



भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति



आई एस ओ : 9001-2008
ISO : 9001-2008

Western Regional Power Committee

एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093

F-3, MIDC Area, Andheri (East), Mumbai - 400 093

दूरभाष Phone: 022- 28221636; 28200194/95/96; फैक्स Fax : 022 - 28370193

Website : www.wrpc.gov.in

E-mail : ms-wrpc@nic.in as-wrpc@nic.in

सं : पक्षेविस /33वीं पक्षेविस बैठक/ सहा सचिव/ 2017

No. WRPC/33rd WRPC Mtg./AS/2017/

दिनांक :

Date :

614 = 31

18 JAN 2017

सेवा में, /To,

(संलग्न सूची के अनुसार)
(As per enclosed list)

विषय : पश्चिम क्षेत्रीय विद्युत समिति की 33 वीं बैठक की कार्यसूची

Sub.: Agenda of the 33rd meeting of Western Regional Power Committee

महोदय/Sir,

इस पत्र के साथ 1 फरवरी 2017, 10:00 बजे को Diu में आयोजित होने वाली पश्चिम क्षेत्रीय विद्युत समिति की 33 वीं बैठक एवं इससे पहले 31 जनवरी 2017, 10:00 बजे को आयोजित होने वाली तकनीकी समन्वयन समिति की बैठक की कार्यसूची संलग्न है।

Please find enclosed herewith the Agenda of the 33rd meeting of Western Regional Power Committee to be held on 1st February 2017 at 10:00 hrs to be preceded by TCC meeting on 31st January 2017 at 10:00 hrs at Diu for your needful.

संलग्न : उपरोक्तानुसार

Encl: As Above

भवदीय/Yours faithfully,

(लक्ष्मीकांत सिंह राठौर/ L K S RATHORE)

सहायक सचिव/Assistant Secretary

List of members of WRPC		2016-17
1	Chairman, WRPC/CMD, MSEDCL, Mumbai	022-26478672, 22650741(Fort)
2	Member (GO&D), CEA, New Delhi	011-26108834
3	Managing Director, CSPTCL, Raipur	0771-2262141
4	Managing Director, CSPDCL, Raipur.	0771-4066566
5	Managing Director, CSPGCL, Raipur.	0771-2262741
6	Chief Engineer (LD), SLDC, Raipur.	0771-2574174
7	Chairman, GUVNL, Vadodara	0265-2340220
8	Managing Director, GSECL, Vadodara	0265-2344734
9	Managing Director, GETCO, Vadodara.	0265-2338152 General 2337918
10	Managing Director, UGVCL, Mehsana, Gujarat.	02762-223574
11	Chief Engineer (LD), SLDC, GETCO, Vadodara.	0265-2352019, 2356469
12	Managing Director, MPPTCL, Jabalpur	0761-2664141
13	Managing Director, MPPGCL, Jabalpur.	0761-2665661
14	Managing Director, M.P. Madhya Kshetra VVCL, Bhopal	0755-2589821
15	CE(LD), SLDC, MPPTCL, Jabalpur.	0761-2660015, 2664343
16	Chairman & Managing Director, MSETCL, Mumbai.	26595270 26595401 / 26598595
17	Chairman & Managing Director, MSPGCL, Mumbai.	26471060, 26581400
18	Chairman & Managing Director, MSEDCL, Mumbai.	26478672
19	Chief Engineer (LD), SLDC, MSETCL, Kalwa.	27601769
20	Chief Electrical Engineer, Electricity Dept., Goa	0832-2426986
21	Secretary(P), UT of Daman & Diu, Moti Daman.	0260-2230771, 2230088
22	Secretary(P), UT of DNH, Silvassa.	0260-2630220
23	Director (Comml.), NTPC Ltd., New Delhi.	011-24368417
24	Director (Finance), NPCIL, Mumbai.	022-25993332
25	Director (Operation), PGCIL, Gurgaon.	0124-2571922
26	Chief Executive Officer, NLDC, New Delhi.	011-26536901
27	General Manager, POSOCO, WRLDC, Mumbai.	28202630
28	COO & Executive Director (O), Tata Power Com.L. Mumbai	66657966
29	Managing Director, RGPPL, Noida	0120-4148911
30	Chief Executive Director, NHDC Ltd, Bhopal.	0755-4030003
31	Executive Director, Torrent Power Generation, Surat	02621-661151
32	COO(O&M), Adani Power Ltd Ahmedabad	079-25557176
33	Managing Director, Dhariwal Infrastructure Ltd, Kolkata.	033-22256003
34	Managing Director, Mittal Processors Pvt Ltd, New Delhi.	011-66666932
35	COO & Executive Director (O), Tata Power Com.L. Mumbai	66657966
36	Director & CEO, JSW Energy Ltd., New Delhi.	011-48178740
37	Managing Director & CEO, Jindal Power Ltd., Gurgaon.	011-26739151
38	Executive Director & CEO, CGPL Ltd, Kutch.	02838-661181
39	Sr. Vice President (O), RattanIndia Power Ltd, Gurgaon	0124-6695868
40	President & Plant Head, Jaypee Nigrie STPP, Srigaoli, MP	

List of members of TCC		
1	Chairman, TCC/Director (Operation), MSETCL, Mumbai.	022-26590383
2	Chief Engineer (GM), CEA, New Delhi.	011-26109750
3	Executive Director (Comm.), CSPDCL, Raipur	0771-2574442
4	Executive Director(O&M:Gen), CSPGCL, Raipur	0771-2574425
5	Executive Director(Gen.), GSECL, Vadodara	0265-2338848
6	Superintending Engineer (R & C), GETCO, Vadodara.	0265-2353086 / 2337918
7	Chief Engineer (Operation),UGVCL, Mehsana, Gujarat	02762-223574
8	Executive Director (O&M-Gen), MPPGCL, Jabalpur.	0761-2664572
9	Director(Commercial),M.P.Madhya Kshetra VVCL, Bhopal	0755-2589821
10	Director (Operation), MSPGCL, Mumbai.	26478852
11	Director (Operation), MSEDCL, Mumbai.	26581465
12	Executive Engineer, DD, Nani Daman	0260-2250889
13	Executive Engineer, DNH, Silvassa	0260-2642338
14	Regional ED, NTPC Ltd., WRHQ-I, Mumbai.	28259364
15	Regional ED, NTPC Ltd., WRHQ-II, Raipur	0771- 2544550 / 2544513
16	Associated Director (Trans), NPCIL, Mumbai.	25993664
17	Executive Director, WRTS-I, PGCIL, Nagpur.	0712-2641471
18	Executive Director, WRTS-II, PGCIL, Vadodara.	0265-2488564
19	Chief-DSS, Tata Power Company Ltd, Mumbai	67172502
20	General Manager (Power), RGPPL, Ratnagiri	02359-241071
21	Chief Engineer(O&M), ISP, NHDC Ltd, Indore	07323-284080
22	Executive Director (O&M), Torrent Power, Surat	02621-661151
23	Sr.VP(OTS) / AGM(BD), Adani P0wer Ltd., Ahmedabad	079-25557176
24	Gen. Manager(Cord.)Dhariwal Infrastructure Ltd,Chandrapur	07172-237177
25	Assist. Vice President Mittal Processors Pvt Ltd, New Delhi	011-66666932
26	Head, Tata Power Company Ltd, Mumbai	67175385
27	Director (Technical), JSW Energy Ltd., Bandra(E),Mumbai	022-42863000
28	President, Jindal Power Ltd., Chhattisgarh.	07767-281995.
29	Chief (O&M),Coastal Gujarat Power Ltd,Kutch.	02838-661181
30	General Manager, Jaypee Nigrie STPP,Sigrauli,MP	
SPECIAL INVITEE		
1	CMD, MPPMCL Jabalpur.	0761-2664749, 2661245
2	Member (Power), NCA, Indore.	0731-2559888
3	CEE, Central Railway HQ , Mumbai.	
4	CEE, Western Railway HQ , Mumbai.	
5	COO, KWPCCL, Raigarh, Chhattisgarh.	
6	President, SKS Energy Ltd., Raigarh.	
Copy to		
1	Member Secretary, NPC, New Delhi	011-26868528, 26865206
2	Chief Engineer ,NPC, New Delhi.	011-26865206,26526361
3	Member Secretary, ERPC, Kolkata	033-24221802
4	Member Secretary, SRPC, Bengaluru	080-22259343
5	Member Secretary, NERPC, Shillong	0364-2534040
6	Member Secretary, NRPC, New Delhi	011-26868528, 26865206



भारत सरकार

Government of India

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

पश्चिम क्षेत्रीय विद्युत समिति

WESTERN REGIONAL POWER COMMITTEE

प क्षे वि स की दिनांक 31 जनवरी 2017 एवं 1 फरवरी 2017

को DIU में आयोजित 33 वी बैठक की कार्यसूची

**AGENDA OF 33RD MEETING OF WRPC
HELD ON 31ST JANUARY 2017 & 1ST FEBRUARY 2017**

AT

DIU

Hosted by

DAMAN & DIU

मुंबई

MUMBAI

CONTENTS

ITEM NO.	PARTICULARS	PAGE NO
ITEM NO.1	CONFIRMATION OF THE MINUTES OF THE 32ND MEETING OF WRP COMMITTEE	7
ITEM NO.2	STATUS OF STANDBY ARRANGEMENT MADE BY INDIAN RAILWAY (IR) WHEN THE SOURCE OF POWER FOR IR IS NOT AVAILABLE	8
ITEM NO.3	ENHANCEMENT OF TTC BY INCREASING THE LIMIT ON RAICHUR – SOLAPUR 765 KV 2XS/C & EXHIBIT-III AURANGABAD – SOLAPUR 765 KV D/C line	10
ITEM NO.4	IMPELMENTTION OF NEW ENVIRONMENTAL NORMS ISSUED BY MINISTRY OF ENVOIRONMENT FOREST & CLIMATE CHANGE (MOEF&CC)	12
ITEM NO.5	STRENGTHENING INTERCONNECTION BETWEEN WESTERN MAHARASHTRA AND SOUTHERN GUJARAT	15
ITEM NO.6	CALIBRATION / REPLACEMENT OF SPECIAL ENERGY METERS	16
ITEM NO.7	INCREASE IN TRANSMISSION CHARGES DUE TO NON-COMMISSIONING OF IPP'S ON TIME	17
ITEM NO.8	METHODOLOGY TO SETTLE CHARGES FOR CONTINOUS DRAWAL OF POWER BY KAPS	18
ITEM NO.9	INTERCONNECTION BETWEEN CGPL UMPP AND ADANI MUNDRA STPS IN GUJARAT	19
ITEM NO.10	LOSS APPLIED ON POWER WHEELED BY GETCO & MSETCL TO DNH/DD AND GOA RESPECTIVELY	21
ITEM NO.11	HON'BLE CERC ORDER UNDER PETITION NO.68/MP/2015 DATED 06.09.2016	23
ITEM NO.12	RELIABLE COMMUNICATION SCHEME UNDER CENTRAL SECTOR FOR WESTERN REGION	24
ITEM NO.13	PROGRESS OF DOWNSTREAM NETWORK WHOSE TERMINATING	26

	BAYS ARE UNDER CONSTRUCTION BY POWERGRID	
ITEM NO.14	PROGRESS OF DEDICATED TRANSMISSION LINES OF IPPS WHICH ARE CONNECTED THROUGH INTERIM ARRANGEMENT	30
ITEM NO.15	CLAUSE 8 AS NOTIFIED BY DRAFT CERC (IEGC CODE) (5TH AMENDMENT) REGULATION 2016 FOR SALE OF URS POWER BY ISGS IN THE MARKET BY KEEPING LIABILITY OF FIXED CHARGES WITH ORIGINAL BENEFICIARY	33
ITEM NO.16	FIXED COST BORNE BY OTHER BENEFICIARY WHO IS SUPPORTING ISGS STATION IN URS	33
ITEM NO.17	MULTIPLE TRIPPING OF EVACUATION LINES AT CGPL(LEADING TO TRIPPING 4X830 MW GENERATORS) AND 400 KV LINES AT 400 KV BACHHAU S/S.	34
ITEM NO.18	MODERNIZATION AND RENOVATION OF WRPC WEBSITE	35
ITEM NO.19	TASK FORCE REPORT	37
ITEM NO.20.	LINE DIFFERENTIAL PROTECTION FOR SHORT LINES	39
ITEM NO.21	COMMISSIONING OF NEW SYSTEM PROTECTION SCHEMES IN CONNECTION WITH SYNCHRONIZATION OF SR AND NEW GRID	40
ITEM NO.22	ISLANDING SCHEMES	41
ITEM NO.23	DRAFT NATIONAL ELECTRICITY PLAN (VOL-II: TRANSMISSION)	41
ITEM NO.24	TRAINING PROGRAM FOR PROTECTION ENGINEERS BY M/s TRACTABLE	42
ITEM NO.25	JUDGMENT OF HON'BLE SUPREME COURT OF INDIA DATED 08.12.2016 UNDER CIVIL APPEAL NOS.5881-5882	43
ITEM NO.26	REINSTATE THE MEETING FOR FINALIZATION FOR REGIONAL ENERGY ACCOUNTS (REA)	44
ITEM NO.27	HON'BLE CERC ORDER UNDER PETITION NO.68/MP/2015 DATED 06.09.2016	44
ITEM NO.28	UTILIZATION OF FIBER OPTIC LINK BETWEEN RINFRA AAREY AND MSETCL BOISAR FOR GRID OPERATION BY WRDLC/WRPC	45
ITEM NO.29	ASSESSMENT OF STATUS OF ULDC EQUIPMENTS (RTUS & COMMUNICATION EQUIPMENTS) AND REQUIREMENT FOR THEIR REPLACEMENT / UP GRADATION	47

