with the SR beneficiaries. i) Looking into the 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, the scheme may be recommended by SRPC to be taken up for implementation to ensure timely availability of required transmission system for evacuation of power from RE projects at Koppal, Gadag, Karur and Tuticorin.

5. Summary of deliberations of the 41st meeting of SRPC held on 02.03.2022:

Constituents	Comments/Observations
CTUIL	a) Without the proposed system CTUIL would not be able to grant LTA for a quantum of 1080 MW RE generation for which LTA applications had already been received and for any new applicants who may apply for LTA. b) Govt. of India has set a target for establishment of 500 GW

	capacity by 2030 from non-fossil fuel based generation projects. For meeting the target considering the RE capacity already commissioned, transmission system already identified / under implementation and margins available in the existing / under implementation transmission system for RE capacity planned, additional transmission system is to be planned for about 180 GW RE generations on all India basis. Out of this 180 GW, more than 80 GW is being identified in SR particularly in the States of Andhra Pradesh, Telangana, Karnataka and 5GW of Offshore Wind in Tamil Nadu. Against this capacity in SR, transmission system for about 50 GW considering storage, is to be identified in due course of time. c) As agreed in the TCC meeting for working out of the TTC for import as well export scenario of Southern Region, CTUIL informed that based on the studies it is found that under the present scenario the export TTC from SR to WR is 4800 MW and considering the TRM of 400 MW (as also has been considered by NLDC as well), the ATC for export of power from SR to WR is about 4400 MW. This capability has already been utilised in grant of LTA for export of power from SR to beneficiaries in NEW Grid. Further with the consideration of Narendra – Pune 765kV D/c link and augmentation of ICTs at Raigarh in the 2024-25 timeframe, the TTC for export from SR to WR is expected to be about 11000 MW with consideration of 3 Units (3x800 MW) at Kudgi NTPC and expected to be about 13000 MW with consideration of 1 Unit (1x800 MW) at Kudgi NTPC with full RE generation despatch from Gadag and Koppal. d) Further, TTC of 19650 MW for import of power from NEW Grid to SR Grid in present time frame has been declared by CTU. With the consideration of Warora – Warangal 765kV D/c link, Narendra – Pune 765kV D/c link and augmentation of ICTs at Nizamabad & Raigarh in the 2024-25 timeframe, TTC is expected to be about 25000 MW. e) Appraised the forum that the scheme was already approved by WRPC and Maharashtra DISCOMS have put forth some observations, which were being pursued by CTUIL separately.
TANGEDCO	a) Pointed out that the skewed LGB considered in the PSSE base case for Maharashtra region with 26000 MW load but an internal generation of only 10000 MW, whereas the present generation of WR itself was amounting to 17000 MW. But full despatch of RE at Gadag and Koppal alongside 90% despatch

	from Kudgi Thermal station has been considered. b) Raised apprehensions regarding consideration of high value of lumped load of the order of 400-900 MW in substations in Maharashtra. It was pointed out that that is not in line with CEA's Planning Criteria. c) Pointed out regarding overloading of 220 kV STU network of Maharashtra in the considered PSSE base case and reiterated that commissioning of the new line may not be an optimal solution for export of power without addressing issues of existing over loadings of transmission system. d) It was stated by TANGEDCO that the proposed link/elements would create a redundant asset, involving huge investment. Hence, the proposal may be dropped. e) CTUIL has carried out studies directly for LTA margin of 10000 MW with the proposed line and have kept on hold LTA application stating that sufficient margins were not available. Whereas they should have carried out studies for intermediate levels like 6000 MW or 7000 MW and propose the optimal system and grant LTA. **CTUIL response :** (i) A fair analysis based on technical considerations was carried out alongside the CEA to put forth the proposal. Over loadings/ LGB in STU network are not under their jurisdiction and beyond the control of CTUIL, and the responsibility lies with respective State Transmission Utility (STU). Regarding lumped loads in Maharashtra they informed that the same was considered based on the inputs from Maharashtra, who were planning to commission new substations to meet their load requirement. Regarding the specific query on low generation considered, CTUIL, WR representative informed that as per the base case, i.e., 4th scenario considered for the studies, [which is the high RE scenario], generation in Maharashtra was arrived considering the merit order. CTUIL also stated that regarding correctness of data/STU network overloading no concerns were raised during the Joint Study meeting of SR and WR. **(ii)** CTUIL reiterated that all the data used in the system studies for the proposal was discussed in the Joint Study Meeting and all the assumptions/scenarios were as per the discussions held on 11.03.2021 between CEA, CTU and

	POSOCO regarding LGB for All-India Studies.
APTRANSCO	a) Uniformity in LGB finalization should be maintained/ ensured in respect of consideration of RE generation across India, unlike in present study where high RE generation is considered only in Karnataka and load at Maharashtra. b) A physical Joint Study meeting is required with all SR constituents, CTUIL and CEA in order to address the concerns of all SR constituents. c) Redundant system for generation in Krishnapatnam area (which never materialized) had significant impact on AP's transmission charges in the past and the transmission system needs to be planned optimally. d) The spirit of CEA's Transmission Planning Criteria shall be maintained which emphasizes the fact that planning of ISTS and intra-STS shall be taken up in uniform and integrated manner for achieving best utilization of the transmission network, rather than element wise planning. Consistent consideration of merit order needed (only Kudgi is considered at 90%) in the base case selected.
SRLDC	The proposed link is utmost important for the grid from System Operator's point of view. The ambiguity was regarding the correctness of the study carried out and not regarding the necessity of the line. The proposed 765 kV New Narendra – Pune D/C line would serve as an evacuation path of power between SR and NEW grid. Power flow of the region would vary depending on generation and load points and in this proposal flow would be from SR to WR.
MS, SRPC	Suggested that in view of diverse views from SR Constituents on CTUIL's proposal, the consolidated view of all constituents/POSOCO/CTUIL may be furnished to CTUIL for further pursuance with NCT for consideration and appropriate decision regarding the proposed line.
CMD, KSEBL (in chair)	MS, SRPC to consolidate the views of all SR constituents and submit to CTUIL for consideration of NCT.
Conclusion and Recommendation of SRPC	*(i) The Southern Regional States observed that the following assumptions considered for the study are wrong and not in line with the CEA's Planning Criteria:* *a) Different diversity factors are adopted for different States* *b) Load –Generation Balance for Maharashtra and Karnataka are adopted in such a way that there*