ITEM NO.30	STATUS OF URTDSM	51
ITEM NO.31	SHUT-DOWN OF 15 DAYS FOR SHIFTING OF 400KV D/C SKS TRANSMISSION LINE FOR KWPC L RAILWAY SIDING	52
ITEM NO.32	MEMBERSHIP OF WRPC	54
ITEM NO.33	PERFORMANCE OF WR GRID DURING AUGUST 2016 TO DECEMBER 2016	55
ITEM NO.34	ANTICIPATED POWER SUPPLY POSITION IN WESTERN REGION FOR THE PERIOD FROM JANUARY 2017 TO MARCH 2017	58
ITEM NO.35	STATUS OF COMPLETION OF 765/400 KV AND ABOVE ON GOING TRANSMISSION SCHEMES BEING EXECUTED/IMPLEMENTED BY TRANSMISSION AGENCIES	58
ITEM NO.36	COMMISSIONING OF NEW GENERATING UNITS IN WESTERN REGION AND THE CAPACITY EXPECTED TO BE COMMISSIONED DURING THE CURRENT YEAR 2016-17	60
ITEM NO.37	STATUS OF LETTER OF CREDIT(LC) OPENING AGAINST DEVIATION CHARGES LIABILITY FOR 2016-17	62
ITEM NO.38	STATUS OF DEVIATION CHARGES	64
ITEM NO.39	STATUS OF REACTIVE ENERGY CHARGES	64
ITEM NO.40	STATUS OF CONGESTION CHARGES	65
ITEM NO.41	STATUS OF RECONCILIATION OF DEVIATION AND REC POOL ACCOUNT FOR THE PERIOD JULY'16 TO SEPT'16	65
ITEM NO.42	INTEREST CALCULATION STATEMENT OF DEVIATION POOL ACCOUNT FOR THE PERIOD FROM 1 ST JULY '16 TO 30 TH SEPT'16	67
ITEM NO.43	INTEREST CALCULATION STATEMENT OF REACTIVE CHARGE ACCOUNT FOR THE PERIOD FROM 1ST JULY '16 TO 30TH SEPT'16	69
ITEM NO.44	WORKING ARRANGEMENT FOR COMMERCIAL SETTLEMENT OF SCHEDULING OF ISGS DURING LOW DEMAND PERIOD TO MEET THE TECHNICAL MINIMUM REQUIREMENT OF ISGS	70
ITEM NO.45	ANY OTHER ITEM	72
ITEM NO.46	DATE AND VENUE OF NEXT WRPC MEETING	72

ANNEXURES

ANNEXURE	PARTICULARS
ANNEXURE-2A	MS, WRPC letter dated 16.08.2016
ANNEXURE – 2B	Indian Railway letter dated 07.12.16
ANNEXURE - 3	Chief Engineer (PSPA), CEA, New letter no. CEA /PSPA-II / 51/4(40 TH SCPSPSR)-2016 dated 22.11.2016
ANNEXURE – 4A	MoM of First meeting of the committee for phasing plan for implementation of New Environmental Norms issued by Ministry of MOEF&CC was held on 21.10.2016
ANNEXURE – 4B	MoM of Second meeting of the committee for phasing plan for implementation of New Environmental Norms issued by Ministry of MOEF&CC was held on 13.12.2016
ANNEXURE – 4C	A list of generating units in WR for phasing plan for implementation of New Environmental Norms issued by Ministry of MOEF&CC
ANNEXURE – 8	GUVNL letter 12.08.2016
ANNEXURE - 20	CEA letter dated 27.10.2016
ANNEXURE - 23	CEA letter dated 11.01.2017
ANNEXURE - 25	MPPMCL letter dated 31.12.2016
ANNEXURE - 29	MoM of a meeting of Working –group held on 24.10.2016
ANNEXURE – 30	MoM of a meeting held on 28.09.2016 at Goa
ANNEXURE – 33.1A	Frequency profile for the months of during August 2016 to December 2016

ANNEXURE -33.1B	The details of unrestricted peak demand, demand met and energy requirement and availability
ANNEXURE – 33.2	The detail of voltages at important 400 kV and 765 kV sub-stations during the period of during August 2016 to December 2016
ANNEXURE - 34	The anticipated power supply position in the region for the period from January 2017 to March 2017
ANNEXURE - 35	List important ongoing transmission scheme received from PGCIL
ANNEXURE -38	Payable/Receivable by WR entities to WR Deviation pool account fund maintained by WRLDC as on 05 th Jan'17
ANNEXURE -39	Payable/Receivable by WR entities to Reactive pool account fund maintained by WRLDC as on 05 th Jan'17
ANNEXURE – 40	Payable/Receivable by WR entities to Congestion charges account fund maintained by WRLDC as on 05 th Jan'17

AGENDA NOTES FOR THE 33RD MEETING OF WESTERN REGIONAL POWER COMMITTEE TO BE HELD ON 01.02.2017 PRECEDED BY TCC MEETING ON 31.01.2017 AT DIU

ITEM No.1: CONFIRMATION OF THE MINUTES OF THE 32ND MEETING OF WRP COMMITTEE

The minutes of 32ND meeting of WRP Committee held on 24TH August 2016 at Pune were forwarded to the members vide letter No. WRPC/32nd WRPC Mtg./AS/2016/11583 dated 24.10.2016.

ED, PGCIL vide email dated 13.01.2017 requested for following Corrigendum in 32nd MOM in reference to item No. 9 (Non-payment of ULDC charges by three generators (RGPPL, Lanco and ESSAR).

Quote:

It was concluded in the 32nd WRPC meeting that POWERGRID can go ahead with invocation of CERC (Regulation of Power supply) Regulation 2010, after issuing a final default notice to all the three parties including RGPPL, however, in the minutes it was recorded that “There is a need to look into all these aspects by a group and suggest solutions, so that there is clarity in the issue” in respect of RGPPL case. Further statement of POWERGRID i.e. “ if any of the parties are absolved from payment, then the same amount shall be recovered from the other DICs in the Region”, is also to be included in the minutes.

Unquote:’

PGCIL requested for above modification.

TCC/WRPC may like to discuss the same.

No other comments have been received. Committee may confirm the minutes accordingly.

ITEM NO. 2: STATUS OF STANDBY ARRANGEMENT MADE BY INDIAN RAILWAY (IR) WHEN THE SOURCE OF POWER FOR IR IS NOT AVAILABLE

The matter pertaining to Arrangement of alternate allocation of power to Indian railway was discussed in the 32nd WRPC. Following are the deliberations in the 32nd TCC/WRPC

2.1 In the 32nd WRPC CE, SLDC, Gujarat intimated that Indian Railway, Gujarat (IR_Guj) is allotted power from RGPPL on e-bid RLNG. As per the availability/capacity declaration of RGPPL and requirement of IR_Guj, power is scheduled on daily basis. At present, IR_Guj has only one source of power to meet their requirement (i.e. allocation from RGPPL). In case of eventualities/tripping at RGPPL, schedule of IR_Guj gets reduced/or down to ZERO. Hence, in case of such eventualities, State has to bear the consequences. Therefore, it is necessary that instead of having single allocation, IR_Guj has to tie up multiple sources to take care of such eventualities.

During the 74th CCM SLDC, Gujarat representative reiterated their position as communicated in their letter dated 22.11.16(copy enclosed) that, as decided in the 32nd WRPC meeting, Indian Railway is required to take immediate action to make stand by arrangement with State DISCOMs to get required power in case of eventualities. (i.e. tripping of RGPPL units or non-availability of power through power exchange). It is further recorded that "If IR fails to enter the standby arrangement and the event of such loss of power takes place, then IR loads shall have to be tripped by the law, and IR is responsible for the same".

Indian Railway representative did not attend the 74th CCM.

2.2 The 32nd TCC recommended that IR should have a standby arrangement preferably with State Discoms as the possibility of unit tripping is always

there and standby arrangement is must. This option is better than tying standby with exchange or any other generator will not be suitable. Alternatively, RGPPL can sign up with the DISCOMs for such standby arrangement

2.3 Discussions during 32nd WRPC

1. Dy CEE, HO, Western Railways Indian Railways (IR) representative informed that as per their agreement with RGPPL, in case of tripping of units, RGPPL shall have to procure the power, and any differential rates in this power shall be borne by RGPPL. Further IR is also tying up with Power Exchange to have power in case the RGPPL units trip. During the time the RGPPL units trip, the drawl of IR is very small compared to the grid, and the exchange is accounted under DSM.
2. Chairman WRPC informed that IR is a 24 hour load. Further it is has recently acquired a DISCOM status. He stated that IR has to enter a standby arrangement with the state Discoms to cater to the contingency of RGPPL tripping. To clarify, he cited that Mumbai is an example of a 24 hour load. Here the Discoms of Tata and Reliance have Standby arrangement with Maharashtra Discom, which ensures that in the event of tripping or shortfall at Mumbai due to loss of generation by Tata or Reliance, Mumbai loads are fed by Maha Discom in that period. Similar Standing Arrangement has to be entered by IR with the State Discoms and that is irrespective of their RGPPL tie-up or power exchange or any other tie-up. If such an arrangement does not exist, and the source of power for Railways such as RGPPL is not available, then as per the law the SLDCs are supposed to disconnect the Railway loads. That will lead to a lot of inconvenience to IR and embarrassing situation for all of us. However, if IR is not willing to enter such a standby arrangement, then the next time RGPPL trips, the SLDCs shall instruct the IR loads to be cut off accordingly. He asked IR representative to take up the issue seriously with their management and immediately enter into a standby arrangement.

3. The 32nd WRPC committee recommended that Member secretary, WRPC Communicate on behalf of WRPC to Ministry Of Railways the existing position in the issue.

MS, WRPC vide letter dated 16.08.2016 (copy enclosed at **Annexure- 2-A**) have taken up the matter with Indian Railway. Indian Railway vide its letter dated 07.12.16(Copy enclosed at **Annexure- 2-B**) communicated that as per Western Railway's PPA with RGPPL ,it is the responsibility of RGPPL to arrange alternative supply of power if it is not able to supply the power from its own plant. Further Western railway requested to review the matter and suggested to impress upon M/s RGPPL to fill it's responsibility as per their PPA.

Chief Engineer(PP), MSEDCL requested the development by Indian Railway. RGPPL may update the status

TCC /WRPC may like to discuss/note.

ITEM NO. 3: ENHANCEMENT OF TTC BY INCREASING THE LIMIT ON RAICHUR – SOLAPUR 765 KV 2XS/C & EXHIBIT-III AURANGABAD – SOLAPUR 765 KV D/C line

Chief Engineer (PSPA), CEA, New Delhi forwarded the letter no. CEA /PSPA-II / 51/4(40TH SCPSPSR)-2016 dated 22.11.2016 (Copy enclosed as **ANNEXURE 3**) regarding enhancement in TTC of Southern Region by increasing the loading limit on 2 x S/c 765 kV Raichur – Solapur & 765 kV Solapur – Aurangabad D/c lines from 2500 MW tom 2750 MW (under N-1 conditions).

The enhancement of Total Transfer Capability (TTC) of Southern Region was discussed during the 40th Standing Committee Meeting of SR held on 19.11.2016, wherein it was agreed that loading limit on 2 x S/c 765 kV Raichur – Solapur can be enhanced from 2500 MW to 2750 MW (under N-1 condition). In this regard studies were carried out with CTU and study results are enclosed.

The studies indicate that the TTC of NEW Grid to SR grid can be enhanced by 400 MW, i.e. from 6650 to 7050 MW by increasing loading limit of 2 x S/c 765 kV Raichur – Solapur lines and 765 kV Solapur – Aurangabad D/c lines to 2750 MW under n-1 contingency. From the load flow studies, it is observed that all line loadings are generally in order both under base case and contingency.

He requested that RPCs may study the proposal of enhancing the limit and accordingly the associated SPS designed for contingency of Raichur – Sholapur and Aurangabad – Sholapur lines may be reviewed so as to facilitate enhancement of TTC of NEW to SR Grid by 400 MW.

NLDC for their observations/comments.

AGM, NLDC vide Email dated 28.11.2016, submitted the views of POSOCO (copy attached) which indicated that enhancement of TTC from 6650 MW to 7050 MW with the present transmission network may be re-examined in view of possible non-favourable operating conditions in terms of voltage, angular stability and Low Frequency Oscillations (LFO).

OCC Discussions:-

During 490th OCC, SE(OPN),WRPC informed that CTU and CEA had done system studies suggesting enhancement of TTC for SR. NLDC had replied that generation dispatch was required to be modified from the case as studied by CEA/CTU as per realistic operation. Accordingly they had replied to CEA and both the letters are given in agenda notes.

He queried CE,SLDC, Maharashtra on their stand in view of the above.

Chief Engineer, SLDC, Maharashtra informed that as long as Maharashtra system is not affected, there are no issues from Maharashtra side for enhancements of TTC to SR. He further stated Maharashtra's previous stand in SPS remains valid.

Superintending Engineer(O), WRPC stated that the generation from Parli, Koyna, and Ghatghar considered by CEA is on higher side, during present scenario it shall

be considered as suggested by POSOCO. Following comment/observation evolved from OCC :

- a) NLDC studies point out to increasing angular difference between Trissur and Vindhyachal. However OCC of WRPC had earlier already stated that angular differences between non adjacent buses has no established theory and operations actions such as curtailing drawal or otherwise can not be accepted.
- b) Similarly NLDC had pointed out low frequency oscillations in Nov 2016 involving SR and rest of the grid. Low frequency oscillations can not be the reason for increasing or decreasing ATC/TTC in present case, because such oscillations can happen at any time.
- c) The Generation dispatch observations of NLDC were however valid reasons for decreasing ATC/TTC. It is hoped that NLDC would examine feedback of OCC WRPC.

GM ,WRLDC informed that the TTC/ATC studies and declaration for inter regional corridors are done by NLDC. NLDC has already conveyed their comments to CTU and CEA. Further NLDC has enhanced the WR-SR TTC by 400MW during off peak hrs ie., 22-24 hrs and 00-05hrs from 11.12.16 considering present Maharashtra Demand/Generation and Voltage profile at Sholapur (PG), Parli(PG) etc. during off peak hours.

OCC sub-committee noted that ATC/TTC is declared by NLDC and NLDC was agreeable to increase in off-peak period. Further Maharashtra's stand was also noted.

TCC /WRPC may like to discuss/note.

ITEM NO. 4: IMPELMENTTION OF NEW ENVIRONMENTAL NORMS ISSUED

BY MINISTRY OF ENVOIRONMENT FOREST & CLIMATE CHANGE (MOEF&CC)

A committee was constituted by Ministry of Power; Govt. of India vide Office Order No. FU-1/2015-IPC dated 21.09.2016 for preparing a phasing plan for implementation of new environmental norms issued by MoEF & CC in December 2015. The Committee includes members from CEA, Ministry of Coal, MoEF & CC, CPCB, POSOCO, NTPC and DVC with Chairperson, CEA as the Chairman of the committee.

First meeting of the committee for phasing plan for implementation of New Environmental Norms issued by Ministry of MOEF&CC was held on 21.10.2016 (MoM enclosed at Annexure – 4A).

Followings are important abstract of relevant points:

1. *The committee decided that region-wise list of units identified for phasing for implementation of new environmental SPM norms, will be furnished to Regional Power Committees (RPCs). RPCs shall prepare phasing of implementation plan in consultation with concerned power utilities at regional level and POSOCO considering the power supply position and furnish the same to the Committee. As per the TOR of the committee, the newer plants shall be considered for implementation first.*
2. *The phasing out period will be started in next over haul & completed within next 2 year. However request from generators it may be extended to 5 year.*

The 2nd meeting of the committee for phasing plan for implementation of new environmental norms was held on 13.12.2016(MoM enclosed at Annexure – 4B). Followings are important abstract of relevant points:

1. **ESP upgradation for SPM control:**

- (i) A region-wise list of units (copy enclosed at Annexure – 4C). was presented to the committee which requires ESP upgradation (Capacity 46,479 MW, 211 units) based on the methodology recommended by the committee in the 1st meeting. It was also informed that, the tariff implication for ESP upgradation is estimated to be 9 Paisa/ kWh (based on estimated cost 0.13 Cr/MW, remaining operation for next 5 years and PLF of 62%). Chairperson, CEA desired that tariff calculations may also be done with 50% PLF. The same will be carried out and revised tariff implication would be intimated to RPC's. The committee approved the above lists.
- (ii) It was also decided by the committee that Region-wise lists identified for ESP upgradation may be forwarded to concerned RPC for phasing the implementation of ESP upgradation. RPCs would be advised to complete the phasing within 1-month time and furnish the same to the CEA Committee. RPCs would be requested to convene Special Meeting with Power Utilities, SLDC and POSOCO to finalize the phasing plan. RPC's may also obtain confirmation from power utilities that their other units are meeting the revised SPM norms and therefore does not require any intervention.

2. **FGD(Flue Gas Desulphurization) installation for SPM & Sox emissions:**

- (i) Region-wise list of units for installation of FGD was presented to the committee (copy enclosed at Annexure – 4C). It was also informed that estimated cost for installation of wet lime stone based FGD is about 0.5 Cr/MW. The tariff implication shall be 32 Paisa/kWh considering the operational life of next 15 years, APC of 1.5% and PLF of 62%. Chairperson, CEA desired that tariff calculations may also be performed with 50% PLF. The same will be carried out and revised tariff implication would be intimated to RPCs. After the discussions, committee approved the above lists.
- (ii) It was also decided by the committee that Region-wise lists identified for FGD up gradation may be forwarded to concerned RPC for phasing the implementation of FGD installation. RPCs would be advised to

complete the phasing within 1-month time and furnish the same to the CEA Committee. RPCs would be requested to convene Special Meeting with Power Utilities, SLDC and POSOCO to finalize the phasing plan.

5. *Members re-iterate dearlier decision of the committee, that the new units shall be taken up first for implementation. This may be adopted by the RPCs while finalising phasing of Implementation plan.*
6. *The committee shall finalize the report by March 2017 subject to receipt of finalized phasing of Implementation plan by RPC by 1 week of February 2017.*

A Special Meeting with WR generators, SLDC and POSOCO was held on 18.01.2017 at WRPC Mumbai to finalize the phasing plan for implementation of New Environments norm. The Mom will be shortly issued and send to CEA by first week of February, 2017.

TCC /WRPC may like to discuss/note.

ITEM No. 5: STRENGTHENING INTERCONNECTION BETWEEN WESTERN MAHARASHTRA AND SOUTHERN GUJARAT

Agenda Background:

Strengthening interconnection between Western Maharashtra and Southern Gujarat was discussed during 32nd TCC/WRPC meeting at Pune. South Gujarat is presently connected to Western-Maharashtra system through 400 kV Vapi-Boiser S/C and 220 kV Nasik-Navsari D/C.

Constraints observed in South Gujarat and Western Maharashtra system are as under:

- Critical loading in North-South corridor within Gujarat system during high demand and poor generation at the Kakrapar APS, as well as other Gas based stations of South Gujarat. Critical loading of 400 kV Sugan-Vapi-Boiser S/C during contingencies
- Overloading of 400/220 kV ICT at Bableshtar and Overloading of 400 kV Bableshtar-Padghe D/C. One ckt of 400 kV Ektuni-Bableshtar D/C is kept open by SLDC-Kalwa.

The options were suggested during 32nd TCC/WRPC:

- (i) Interconnect 220 kV Nasik with 400/220 kV IB Nasik and uprate the conductor of 220 kV Nasik-Navsari D/C.
- (ii) Up-gradation of 220 kV Nasik-Navsari D/C to 400 kV by using the existing RoW. (As recommended in in para 3.11 of CEA Manual on Transmission Planning Criteria). Since the lines are jointly owned, STUs could upgrade the sections lying within their jurisdiction.
- (iii) Interconnection of 400 kV Nashik /Bableshwar and 400 kV Vapi

32nd TCC/WRPC decided that a group comprising of STUs of Maharashtra and Gujarat and DISCOMS of Maharashtra and Gujarat and WRLDC can discuss the various options and study the proposals and put up the matter to SCM for further decision.

TCC /WRPC may like to discuss/note.

ITEM NO 6. CALIBRATION / REPLACEMENT OF SPECIAL ENERGY METERS

Agenda Background

1. Availability Tariff was implemented in Western Region w.e.f July 2002. SEMs installed in Western Region between the period 2001-2002 have already crossed 13 years in service. Most of the SEM meters installed in WR region have crossed more than 8 years of period. Due to the error in the SEMS installed many stations are requesting calibration and replacement of SEMs.
2. The issue was discussed in the 73rd and 74th CCM .In the 73rd CCM it was recommended that all SEM meters, which have completed more than 10 years in service, shall be replaced with new AMR meters. The cost of replacement of the meters should be recovered by PGCIL as part of their ARR. Calibration/testing of the meters are

to carried out as per CEA standards on metering system. PGCIL was requested to put up proposal in the ensuing TCC/WRPC.

3. In the 74th CCM PGCIL was asked to put up the proposal at the earliest so that the issue can be taken in the 33rd WRPC.

PGCIL may put up proposal in TCC/WRPC accordingly.

ITEM NO 7. INCREASE IN TRANSMISSION CHARGES DUE TO NON-COMMISSIONING OF IPP'S ON TIME.

In the 32nd WRPC, GUVNL shared their concern of increase in the transmission charges being billed to them due to planned commissioning of CTU lines for new IPPs. But the new IPPs are not being commissioned as expected hence there is an approximate four times increase in transmission charges without a corresponding increase in energy. Therefore there is a need for a discussion so as to how to settle the transmission charges in such scenarios. It was recommended in the 32nd WRPC that a meeting involving NLDC, RLDC, CTU and beneficiaries be held to discuss the issue at (A) of the 32nd WRPC MoM and their findings may be put up in the 33rd WRPC.

Discussions of the Group

1. SE (Comml.),WRPC queried whether the concern of GUVNL was only due to non commissioning of IPP's or a general concern on the rise of transmission charges .
2. The beneficiaries opined they need to understand all aspects of the rise in transmission charges under PoC.
3. The billing under PoC has the following organizations involved
 - NLDC.
 - CTU
 - WRPC secretariat
 - For the Technical aspects of the software CERC-IIT Mumbai interface.

Hence no single agency can give a detailed explanation of all the aspects. The group discussed broad principle's of PoC charges, however it was impossible to answer specific questions in the first meeting. Hence it was proposed that a dedicated group of beneficiaries representatives interested in understanding the rise in transmission charges under PoC may be formed. Further WRPC secretariat shall arrange meetings/discussions and studies with NLDC, CTU and CERC as a next step. In these group meetings the roles of NLDC and CTU in the preparation of the bill shall be understood by beneficiaries by considering a specific recent quarter case of PoC.

TCC /WRPC may like to discuss/note.

ITEM NO 8. METHODOLOGY TO SETTLE CHARGES FOR CONTINUOUS DRAWAL OF POWER BY KAPS

During the Special Commercial committee meeting, S.E (CommI), WRPC informed that the power from Kakrapar Atomic Power Station (KAPS) of NPCIL has been allocated to various beneficiaries in WR. Beneficiaries of WR have signed PPA dated 22.09.2005 with NPCIL for supply of power from KAPS unit 1 & 2. Both the units of KAPS are under forced outage since a long time i.e unit 1 from 01.07.15 and unit 2 from 11.03.2016 further there is uncertainty in restoration of supply. Since April 2016 onwards the net monthly injection is negative i.e. KAPS is drawing power from the interconnection points approximately 5 MUs per month. Normally the power drawn by the station is adjusted against the power supplied to the beneficiaries as per the PPA but there is no specific methodology to settle continuous drawal from KAPS 1 & 2 in view of long outage of KAPS.. The 74th CCM recommended that the methodology for settlement drawal of power from KAPS 1& 2 needs to be deliberated in detail in a separate meeting and its recommendations put up to the 33rd WRPC for discussion.(GUVNL letter enclosed at **Annexure –8**)

Discussions of the group:

- NPCIL representative pointed out that as per the clauses of the PPA signed between NPCIL and its beneficiaries such scenarios of long outages were envisaged and aspects of commercial settlements are also outlined. As per the clauses of PPA the energy consumed by KAPS shall be adjusted to the beneficiaries once KAPS starts generation of power.
- On the query of Member Secretary NPCIL representative gave similar example of NPCIL Narora station which was under outage for approximately 2 years during 2005 and the commercial issues were settled as per clauses envisaged in the PPA.
- The beneficiaries of NPCIL were of the opinion that due to the long outage of both the units of KAPS they are unable to get schedule as per their share allocation due to which they have to buy costly power from the market. Further it was informed by EE(O) that as per mail received from NPCIL the tentative unit start up activity will be taken up during mid and later half of year 2018 for KAPS-2 and KAPS-1 respectively as both units of KAPS are under major refurbishment campaign.
- The group discussed the possibility of NPCIL getting share allocation from unallocated 15% quota of central sector generating stations. However this proposal has to be taken at MoP and the details regarding treatment of KAPS under the DSM regulations of Hon'ble CERC need to be discussed.
- NPCIL was of the view that under the scenario of allocation of power from MoP, NPCIL is agreed for allocation from TAPS1&2.