	would be surplus power in SR and deficit in Maharashtra *c) Adoption of 100% capacity factor for RE generators and 90% for thermal stations in Karnataka and keeping Nil generation in Maharashtra in many State owned generating stations(Internal generation kept at 10272 MW against the demand of 26853 MW)* *d) The generation dispatches are not as per MOD* *e) Huge Lumped loads considered in various 33 kV, 220 KV and 400 kV buses of Maharashtra* *f) Overloading of Intra State network due to the lumped loads as well as unrealistic scenario adoption* *(ii) Maharashtra State Discom has also raised similar apprehensions on the proposal and that need to be taken into consideration.* *(iii)* The Southern Regional States, viz. Tamil Nadu, Karnataka, Andhra Pradesh, Telengana, Kerala and Puducherry unanimously objected for the redundant investment in view of the fact that the entire tariff burden will be borne by the States in the ratio of their LTA+MTOA and requested to rectify the wrong assumptions and conduct revised joint study. *(iv)* However, CTU without elaborating on specific factual assumptions objected by Southern States stated that revised joint study may not be required. *(v) Subsequently, TANGEDCO vide letter dated 02.03.2022 (**Annexure-D**) had furnished additional observations and views of TANGEDCO on the proposal of CTU for ISTS Network Expansion scheme between Western Region & Southern Region for export of Surplus power during high RE Scenario in Southern Region submitted during the 41st SRPC meeting held on 02.03.2022.*

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Annexure-V

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.: C/CTU/S/01/SRPC

Date : 10.03.2022

Shri Asit Singh
Member Secretary
Southern Regional Power Committee
Central Electricity Authority
No. 29, Race Course Cross Road,
Bengaluru, Karnataka – 560 009

Sub: SRPC views on ISTS network expansion scheme between Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region – reg.

Dear Sir,

This is with reference to you letter dated 07.03.2022 forwarding therewith "Chairperson SRPC approved view of SRPC on CTU's proposal of ISTS Network Expansion scheme between Western Region & Southern Region" superseding therewith the earlier letter dated 04.03.2022 vide which consolidated views on SR constituents on CTU's proposal of ISTS Network Expansion scheme between Western Region & Southern Region in line with the deliberations in the 41st SRPC meeting held on 02.03.2022 were forwarded.

As decided in the above SRPC meeting chaired by CMD, KSEBL on 02.03.2022, the consolidated view of all constituents / POSOCO & CTUIL was furnished to CTU by SRPC vide letter issued on 04.03.2022 (copy enclosed as **Annexure-I**). However, vide revised letter dated 07.03.2022, 'Conclusion and Recommendation of SRPC' has been added, despite no such conclusion was arrived at during the meeting. Our pointwise observations on the above referred conclusion and recommendation of SRPC are as follows, which can also be verified from the recording of the meeting :

(i) With respect to the Southern Regional States observation regarding various wrong assumptions considered for the study, it is submitted that CTU vide its letter dated 16.02.2022 has already submitted detailed response to all the observations raised by SR constituents on the subject transmission scheme. The same were also explained with meticulous details during the Special meeting of TCC held on 18.02.2022 as well as 41st SRPC meeting held on 02.03.2022. CTU clarifications are included in the minutes of the above meetings however in the newly added "Conclusion and Recommendation" in SPC letter dated 07.03.2022, only the queries have been mentioned without capturing the responses of CTU.

ii) The similar query of Maharastra Discom referred in the letter has also been replied by CTU which has also not been mentioned.

(iii) & (iv) The statement that CTU did not elaborate on specific factual assumptions made by Southern Regional States is far from factual reality. CTU has time and again responded to all the specific queries raised by SR constituents including TANGEDGO in all the meetings held with respect to the subject transmission system.

(v) The communication dated 02.03.2022 (on the day of the meeting) from TANGEDCO has been made part of minutes whereas the same was not at all discussed during the meeting. Nevertheless, from the perusal of the letter, it is found that the same queries have been re-iterated which has already been responded by CTU in writing and in details during the meeting.

Further, in spite of deliberation in the meeting, the conclusion and recommendation did not include the views of NLDC/SRLDC, POSOCO, who had strongly expressed that "ISTS network expansion beyond Kolhapur for export of surplus power during high RE scenario in Southern Region" is required on urgent basis.

In view of the above, it is requested to kindly revise the minutes of 41st meeting of SRPC meeting as well as your letter dated 07.03.2022 reflecting the consolidated views of SRPC including States/SRLDC/POSOCO/CTU on CTU's proposal of ISTS Network Expansion scheme between Western Region & Southern Region in line with the actual deliberations held during the meeting. SRPC is also requested to share the recording of the 41st meeting of SRPC held on 02.03.2022 for further action.

Thanking you,

Yours faithfully,

10/3/22

(PC Garg)
Chief Operating Officer

Distribution List :

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