TCC /WRPC may like to discuss/note.

ITEM NO 9. INTERCONNECTION BETWEEN CGPL UMPP AND ADANI MUNDRA STPS IN GUJARAT

In the 32nd WRPC it was agreed that a technical requirement exist for an ICT at CGPL to help extend power between CGPL and ADANI STPS in case of a black out. Further to study in detail the technical aspects and booking of charges under PoC a group be formed and its findings put up in the 33rd TCC/WRPC. (32nd WRPC MoM is available on WRPC website)

The group was of the following views:

1. For the entire Evacuation of power of CGPL for the beneficiaries another ICT is not required.
2. The ICT is specially required for extension of start up power between CGPL and APL and both the complex total to 8000 MW plus in the grid. Therefore for the betterment of restoration of CGPL/APL/WR network and all India grid the ICT is required. Hence in principle the asset has to be shared under PoC as an ISTS asset.
3. If the project is executed under TBCB route then the modalities of execution between generator i.e CGPL and bidder need to be elaborated. Generally the generator executes such projects in its own switchyard therefore the implication of such scenarios must be detailed before the project is awarded under the TBCB route.
4. If CGPL executes the project then it has to be done under some form of CAPEX which CGPL's beneficiaries need to share. Further issues related to this model were:
 - a Beneficiaries of NR and WR must be willing to share the cost however as the tariff of CGPL was adopted by the Hon'ble CERC as per Section 63, i.e the tariff was discovered under competitive bidding and later adopted by CERC. Hence there were reservations among WR beneficiaries as how the tariff is increased beyond the discovered tariff under competitive bidding.

- b The beneficiaries shared the view that the existing system is adequate for the evacuation and there is no direct benefit for the beneficiaries.

The Group recommended booking of charges for this asset under PoC as a viable model.

TCC /WRPC may like to discuss/note.

ITEM NO 10. LOSS APPLIED ON POWER WHEELED BY GETCO & MSETCL TO DNH/DD AND GOA RESPECTIVELY

Agenda background:

WRLDC vide letter dated 23.11.16 intimated that ,as per the agreed philosophy GETCO, MSETCL and MPPTCL are being given credit wrt transmission loss for wheeling Central Sector Power to DNH / D&D / GOA / NR respectively. WRLDC had requested GETCO, MPPTCL and MSETCL to update the wheeling transmission losses to be considered for their system.

SLDC MPPTCL vide its email dated 02.11.2016 informed that wheeling transmission losses of MP should be taken from the MPPTCL website

SLDC UT DNH vide its letter reference 1-1(85)/PDCL-AE(CommI)/ 2013 dated 15.10.2016 informed that the 66 kV tie lines between GETCO and DNH have been permanently taken out of service since 30/06/2014. GETCO vide their email dated 03rd Nov 2016 confirmed the same.

SLDC MSETCL vide its letter reference CE/MSLDC/EA/01774 dated 05th October 2016 informed that the wheeling losses should be taken as 3.92%.

SLDC GETCO vide its letter reference SLDC/EA/Transmission Losses dated 02nd Nov informed that wheeling losses for GETCO should be retained at 4.2 % till the finalization of MYT 2016 by GERC which is under process.

In view of the above WRLDC has revised the wheeling loss for the following transmission lines

- I. STU wheeling loss of GETCO applied as 4.2% for the following lines (No change)
 1. 66kV Vapi-Dalwada line 1&2
 2. 66kV Una- Diu line
 3. 66kV Dhokadwa Diu line
 4. 400kV Zerda- Kansari line
 5. 400kV Zerda- Bhinmal line
- II. STU wheeling loss for MPPTCL system applied is 3.05% w.e.f. 24.10.2016 for following lines
 1. 220kV Badoda-Kota line
 2. 220kV Bhanpura- Modak line
- III. STU wheeling loss for MSETCL system applied as 3.92% w.e.f. 17.10.2016 for following lines
 1. 220kV Mahalakhmi- Amona line
 2. 220kV Tillari- Amona line
 3. 11kV supply to Bhadravathi HVDC line 1&2

In the 74th CCM E.E (Comm), WRPC opined that after the implementation of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010 there is no regulatory framework envisaged for incorporating the wheeling losses. Further Hon'ble CERC in its order dated 15.10.2015 in Petition No.217/TT/2013 has directed that STUs lines used for carrying Inter-State power can be considered for inclusion in the PoC charges only if it is certified by RPC in terms of Para2.1.3 of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010.

The 74th CCM suggested that GETCO, MPPTCL and MSETCL for the above mentioned lines follow the recommendations of the 31st WRPC for certification of lines for their incorporation in PoC mechanism as in the case of certification of 400 kV Seoni-Sarni and 400 kV Seoni – Bhilai (part of line in MP Jurisdiction) as Inter-State lines.

TCC/WRP Committee may like to Discuss.

ITEM NO 11. HON'BLE CERC ORDER UNDER PETITION NO.68^{/M}P/2015 DATED 06.09.2016

Hon'ble commission passed an order dated 06.09.2016 in the matter for providⁱⁿg **uniform methodology to be used for billing incentive to beneficiaries as per Regulation 30(4) of CERC (Terms and condition of Tariff) Regulation ,2014**, wherein the petitioner was NTPC limited and the respondents were ERPC,NRPC,SRPC and WRPC.

Clause 18 of the order is as follows

Quote

In view of the above to maintain uniformity for billing of incentive, in exercise of our power given under reregulation 55 of the 2014 Tariff regulations, we direct that the methodology as adopted by ERPC shall be considered by all Regional Power Committees for billing incentive energy to the beneficiaries of the generating station.

Unquote

Hon'ble CERC has directed the RPC's to follow the methodology of ERPC for Billing of incentive energy to the beneficiaries of the generating station. Further under clause 19 Hon'ble commission has directed RPC's to look in the circumstances and decide on the frequency of incentive calculation and billing after discussion and agreement by stakeholders at RPC forum.

In the 74th CCM the matter was discussed, NTPC was of the view that the frequency for incentives should be on monthly basis; some beneficiaries supported monthly billing of incentives whereas few insisted on annual billing. All concerned members were asked to communicate their views to their management so that the matter may be taken in the 33rd TCC/ WRPC.

Concerned Beneficiaries may confirm their position on frequency of incentive billing.

TCC/WRP Committee may like to Discuss.

ITEM NO 12. RELIABLE COMMUNICATION SCHEME UNDER CENTRAL SECTOR FOR WESTERN REGION:

- A. As desired by Ministry of Power, DPR for OPGW based Reliable Communication scheme for substations of 132 KV and above was prepared by POWERGRID for all the regions. Further, as per directives of MoP, State Sector of the Scheme to be taken up by respective states for their portion and Central Sector portion by POWERGRID. Accordingly, Fiber Optic connectivity along with Communication Equipment and associated items from following stations under Central Sector scheme is required to be established for data and voice communication to WRLDC for efficient grid management.

Sl.	Name of Station	Voltage Level	Name of the line	Length (km)
1	ACBIL, Korba	400/132	ACBIL-Bilaspur	50
2	Bhatapara	400/220	Bhatapara - Bhilai	91
3	DB Power,Badadraha	400	DB Power-Raigarh (Kotra)	22
4	Torrent Dgen (Bharuj Distt)	400/220	Navsari-Dgen	138
5	Dhariwal PG, Chandrapur	400	LILO of Bhadrawati-Chandrapaul	10
6	Essar Hazira	400/220		35

7	Essar Mahan	400/220	400 kV Bilaspur-Mahan	60
8	Essar Vadinar	400	Vadinar-Hadala-Chornia-Ranchodpura	382
9	GMR EMCO, Chandrapur	400	400 kV Emco-Bhadrawati	28
10	Jindal (4 X 600), Raigarh	400	Jindal Power-Raigarh (Tamnar)	50
11	JP Nigrie	400	Nigrie-Vindhyachal	120
12	KSK Mahanadi, Champa	400	KSK-Raigarh	114
13	KWPCL, Raigarh	400/220	KWPCL-RAIGARH	40
14	LANCO Amarkantak, Korba	400	Lanco - Champa Pooling Station 400kV D/c (Quad)	50
15	MB Power (MP), Anuppur	400	MB TPS (Annupur)- Jabalpur	246
16	MCPL(300 MW) Malanpur Captive Power Limited (MCPL)	400	LILO of ACBIL-Bilaspur	50
17	NSPCL	400/220	NSPCL-Raipur	50
18	RKM, Champa	400	RKM-Raigarh Kotra B	50
19	Tarapur Extn	400/220	Tarapur-Boiser	25
20	Vandana Vidyut, Korba	400	Vandana Vidhyut- Korba	50
21	SPECTRUM, Korba	132	Spectrum - Bilaspur	50
22	JPL (Jindal Power) Raigarh	220	JPL-Raipur	217
23	BALCO2, Korba	220	Balco-Korba	50
24	DCPP Jindal, Raipur	220	DCPP Jindal - JPL	34
25	JIND-IE	220	Jind IE-JPL	10
26	GMR, Raipur		GMR-RAIPUR POOL	50
Total				2072

B. Further, Fiber Optic connectivity along with Communication Equipment and associated items is also required to be established on following lines of Central Sector to provide redundancy:

Sl. No.	Name of the Line	Voltage Level in kV	Length in km
1	Bhilai - Bhadrawati	400	322
2	Tarapur - Phadga-I	400	91
3	Korba - Bhilai	400	197
4	Raipur PS - Wardha	765	369
5	Magarwada - Kala	400	16
6	Kakrapar - Vav	220	43
7	Part of Seoni - Bina	765	292
Total			1330

Considering above, POWERGRID has worked out the scheme of 3402 Kms OPGW based Communication Scheme (for requirements at Sl. No 1 and 2 above). The estimated cost of the scheme is ₹85 Crs. proposed for implementation on cost plus basis. Tariff for the investment made is to be shared by all constituents as per CERC notification. The scheme shall become part of existing Commercial Agreement signed for SC&C Project.

TCC/WRP Committee may like to Discuss.

ITEM NO. 13 : PROGRESS OF DOWNSTREAM NETWORK WHOSE TERMINATING BAYS ARE UNDER CONSTRUCTION BY POWERGRID

CERC vide some of its recent orders has strongly commented against assets mismatch noticed at the time of declaration of DOCO & has advised the following:

"In case of cost plus, the mismatch between Generation / Downstream network / upstream network, Transmission licensee will not burden the consumers and the charges would be compensated through the IA between the parties".

CERC has not included such assets in PoC and in cases of declaration of DOCO, it has been directed to recover transmission charges from concerned Generator /

STU / Discoms. Further, following has been mentioned in the CERC (IEGC) (Fourth Amendment) Regulations, 2016, dated 6/4/16 under 5.4. Provison (iii):

“Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavour to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable and shall ensure the same through an appropriate Implementation Agreement.”

Keeping above in view, STUs are requested to ensure utilization of the 220kV line bays at following new / under implementation ISTS substations planned under various transmission schemes:

i. Status of unutilized 220kV line bays at Existing Substations in WR

SI	ISTS Substation	Voltage ratio in use	Status of Bays	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines
1	Raipur (PG)	3x315MVA , 400/220 kV	2no Bays ready since 01.07.2011 (WRSS-6)	Raipur (PG) – Doma 220 kV D/c	2	CSPTCL may update
2	Mapusa (PG)	3x315MVA , 400/220kV	2 nos Bays ready since : 01.11.2013	Mapusa – Cuncolin 220 kV D/c	2	GED may update
3	Pirana	2x315MVA , 400/220kV	2nos Bays ready since 19.03.15 (WRSS-6)	Pirana – Barjadi 220 kV D/c	2	GETCO may update
4	Boisar	2x315 +500MVA, 400/220kV	1no Bays ready since 30.05.15	Boisar – STU line S/c	1	MSETCL may update
5	Magarwada	2x315MVA , 400/220kV	2nos Bays ready since 03/11/14	Magarwada – Ringanwada 220 kV D/c	2	D&D may update

6	Wardha	2x315MVA , 400/220kV	2 nos Bays ready since 01.02.2011 & 2 nos Bays ready since 01.01.2012	Wardha – Pusad220kV S/c	1	MSETCL may update
				Wardha – Bhugaon 220 kV S/c	1	MSETCL may update
				220 kV 2 circuits	2	MSETCL may update
7	Solapur	2x315 +1x500MV A, 400/220kV	2 nos Bays ready since 01.04.2011 & 2 nos Bays ready since 02.11.2015	Solapur – Bhale (MS) 220kV D/c	2	MSETCL may update
				Solapur – Bhalwane (MS) 220 kV D/c	2	MSETCL may update

ii. Status of Under Construction 220 kV line bays at New Substations / Substation Extensions in WR

S. No.	ISTS Substation	Proposed Bays	Commissioning Schedule	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines	Remarks
1	Betul GIS 2x315 MVA, 400/220 kV	4	Sep'16 (Mauda-II)	STU line	2	UC	MPPTCL may update
				STU line	2	UC	
2	Morena (TBCB) 2 x 315, 400/220 kV	4	May'18 (Chhattisgarh & WR SS)	STU line	4	Planned	MPPTCL may update
3	NaviMumbai 2 x 315, 400/220 kV	4	Bays ready since Mar'14 (WRSS-V)	STU line	4	Planned	MSETCL may update
4	Indore (PG) 2x500 MVA, 400/220 Kv	6	Jul'18 (WRSS-14)	Indore (PG) – Indore (MP) 220 kV D/c	2	UC	MPPTCL may update
				Indore (PG) – Ujjain	2	UC	

				(MP) 220 kV D/c			
				Future	2	To be planned by MP	
5	Itarsi (PG) 1x500 MVA, 400/220 kV	2	Jul'18 (WRSS-14)	Future	2	To be planned by MP	MPPTC L may update
7	Parli (PG) 2x500 MVA, 400/220 kV	6	Jun/Jul'18 (WRSS-16)	Parli (PG) - Harngul 220 kV D/c	2	UC	MSETC L may update
8	Parli (PG) 2x500 MVA, 400/220 kV	6	Jun/Jul'18 (WRSS-16)	Parli (PG) - Parli (MS) 220 kV D/c	2	UC	MSETC L may update
				Parli (PG) - Parli (MS) 220 kV S/c	1	UC	
				Osmanabad (MS) - Parli (PG) 220 kV S/c	1	UC	
9	Mapusa (PG) 3X315 MVA, 400/220	2	Jun/Jul'18 (WRSS-16)	Mapusa - Tuem 220kV D/c	2	UC	GED may update
10	Satna (PG) 1x500MVA, 400/220kV	2	Jun/Jul'18 (WRSS-16)	Future	2	To be planned by MP	MPPTC L may update
11	Damoh 1 x 500 MVA 400/220 kV	2	July'16	STU line	2	To be planned by MP	MPPTC L may update
12	Vadodara GIS 2 x 500 MVA, 400/220 kV	4	July'16	220 kV Venkatpura-Vadodara D/C Line 220 KV Jambua – Vadodara D/C Line	4	Lines planned by GETCO	GETCO may update
13	Bijawar (TBCB) 2 x 500 MVA, 400/220 kV	4	RfQ stage	LILO of Tikamgarh – Chhattarpur 220kV D/c line at Bijawar	4	Planned	MPPTC L may update

STUs may provide status of implementation of their 220kV lines. Further, constituents are requested to complete the 220 kV lines in matching time frame of the 220 kV bays.

For the new schemes implementation agreement needs to be signed between POWERGRID and the STU, as per the CERC amendment mentioned above.

STU may update the implementation schedule and signing of the Implementation Agreement for the new schemes.

TCC/WRP Committee may like to Discuss.

ITEM NO. 14: PROGRESS OF DEDICATED TRANSMISSION LINES OF IPPS WHICH ARE CONNECTED THROUGH INTERIM ARRANGEMENT

The progress of dedicated transmission lines of IPPs in Western Region, which were connected through interim arrangement, was reviewed in 41st SCM in WR held on 21.12.2016. The status of the dedicated transmission lines as reported by IPPs in WR during the meeting is as summarized below:

Sl. No.	Name of IPP/ Ownership	Dedicated Connectivity line	Interim Connectivity Arrangement	On interim since	Target Completion of dedicated line (as informed by developer)
1	RKM Powergen Pvt. Ltd. (RKMPPL) (4x360MW) M/s RKMPPL	RKMPPL- Raigarh PS (Near Kotra) 400kV D/c (Quad) line	LILO of 3 rd ckt of Raigarh - Raipur 400kV 2 nd D/c line (Presently Raigarh-RKM-KMPCL-Raipur)	Sep'14	Commissioned
2	Korba West Power Co. Ltd. (KWPCCL) (1x600MW)	KWPCCL - Raigarh PS (near Kotra)	LILO of 2 nd ckt of Raigarh - Raipur 400kV 1 st D/c line (Presently	Feb'13	Commissioned

	M/s Avantha Power & Infrastructure Ltd.	400kV D/c line	Raigarh – KWPCCL- Raipur)		
3	KSK Mahanadi Power Co. Ltd. (KMPCL) (6x600MW) M/s KMPCL	KMPCL – Champa PS 2xD/c (Quad) line	LILO of Raigarh - Raipur 400kV 2 nd D/c line	Aug'12	1 st D/c - Commissioned; 2 nd D/c – July'17
4	Bharat Aluminium Co. Ltd. (BALCO) (2010 MW) M/s Vedanta	BALCO – Dharamjaygarh PS 400kV D/c (Triple / Quad) line	LILO of 2 nd ckt of Korba - Birsinghpur 400kV D/c line	Oct'11	Commissioned
5	Vandana Vidyut Ltd. (VVL) (2x135+270MW) M/s VVL	VVL – Dharamjaygarh PS 400kV D/c line	LILO of 1 st ckt of Korba - Birsinghpur 400kV D/c line	July'12	Work on dedicated line has not yet started.
6	Essar Power M.P. Ltd (EPMPL) (2x600MW) M/s Essar Power Ltd.	EPMPL - Bilaspur PS 400kV D/c (triple) line	LILO of 1 st ckt of Korba STPS – Vindhyachal STPS 400kV D/c line	Dec'11	Jun'17

In the meeting, M/s VVL submitted that although their 2x135MW units are commissioned, they are under forced shutdown due to non-availability of PPA. In view of the present market scenario and non-tie-up of power from already commissioned units, Unit 3 has been kept on hold. M/s VVL further submitted that

they have not been able to execute their dedicated line due to funding issues and their coal allocation has also been cancelled. In view of the above, it was decided that the interim arrangement of M/s VVL may be disconnected after approval of WRPC.

M/s EPMPPL submitted the progress of the dedicated line as below:

Sl.	Activity	Nos. / Kms	Scope	Completed	Balance
1	Tower Foundation	Nos.	942	938	4
2	Tower Erection	Nos.	942	909	33
3	Conductor Stringing	Kms	337	197	140

M/s EPMPPL further submitted that considering the delay in execution of work during the monsoon season, the line is expected to get completed in Dec'17.

Members were of the view that looking into the quantum of balance work, the line may be completed before monsoon i.e. June'17.

As per CERC order dated 28.09.2016 on Petition no. 30/MP/2014, *“CTU shall take up all the existing cases of connectivity on interim LILO with the RPC of respective regions within a period of one month from the date of issue of this order for review and decision on disconnection of the interim arrangements through LILO. All such interim arrangements through LILO shall be disconnected within a period of three months of the issue of this order unless the RPC grants extension for continuation of LILO keeping in view of all relevant factors.”*

In view of the CERC order, further decision regarding the disconnection of the interim arrangements through LILO may be taken in the WRPC forum.

TCC/WRP Committee may like to Discuss.

ITEM NO. 15: CLAUSE 8 AS NOTIFIED BY DRAFT CERC (IEGC CODE) (5TH AMENDMENT) REGULATION 2016 FOR SALE OF URS POWER BY ISGS IN THE MARKET BY KEEPING LIABILITY OF FIXED CHARGES WITH ORIGINAL BENEFICIARY

Chief Engineer(PP), MSEDCL informed that the beneficiary has long term contract with ISGS and is paying capacity charges for its contracted capacity. It is right of original beneficiary to call back own share and schedule power, whenever required. If power is sold in the market by ISGS, then there will not be any choice left with beneficiary but to purchase costly power or to curtail load to match demand with availability. This will impose additional financial burden on the beneficiary and its consumers. There should not be any liability of the beneficiary to borne fixed charges as the beneficiary losing its reliability margin in case of contingency.

In case of sale of power by ISGS, no special benefit is given to original beneficiary except profit sharing above selling price of such power and fuel charge including incidental expenses. The margin of gain is also not defined.

TCC /WRPC may like to discuss/note.

ITEM NO. 16: FIXED COST BORNE BY OTHER BENEFICIARY WHO IS SUPPORTING ISGS STATION IN URS:

Chief Engineer(PP), MSEDCL informed that as per proposed Clause 6.5(A) of draft CERC (IEGC Code) (5th Amendment) Regulation 2016, in case of sale of unrequisioned surplus power surrendered by the original beneficiary is requisitioned by the other beneficiaries of the ISGS, it shall be treated as

reallocation and the fixed and variable charges for such energy exchanged shall be borne the other beneficiary(ies).

However, in present surplus scenario, if ISGS station is running below technical minimum, the beneficiary other than original beneficiary support in URS for the station to run at its technical minimum. In such a case, for the support up to technical minimum of station, fixed cost against URS shall not be charged to the other beneficiary who is supporting station in URS.

TCC /WRPC may like to discuss/note.

ITEM No. 17 : MULTIPLE TRIPPING OF EVACUATION LINES AT CGPL(LEADING TO TRIPPING 4X830 MW GENERATORS) AND 400 KV LINES AT 400 KV BACHHAU S/S.

A complete blackout at CGPL took place on 13.07.2016. A group comprising of CGPL, GETCO, Powergrid WR-II, WRLDC and WRPC representatives met at Vadodara on 18.07.2016 to discuss the blackout. Later in the 127th PCM, Committee suggested that CGPL, GETCO, WRLDC will form a group to study the power swing phenomenon observed in the CGPL system. CGPL, GETCO and WRLDC were requested to send the details of the incidental system before the occurrence and relevant tripping data (DRs, PMU recordings etc.) to WRPC. Based on the discussions and details received, a report is prepared by WRPC and it is available in WRPC website under PCM Minutes.

The conclusions and recommendations based on report prepared by group, is available on WRPC website.

The following important recommendation was discussed in the 128th PCM

Power Swing phenomenon

Prior to the event, the CGPL generation was around 2875 MW. During the event CGPL Units had fed the three phase fault at Varsana for a duration of 350 ms.

Along with this event, three 400 kV lines also got tripped which was followed by a continuous decline of voltage for 290ms. The voltage started rising, this was detected as a power swing entering in zone-1 by the line DPS at CGPL end and the lines tripped.

The reasons for excitation of the oscillations need to be found out since these oscillations were not damped out resulting in a severe power swing. A transient study by modelling the proper network is required to be done.

In the 128th PCM, it was recommended that the studies be carried out through IIT-B. The scope of these studies shall be to examine the cause of power swing, various factors that contributed to CGPL machines going Out of Step and suggest remedial measures. CGPL would provide overall coordination in carrying out the studies. WRLDC would provide necessary coordination in providing the system data to IIT-B.

The consultancy charges would be required to be paid to IIT-B for carrying out studies. The estimated cost quoted by IIT-B is awaited. It is proposed that the expenses be met from WRPC Fund.

TCC/WRP Committee may like to discuss and give in principle approval for funding the studies from WRPC fund.

ITEM NO. 18. MODERNIZATION AND RENOVATION OF WRPC WEBSITE

The present WRPC website was developed in the year 2006. The following issues are being faced, based on present requirement,

1. Commercial a/cs such as weekly DSM, REC, Ancillary Services a/c, congestion a/c and monthly a/cs such as REA, RTA and RTA are required to be uploaded on the web site every month and subsequently revisions to these a/cs. The current web page does not have all the content to fit in and therefore the a/cs could not be uploaded/displayed separately.
2. Further additional supportive data of these a/cs as per requirement of the constituents is required to be uploaded on the web site. It is not able to

accommodate all the supportive data of the a/cs at Sr.No.1.

3. Reports of Operation and Protection Divisions are required to be uploaded on the web site. The same are uploaded in the news presently. Separate web pages are required to be developed so that navigation through the web site is convenient.
4. It is not interactive, i.e. does not have a provision for online feedback/complaints/ issues handling capability. Separate web pages are required to handle the on line feedback/complaints/issues handling capability with proper database.
5. The website is handling the data of operation, commercial & protection divisions, wherein all the Agenda/Minutes of various sub-committee meetings and all the reports of commercial division are being uploading manually. The above is required to be uploaded automatically once placed at appropriate directory.

Web based application for relay setting database:

Hon^{ble} CERC vide order dated 22.02.2014 in the matter of grid disturbance occurred on 30.07.2012 & 31.07.2012 in petition No. 167/Suo-Motu/2012, have made certain observations and issued directions.

According to this order, all the RPCs have to maintain the relay settings data of all the ISTS lines and lines emanating from interface S/Ss of Utilities to ISTS (400 kV & above and 220 kV interfacing lines). The PCM requested all utilities to compile & maintain the data of their system for voltage level of 132 kV & above. The relay setting data in respect of all 400 kV lines and important 220 kV lines (interface lines with ISTS & lines connected to generating stations) was submitted by WRPC Utilities in their own formats. Therefore it was felt that the proper database is required to be maintained at respective SLDCs, WRLDC, and WRPC.

A web based software solution may be implemented through a vendor which should be capable of maintaining system parameter & relay setting data through web based application. This software shall have capability of carrying out a check on the relay setting adopted in field & suggesting correct relay settings to be

adopted as per the recommendation of Task Force. Also the software shall provide relay coordination module.

To address all the above web site related issues it is proposed that a new web site be got developed through a web developer.

It is proposed that the expenses towards development of the web site be funded through WRPC fund.

TCC/WRP Committee may like to discuss and give in principle approval for funding the studies from WRPC fund.

ITEM NO. 19: TASK FORCE REPORT

Report of the Task Force on Power System Analysis Under Contingencies: Ministry of Power, GoI constituted a “Task Force on Power System Analysis under Contingencies”, in December 2012 under the chairmanship of Shri V. Ramakrishna as per the recommendation made by Enquiry Committee headed by Chairman, CEA on grid disturbances that took place in NEW grid on 30th and 31st July 2012. The terms of reference of Task Force broadly cover analysis of the network behavior under normal conditions and contingencies, review of operational philosophy of protection relays, review of islanding schemes and technological options to improve the performance of the grid. The report of the Task Force was discussed in the subsequent PCMs. A brief on suggestions given by Ramakrishna Committee, is as follows.

Formulation of Special groups for studies and protection coordination:

The Task Force recommended forming a group for studies, protection coordination and relay settings. It also recommended that each utility should establish a protection application department with adequate man power & skills. The members of protection team shall undergo regular training to enhance their skills.

Tuning of power electronic devices & PSS: The Task Force recommended carrying out studies & reviewing the network at regular intervals (3-4 years) with

introduction of newer power electronic devices. The results may be implemented within next 3-4 years. It also suggested that as this requires specialized dynamic modeling, the task may be entrusted to reputed independent agency and implementation of tuning be entrusted to respective manufacturer.

Training by IIT: In order to build a strong team of WR in specialized areas of studies, training sessions may be arranged to team members at IIT Bombay on relevant specialized areas subjects like transient stability, PSS tuning, tuning of FACTS devices, SSR etc.,

In the 128th PCM it was decided that the tuning of power electronic devices & PSS in WR be carried out by availing the consultancy/training services of IIT-B and a separate meeting be called to deliberate on the modalities of carrying out the PSS tuning activity in WR.

Accordingly a meeting was held on 03.01.2017 at WRPC Mumbai, wherein representatives of all the generating companies, SLDCs and expert from IIT-B attended the meeting.

Shri Satyanarayan S. and Dr. Anil Kulkarni Prof. IIT-B explained the technical details of the activities that are required to be undertaken for carrying out tuning of PSS such as designing the compensators of PSS, testing the performance of the PSS etc. Queries on various technical aspects and difficulties faced by the participants were addressed by Shri Satyanarayan S. and Dr. Anil Kulkarni.

In the above meeting following was decided;

- 1) All the State owned generating companies would prepare a DPR for getting the PSS tuned by the OEM of the generating unit suppliers. This proposal would be put up to the appraisal Committee for funding through PSDF. The appraisal of the DPRs would be done by WRPC and would be recommended for funding the expenses through PSDF. The private generating companies shall get the PSS tuned from the manufacturer at their own cost.**

- 2) A detailed guideline on the adoption of the PSS settings and testing the PSS would be prepared by WRPC in consultation with IIT-B and the same may be referred by the generating companies during adopting PSS settings.
- 3) A training program on the PSS tuning activity shall be organized by IIT-B for all the stake holders. The fees of the training program shall be borne by the individual organization.
- 4) A software for checking the performance of PSS, analytically, would be developed by IIT-B after discussing the requirements with WRPC. The copies of the software then could be shared with the generating companies.
- 5) A simulation software for exciter/PSS control system simulation shall be developed by IIT-B, which shall be made available to all the generating companies of WR for checking/simulating the frequency response of the PSS tuned system.
- 6) After carrying out the tuning of PSS, the parameters/constants set by the generating companies shall be communicated to WRPC for its verification. This would be verified by WRPC through the software developed by IIT-B at 4) above.
- 7) The cost of the softwares at 4 & 5 be funded through WRPC fund.

The estimated cost of both the softwares is awaited.

TCC/WRP Committee may like to discuss and give in principle approval for funding the studies software at 4 & 5 above from WRPC fund and 1 above through PSDF.

ITEM NO. 20: LINE DIFFERENTIAL PROTECTION FOR SHORT LINES:

CEA vide letter dated 27.10.2016 (copy enclosed at Annexure-20) have requested that the recommendation of the sub-Committee on Relay/Protection under task force for Power System Analysis under contingencies on transmission lines having OPGW or separate OF laid for communication shall have line differential protection

as Main-I protection with distance protection as backup (Built in Main relay or standalone) and Main-II shall continue to be used as DPS. Auto reclosure shall be blocked for faults in the cables. Further CEA has requested to deliberate the matter in PCMs of RPCs.

WRLDC vide letter dated 12.10.2016 have intimated that several Grid incidences occurred in the recent past due to problems in the distance relay setting coordination of long lines followed by short lines, i.e. tripping of longer lines in zone 2 prior to tripping of short lines. A list of short 765 and 400 KV lines with the line length less than 50 Km in WR has been prepared by POSOCO

In the 128th PCM, Reliance and TATA Power representatives informed that in their system almost all the lines have Main-1 & Main-2 as differential protection. The inbuilt feature of Distance protection in the above line differential protection is used as backup protection. The performance of the protection scheme is excellent. They further informed that the line differential relays are costlier than the DPS.

The Committee suggested that in the first phase short lines having Fiber Optic(FO) connectivity be taken up for installation of the Line Differential Protection as Main-I Relay. Utilities concerned were requested to identify lines having FO connectivity and furnish the list to WRLDC/WRPC at the earliest.

TCC/WRP Committee may like to discuss/note.

ITEM NO 21: COMMISSIONING OF NEW SYSTEM PROTECTION SCHEMES IN CONNECTION WITH SYNCHRONIZATION OF SR AND NEW GRID

Revision in SPS : With commissioning of 765kV Kolhapur-Kudgi (PG) D/C (initially charged at 400kV), revision of SPS and the present status of implementation of the SPS by various agencies involved was communicated by NLDC vide letter dated 23.12.2015. NLDC vide letter dated 16th March 2016, superseding all the previous communications in relation to the NEW-SR SPS have intimated revision in the SPS on NEW-SR corridor for implementation.

All the revised NLDC SPS has been implemented except generation back down & load shedding of 200-300MW in Maharashtra envisaged at SPS-5 and load shedding of 200-300MW in Maharashtra at SPS-6.

32nd WRPC meeting discussions:

It was informed that MSETCL had raised several concerns about SPS-5 and had written to NLDC. The reply of NLDC was also discussed in the PCM and NLDC had proposed a meeting to resolve the issue. CE,SLDC, MSETCL informed that various concerns of MSETCL on SPS-5 and a meeting with NLDC and other stakeholders was already proposed and the same shall be discussed at that time.

WRLDC/MSETCL may like to update the status

TCC/WRP Committee may like to discuss/note.

ITEM NO 22: ISLANDING SCHEMES:

Islanding scheme for Sugen:

In the 127th PCM, GETCO representative stated that they have completed the necessary work at their end and requested that TPL may inform the status on the same at their end. **Accordingly WRPC took the matter with TPL and subsequently a meeting was held at Sugen Surat on 07.11.2016 and the Islanding scheme was discussed in detail and finalized.**

The Islanding scheme for Sugen with Surat loads was ratified in the 128th PCM and is available on WRPC website.

TCC/WRP Committee may like to note.

ITEM NO. 23. DRAFT NATIONAL ELECTRICITY PLAN (VOL-II: TRANSMISSION) :

CEA vide letter dated 11.01.2017(copy enclosed at **Annexure-23**), has informed that as per the Electricity Act, 2003, CEA is to prepare the National Electricity Plan

once in five years. For preparing the Draft National Electricity Plan (Vol-II: Transmission), two sub-committees were constituted on “Transmission Planning” and “Integration of Renewable Energy Sources” under the chairmanship of Member (Power System), CEA for preparation of the National Electricity Plan (NEP). Final meeting of these committees was held on 28-12-2016. Based on the deliberations, the Draft National Electricity Plan (Vol-II: Transmission) has been prepared by CEA.

The Draft covers a review of the 12th Plan, plan for 2017-22 in detail along with details for RE integration and a perspective for the period beyond 2022. While preparing the NEP, tentative demands for 2021-22, as part of working of 19th EPS have been taken into consideration. The Report of the 19th Electric Power Survey Committee is expected shortly. Changes, if any, in demand projections would be suitably incorporated while finalizing the NEP.

The soft copy of Draft National Electricity Plan (Vol-II: Transmission) is available on CEA website at given below link:

http://www.cea.nic.in/reports/others/ps/pspa2/draft_nep_trans_invitation_2016.htm
http://www.cea.nic.in/reports/others/ps/pspa2/draft_nep_trans_2016.pdf

The inputs/comments/suggestions regarding Draft National Electricity Plan may be sent at the address: Pardeep Jindal, Chief Engineer(PSPA-II), Central Electricity Authority, Sewa Bhawan, R K Puram New Delhi-110066. (Email: ceatransplan@gmail.com)

Members of WRPC are requested to forward their views/suggestions/objections (if any) on the above Draft National Electricity Plan a time period of 45 days i.e. by 11th February, 2017 has been kept.

WRPC/TCC may like to note.

ITEM NO 24 : TRAINING PROGRAM FOR PROTECTION ENGINEERS BY M/s TRACTABLE:

In compliance to MoP order dated 16.07.2014, M/s Tractable was appointed as consultant, to conduct the study/analysis to ensure secure and reliable operation of national Grid.

The consultant M/s Tractable commenced the work under Task-I in August 2015. 256 S/S protection audit reports of WR were forwarded to M/s Tractable and they have completed the scrutiny the protection audits reports for these S/Ss.

The Task-II for review of protection audit and protection relays thereof for 20 critical S/Ss, commenced in December 15 and the Task-II was also completed and have recommended revisions in setting of the stations where protection audit has been carried out by them. Under Task-II, a training of 5 days (from 09th January 2017 to 13th January 2017) on power system protection for Protection Engineers of WR was arranged at WRPC Mumbai, by the international consultant (M/s Tractebel). Around 85 participants from the WR Utilities attended the meeting.

WRPC/TCC may like to note.

ITEM NO 25. JUDGMENT OF HON'BLE SUPREME COURT OF INDIA DATED 08.12.2016 UNDER CIVIL APPEAL NOS.5881-5882 :

MPPMCL vide letter dated 31.12.2016(copy enclosed at ANNEXURE 25.) have intimated that the matter of COD declaration was concluded in Hon'ble Supreme Court of India and Hon'ble Supreme Court vide its judgment on 08.12.2016 have re instated the judgment dated 08.08.2014 of Central Electricity Regulatory Commission declaring COD date of first unit of Sasan UMPP on 16Th August ,2013. Further MPPMCL requested, superintending Engineer (Comml.), WRPC to revise the REA's as per the Judgment of the Hon'ble Supreme Court of India.

TCC/WRP Committee may note.

33RD TCC/WRPC AGENDA

ITEM NO 26. REINSTATE THE MEETING FOR FINALIZATION FOR REGIONAL ENERGY ACCOUNTS (REA).

Agenda Background:

SLDC Gujarat vide letter dated 22.11.2016 has informed that, as recorded in the 73rd CCM, REA meeting is desirable for error free accounts. It was informed that WRPC will explore possibility of holding REA meeting regularly for corrections and freezing of all input side data and it was also decided to start the meeting from October 2016.

Discussions in 74th CCM:

In the 74th CCM SE, (CommI) stressed the need for error free accounts as due to erroneous accounts frequent revisions have to be carried out which have financial implications as well over burden the already depleted staff in organizations. The REA meetings shall help in issuance of error free accounts provided that entities certify their input data (active and schedule) during the meetings. Further no revisions shall be carried out due to change in input data once its has been certified by entities and the accounts shall be treated as frozen.

TCC/WRPC may like to discuss.

ITEM NO 27. HON'BLE CERC ORDER UNDER PETITION NO.68^{/M}P/2015 DATED 06.09.2016

Hon'ble commission passed an order dated 06.09.2016 in the matter for providⁱⁿg **uniform methodology to be used for billing** incentive to beneficiaries as per Regulation 30(4) of CERC (Terms and condition of Tariff) Regulation ,2014, wherein the petitioner was NTPC limited and the respondents were ERPC,NRPC,SRPC and WRPC.

Clause 18 of the order is as follows

Quote

33RD TCC/WRPC AGENDA

In view of the above to maintain uniformity for billing of incentive, in exercise of our power given under reregulation 55 of the 2014 Tariff regulations, we direct that the methodology as adopted by ERPC shall be considered by all Regional Power Committees for billing incentive energy to the beneficiaries of the generating station.

Unquote

Hon'ble CERC has directed the RPC's to follow the methodology of ERPC for Billing of incentive energy to the beneficiaries of the generating station. Further under clause 19 Hon'ble commission has directed RPC's to look in the circumstances and decide on the frequency of incentive calculation and billing after discussion and agreement by stakeholders at RPC forum.

In the 74th CCM the matter was discussed, NTPC was of the view that the frequency for incentives should be on monthly basis; some beneficiaries supported monthly billing of incentives whereas few insisted on annual billing. All concerned members were asked to communicate their views to their management so that the matter may be taken in the 33rd TCC/ WRPC.

Concerned Beneficiaries may confirm their position on frequency of incentive billing.

TCC/WRP Committee may like to Discuss.

ITEM NO. 28 UTILIZATION OF FIBER OPTIC LINK BETWEEN RINFRA AAREY AND MSETCL BOISAR FOR GRID OPERATION BY WRLDC/WRPC

Background:

Due to non-availability of PGCIL transmission line in the vicinity, OPGW connectivity up to WRLDC under either WR-ULDC or MCP is not feasible. Connectivity from Kalwa to WRLDC has been implemented through underground optical cable arranged by PGCIL which is prone to interruptions resulting in data loss/intermittency. It was therefore felt that feasibility of OPGW connectivity

through transmission lines owned by other utilities (Tata Power, Reliance and MSETCL) needs to be discussed with concerned utilities and finalized.

Subsequently, various meetings and discussions were held with these utilities and laying/utilising of OPGW on Boiser(PG)-Boiser(MSETCL)-Versova(RInfra)-Aarey colony(RInfra) line was found to be feasible. The connectivity to WRLDC shall be completed as under:

- a. POWERGRID shall lay OPGW on Boiser-Boiser line owned by MSETCL after getting permission from them.
- b. RInfra shall hand over one healthy fiber pair from their existing OPGW cable on Boiser-Versova-Aarey colony line.
- c. Underground OFC pair of about 1 kms will be utilised from the existing ULDC cable between Aarey Colony and WRLDC.

Present status :

- a. During the 31st WRPC meeting ED, STU, MSETCL informed that they will have to put up the proposal to their management for approval and the decision would be intimated to WRPC. During the 32nd WRPC meeting, MSETCL was once again requested to permit laying of OPGW on their line. The permission is still awaited. Work shall be taken up by POWERGRID after receiving of permission from MSETCL.
- b. As directed by Chairman, WRPC during 32nd WRPC meeting, an MOU has been signed between R-Infra and POWERGRID. Subsequently, as per discussions with R-Infra, they have intimated that the fiber pair would be handed over soon.
- c. Underground OFC pair of 1 kms between Aarey colony and WRLDC is being made through by POWERGRID. Work is expected to be completed by 15th Feb'17.

TCC /WRPC may like to discuss/note.

ITEM NO. 29 ASSESSMENT OF STATUS OF ULDC EQUIPMENTS (RTUS & COMMUNICATION EQUIPMENTS) AND REQUIREMENT FOR THEIR REPLACEMENT / UP GRADATION

Agenda Background:

The status of ULDC equipment and requirement for replacement/up-gradation was discussed during 483rd OCC meeting held on 12th May 2016 at Jabalpur wherein initial discussion on the subject during 19th SCADA/EMS PRM held on 27th April 2016 at Bhopal was also referred. Relevant extract of the MOM of 19th SCADA/EMS PRM the meetings is reproduced below:

With reference to above, it emerged during discussion that data interruption is partly due to technological obsolescence and partly due to old equipment in operation. Some of the ULDC and associated equipments (RTUs & communication equipments) have been commissioned during 2003-05 and are rendered obsolete, more-so, due to non-availability of spares & maintenance agencies. After detailed discussion, it emerged that a committee comprising members from WRPC, WRLDC, Maharashtra, Gujarat, MP, Chhattisgarh, PGCIL & ISGS would be formed for assessment of current status of these equipment and suggest for replacement / up gradation. It has also been agreed that WRPC would coordinate for the committee formation and assessment & recommendation. The committee recommendation would be taken up in WRPC forum for implementation.

Subsequently a meeting was held on 09.06.206 at WRPC Mumbai wherein a Working-group was formed comprising of representatives from each constituent of WR including WRPC, WRLDC, Maharashtra, Gujarat, MP, Chhattisgarh, PGCIL & ISGS. Following Terms of Reference (TOR) have also been decided:

- I. Constituents to provide current status of RTUs & associated communication system (As per TCT)
- II. Working-group will decide about criterion for replacement/up-gradation.
- III. Working-group to carry out assessment for replacement / upgrade
- IV. Working-group to assess and suggest additional / future communication requirement based of grid operation / CEA standards
- V. Working-group will suggest the replacement / upgrade requirement vis.a.vis area of responsibility

VI. Working-group to submit a detailed report to WRPC/TCC

Further a meeting on assessment of status of ULDC equipment's (RTUs & Communication equipments) and requirement for Upgradation/Replacement in Western Region was held at WRLDC, Mumbai on 09.08.2016 to review the current status.

During the meeting members opinioned that, following things to be finalized from all utilities:

1. Collection data related RTU & Communication System
2. Criteria for Replacement
3. BoQ preparation
4. Additional Requirement (Including future)
5. Area of Responsibility
6. Agency for Execution of procurement & Installation
7. Maintenance of Existing RTU & Communication system

Working –group finalized the following criteria for Upgradation/Replacement of RTUs & Communication equipments:

1. RTUs & Communication system more than 15 years and above
2. Below 15 years , but degraded performance
3. Compatibility Issues with Control Centre integration
4. Technical Obsolesce & non availability of vendor support
5. RTUs requirement for RE Station
6. Additional requirements for next 5 year shall also be incorporated.

Working group requested PGCIL, WRTS I to prepare a report on existing RTUs working under Central & State sector with their age and requirement of replacement. However data shall be submitted to WRTS - I by each utility through WRPC and WRLDC latest by 15 September, 2016. WRTS-I, PGCIL submit the draft report to Working-group by the 30th September, 2016 for onward assessment & put up the same to next WRPC meeting. PGCIL agreed the same.

TCC:

In 32nd TCC/WRPC meeting, it was decided that, PGCIL, WRTS I shall prepare a report on existing RTUs working under Central & State sector with their age and requirement of replacement and submit the draft report to Working-group by the 33rd TCC/WRPC AGENDA

30th September, 2016 for onward assessment & recommendations of the same shall be put up in the next WRPC meeting.

PGCIL, WRTS I prepare a report on existing RTUs working under Central & State sector with their age and requirement of replacement and submit the draft report to Working-group by the 30th September, 2016 for onward assessment & recommendations

A meeting of Working –group was held on 24.10.2016(MoM is enclosed at Annexure- 29), wherein following status/views of the constituents were noted:

1. Chhattisgarh : The representative from Chhattisgarh informed that there is no RTU supplied under ULDC scheme in the state. They are on the process to upgrade 12 RTUs and all other works will be done through internal process. They desired to carry out all their RTU & communication activities themselves and meeting the IEGC compliance. They informed that IPPs in Chhattisgarh are integrating telemetry to SDLC.
2. Madhya Pradesh : The representative from MP informed that that there some of the RTUs are installed under ULDC scheme and some were old RTU integrated to SCADA system. They are on process to upgrademost of the RTUs and associated communication, all works will be done through internally by MPPTCL & MPPGCL. They desired to carry out all their RTU & communication activities themselves and meeting the IEGC compliance.They informed that without telemetry integrating telemetry to SDLC, charging / synchronization of new elements are not allowed by IPPs including renewable.
3. Gujarat : The representative from Gujarat informed that only a small number of RTU's were installed under ULDC scheme and a majority were procured and maintained by them. Further they informed that RTUs and communication system are maintained by SLDC. They stated that replacement of RTU's through a central agency will be preferred by them. For renewable integration they will ensure telemetry integration by a IPP.
4. Maharashtra :The representative from Maharastra informed that that their SCADA, RTU and communication system is commissioned separate from ULDC

scheme. At present, all SCADA & RTUs works are under SLDC jurisdiction. As per the current status, the following details has been furnished

Total 242 RTU integrated to SLDC

146 RTUs under STU and States generations

98 RTU under IPP+CPP are under integration

SLDC certificate is required for data integration for first time charging of new element.

Representative from Maharashtra informed that replacement / upgrade of RTU & communication system will be done through internal process and meet the IEGC compliance. Further, he informed that a new Chief Engineer post has been created for looking after protection, automation and communication who would be looking after all replacement / upgrade/ maintenance activities related to RTUs and communication system in the state.

5. NTPC : The representative from NTPC informed that so far all RTU and Communication has been provided by Power Grid Corporation under ULDC project. NTPC doesn't have any expertise on this field. They requested MS, WRPC to include all related work under central pool.

6. NCA : The representative from NCA informed that new RTU already installed and maintenance is included so there is no concern.

7. NPCIL :The representative from NPCIL informed that so far all RTU and Communication has been provided by all Power Grid Corporation under ULDC project. NPCIL doesn't have any expertise on this field. They requested MS, WRPC to include all related work under central pole. However it is understood that telemetry from Kakrapar unit 3 & 4 is being done internally due to security reason as non of the vendor have agreed to abide by the agreement provision. AGM WRLDC also confirmed that Kakrapar Unit 3 & 4 officers have visited WRLDC once for discussion on the same.

8. DNH : The representative from DNH informed that new RTU already installed and maintenance is included so there is no concern.

9. DD: The representative from DD informed that new RTU already installed and maintenance is included so there is no concern.

10. Goa : The representative from Goa was not available.

Working –group opined that almost all the major states have expertise in procurement and maintenance of RTU's. More than 90 % of RTU's in their respective states have been procured by them. Even NTPC and other IPP's have been procuring / maintaining RTU's for their new stations since long time. Therefore as per the IEGC guidelines, all the users must procure and maintain the RTU's required for their system, and there is no requirement of a central agency just for procurement purpose.

TCC /WRPC may like to discuss/note.

ITEM NO. 30: STATUS OF URTDSM

During 32nd TCC/WRPC meeting it was decided to monitoring the status of URTDSM & PGCIL was asked to expedite the project.

Subsequently a meeting was held on 28.09.2016 at Goa (Mom is attached at Annexure -30). The summarised outcome of the meeting is as follows:

1. Executive Director LD &C, PGCIL informed that Commissioning date as per original schedule of URTDSM was January 2016. As per the progress of analytics development and field erections all efforts are being made to complete by March 2017, however, according to GE T&D (formerly Alstom) estimate, it may spillover to June 2017.
2. URTDSM Phase I project involves installation of 351 substations on existing communication wideband network.
3. Phase II of the project CERC has advised to come with a new petition after completion of Phase – 1 of URTDSM Project. All new sub stations have provision of PMU as part of transmission project and the same would be integrated to the URTDSM system
4. 50 PMU have been installed. 30 PMU have been dispatched to sites

5. FAT of the hardware & software in integrated test mode is in progress at GET&D Works at Noida for WRLDC, Gujarat and Maharashtra system.
6. Performance FAT has started from 27.9.2016. By December 2016, PDCs would be commissioned at respective control centers.
7. On analytics development, IIT Mumbai team lead by Prof Soman have done commendable progress and prototypes are being tested in PGCIL location. He further informed that Analytics being developed under the URTDSM project, viz.,
 - a) Line Parameter Estimation
 - b) Online Relay Vulnerability Analysis
 - c) Linear State Estimation
 - d) CT/PT Calibration
 - e) Supervision of Zone 3 distance Protection
8. A module wise training program will be arranged by M/s GE T&D India Ltd. (earlier Alstom T&D) in the month of November 2016 & December 2016.

PGCIL may update the latest status of progress.

TCC /WRPC may like to discuss/note.

ITEM NO. 31: SHUT-DOWN OF 15 DAYS FOR SHIFTING OF 400KV D/C SKS TRANSMISSION LINE FOR KWPCL RAILWAY SIDING

COO KWPCL informed that they need to commission the 29KM Railway siding of for its 1x600 MW Thermal Power Plant set up in District Raigarh of Chhattisgarh State.

400 kV Transmission Line of M/s SKS power, which is connected to Kotra s/s of POWERGRID, need to be shifted to maintain the clearance as per Railway Safety norms.

The proposed railway line of KWPCCL is crossing SKS's 400kV D/C transmission line in between Tower No 62 and 63. Tower No 60 and 70 of SKS line are Tension type towers and Tower No 61 to 69 are Suspension type towers.

To facilitate the construction / laying of the required railway line, shut down of a 400 kV line from SKS to Kotra is required.

Number of meeting with SKS management has taken place; various alternatives have been offered but discussion remained inconclusive till date.

Various options explored and submitted to SKS are as under:

1) **Option-1- Condonation from Railway:** Though the line meets Railway norms of Horizontal clearance and angle of crossing, minimum vertical clearance required between lowest crossing conductor and highest traction conductor is less than the railway norms. Hence, this option is ruled out.

2) **Option-2- Changing the towers underneath existing line:** This involves erection of two new tension type towers underneath the existing SKS line. Construction of tension towers underneath existing live line is technically not feasible and unsafe without shut-down. Since permission of long shut-down is main concern of SKS, it is also not agreeable & hence ruled out.

3) **Option-3- Shifting with ERS:** This is considering power flow of maximum 500MW with twin moose ERS system. The shutdown required is 2 days (10 Hours each day). It could not reach to any conclusion since SKS did not agree to connect ERS with Tower no 64 being suspension-type and SKS was under the impression that it would ultimately bring instability in & beyond Tower No 64.

The option is again checked with team of our group company, M/s Adani Transmission Limited, which is also involved in construction and maintenance of transmission lines, and found it viable.

4) **Option-4- Shifting of line with 4 new towers:** The works are divided in two parts. While the majority of the work (such as ROW/foundation of all 4 towers,

complete erection of 3 towers and stringing) shall be completed before taking the shut-down for making end connections; and the balance work of erection of 4th tower, de-stringing of existing line from Tower No 60 to 64 and making end connections shall need a shut-down period of 15 days.

With this Option-4, all other jobs (except complete erection of 4th tower and making end connections) would be completed, then only shutdown requirement will be coming. By this time all ROW clearance would be over and apprehension of SKS towards ROW is addressed. This option is also viable.

We are also willing to extend assistance such as sparing 10 MVA spare available transformer with KWPCCL during this period or hiring DG Set for backup power if required to SKS.

It is worth to note here that KWPCCL is trying to approach SKS since October'2015 for a viable solution to the issue and a special meeting was also invited by the Member Secretary, WRPC in this regard on 31.08.2016. After the meeting, KWPCCL had again requested SKS through a letter to finalize any one option out of two viable options (Option-3 and Option-4), however, even after the meeting, response from SKS has been discouraging.

The matter was discussed in several OCC & still issue is unresolved.

TCC /WRPC may like to discuss.

ITEM No. 32: MEMBERSHIP OF WRPC

1. Government of India, Ministry of Power under the provision of Section 2, Subsection 55 of the Electricity Act 2003 vide its resolution F.No.23/1/2004-R&R dated 25.05.2005 and subsequent amendments dated 29.11.2005 and 9th May 2008 published in the Gazette of India established the Western Regional Power Committee in place of erstwhile Western Regional Electricity Board.
2. As per above notification "Every Independent Power Producer (IPP) having more than 1000 MW installed capacity in the region would have one representative each".

Under above category of membership following generators (IPP) in WR having installed capacity more than 1000MW:

1. Sasan UMPP (3960 MW)
2. MB Power(1200 MW)
3. KSK Mahanadi(1200 MW)
4. DB Power(1200 MW)
5. KWPCCL Avanta Power(1200 MW)
6. APML(Adani Power Maharashtra Ltd 3600 MW)

Based on gazette notification dated 9th May 2008 of Ministry of Power, Govt of India the above IPP's shall be considered as a regular Member of WRPC under the category of IPPs having installed capacity more than 1000 MW w.e.f. 1st April, 2017.

TCC /WRPC may like to discuss.

ITEM NO.33: PERFORMANCE OF WR GRID DURING AUGUST 2016 TO DECEMBER 2016

1. SYSTEM PERFORMANCE

Frequency:

During months of August 2016, September 2016, October 2016, November 2016 & December 2016 the grid operated in the IEGC frequency range of 49.9 Hz to 50.05 Hz for 73.73 %, 75.15 %, 74.78 %, 71.94 % and 69.58 % of time respectively. The frequencies below 49.9 Hz were from 5.43 % to 9.02 % of time during August 2016 to December 2016. In higher frequency regime, system frequency remained above 50.05 Hz from 19.00 % to 20.32 % of time during August 2016 to December 2016. The monthly average frequency was 50.00 Hz in August, September & October 2016 and 49.99 Hz in November 2016 & in December 2016.

The detail of frequency profile for the months of during August 2016 to December 2016 is placed at **Annexure-33.1(a)**.

Demand :

The maximum unrestricted demand of Western Region was in the range of 50500 MW to 45370 MW(Ex Bus) in during March 2016 to July 2016. The region faced capacity shortage in the range of 80 MW to 700MW (peak deficit of 0.18 to 1.60%) during these months. The details of unrestricted peak demand, demand met and energy requirement and availability are as furnished at **Annexure-33.1 (b)**.

2. Voltage Profile

2.1 Overall voltage profile had been satisfactory during the period under review.

The detail of voltages at important 400 kV and 765 kV sub-stations during the period of during August 2016 to December 2016 is placed at **Annexure- 33.2**.

In order to control incidences of high voltages during low load periods, installation of reactors at following locations as planned by various utilities is in the process as per following schedule:

S. No.	400 kV Sub/stn.	Size (MVAR)	Implementing agency	Expected commissioning date
1	Nanded	125 MVAR	MSETCL	June – 2017
2	Sholapur	125 MVAR	MSETCL	June – 2017
3	Kolhapur	125 MVAR	MSETCL	June – 2017
4	Akola	125 MVAR	MSETCL	June – 2017
*5	Nagda	125 MVAR	MPPTCL	Commissioned and charged on 09.08.2016
6	ISP	125 MVAR	NHDC	April– 2017 (Tendering done)

7	Line reactor at Nagda-ISP line at Nagda end	50MVAR	MPPTCL	November 2016 end (Expected)
8	Satpura	50 MVAR	MPPGCL	Dec-2017
9	Khandwa	125MVAR	PGCIL	Commissioned on 01.04.2016
10	Vindhyachal	125MVAR	NTPC	Commissioned on 06.04.2016

**50 MVAR existing bus reactor to be shifted to Nagda-ISP line as line reactor after commissioning of 125 MVAR reactor at Nagda.*

Chief Engineer, SLDC Maharashtra informed during 32nd WRPC meeting :

- a. Commissioning of 125MVAR shunt reactor at karad, Kolhapur, Solapur, by MSETCL –Tender are floated for above 3 No substation.
- b. Planning of additional shunt reactors in south Maharashtra – shunt reactors are planned under phase- II by MSETCL. Proposed 125MVAR Bus reactors are at following substations:-

400KV Substations:-

1. Chandrapur-II
2. Koradi-II
3. Khaparkheda
4. Bhusawal-II
5. Lonikand-II
6. Chakan
7. Kudus

TCC /WRPC may like to discuss/note.

ITEM No. 34: ANTICIPATED POWER SUPPLY POSITION IN WESTERN REGION FOR THE PERIOD FROM JANUARY 2017 TO MARCH 2017

The anticipated power supply position in the region for the period from January 2017 to March 2017 is at **Annexure-34**. The period under consideration is summerseason. The anticipated regional demand is likely to vary between 50500 MW to 51800 MW and the capacity surplus will be around 4.0-6.0 %. In terms of energy, the unrestricted requirement is expected to range from 31100 MUs to 33500 MUs with regional energy surplus of around 0.5 % to 2.0%.

TCC /WRPC may like to discuss/update the status.

ITEM No. 35 STATUS OF COMPLETION OF 765/400 KV AND ABOVE ON GOING TRANSMISSION SCHEMES BEING EXECUTED/IMPLEMENTED BY TRANSMISSION AGENCIES.

The updated status on various ongoing transmission schemes for the year 2016-17 as per the current information available is as follows: -

S. No.	Name of the Line	Target Completion Date	Remarks
POWERGRID			
1	400 kV Navsari – Kudus D/C Line	Mar -17	ROW/Forest problem
2	765 kV Wardha –Nizamabad-Hyderabad D/C	May -17	
3	400 kV Aurangabad - Boisar line D/C line	Mar -17	
4	765 kV Aurangabad (PG) - Padghe (PG) D/C	Mar -17	
5	800kV Champa – Kurukshetra Bipole	Feb -17	
6	LILO of both circuits of Aurangabad – Pune 400 kV D/c line at Pune 765/400 kV GIS		Commissioned on 03.04.2016

7	400 kV KSK-Champa(PS) –III & IV		Commissioned on 04.10.2016
8	400 kV RKM-Raigarh		Commissioned on 02.11.2016
9	400KV MOUDA –BETUL PG LINES	Mar -17	
CHHATTISHGARH			
1	400 kV DCDS Raipur(Raita)-Jagdalpur(DCDS)	March -16	
2	LILO of 220 kV Raigarh-Budipadar at 400 kV PGCIL S/s Raigarh. Ideal charged on 11.8.2015 for no theft reason	March -16	
GUJARAT			
1	400 kV D/C Vadinar-Amreli line	Mar -17	
2	400kV APL-Hadala LILO to Halvad	June -17	
3	400 kV D/C Amreli-Kasor line(Part-1)	Mar -17	
4	400 kV Charanka- Veloda	Mar -17	
5	400kV Varsana-Halvad	March -17	
MADHYA PRADESH			
MAHARASHTRA(STU)			
1	400 kV Bableshtar-Kudus D/C (Quad)	Mar -17	Forest clearance awaited, severe ROW problem
STERLITE (RPTCL)			
1	400 kV Sujalpur(PG)-RAPP(Kota)(IR by RTCL) I & II		Commissioned on 26.02.2016(But idle charged from Sujalpur End as bays at Rapp end are not ready) Ckt I charged from both end on 11.11.2016. Ckt charged from both end on 15.11.2016

A meeting on ongoing transmission scheme was held on 06.01.2017. The updated list important ongoing transmission scheme received from PGCIL is attached at Annexure 35

TCC /WRPC may like to discuss/update the status.

ITEM No. 36 COMMISSIONING OF NEW GENERATING UNITS IN WESTERN REGION AND THE CAPACITY EXPECTED TO BE COMMISSIONED DURING THE CURRENT YEAR 2016-17.

The status regarding Generating units, commissioned /expected to be commissioned during the current year 2016-17 according the available information is as below:

Name of the Power Projects	Unit No.	Capacity (MW)	Date of Commissioning /Schedule Date
GUJARAT			
CHHATTISGARH			
MARWA	2	500	COD on 00.00 hrs of 31.07.2016
MAHARASHTRA			
CHANDRAPUR	8	500	Synchronized on 29.3.2015. COD ON 04.06.2016
CHANDRAPUR	9	500	Commissioned on 21.03.2016. COD not yet declared
KORADI	9	660	Synchronized on 21.01.2016. COD not yet declared
KORADI	10	660	Synchronized on 01.07.2016. COD not yet declared
MADHYA PRADESH			
M/s Jhabua Power, Seoni	1	600	Synchronized on 23.02.2016 Cod on 03.05.2016
Essar Power MP Ltd(Mahan)	2	600	March -17

MB Power	2	600	Cod on 07.04.2016
CENTRAL SECTOR/IPP			
GMR Chhattisgarh	2	685	Cod on 01.04.2016
KSK	3	600	Mar -17
KSK	4	600	March – 2017
RKM	3	360	Jun 2017
RKM	4	360	August 2017
TRN Energy	1	300	Cod on 19.08.2016
Spectrum	1	50	COD on 25.10.2016
SKS	1	300	Expected by March 2017
SKS	2	300	Expected by March 2017
JPL STAGE-II	4	600	COD ON 12.12.2016
Spectrum Energy(ACBIL)	2	50	Cod on 09.12.2016

TCC /WRPC may like to discuss/update the status.

**ITEM No. 37 STATUS OF LETTER OF CREDIT(LC) OPENING AGAINST
DEVIATION CHARGES LIABILITY FOR 2016-17.**

The details of LC to be opened by WR entities for the FY 2016-17 and the status is given below.

SI No.	WR Entity who have to open LC	No of weeks in which DSM payable	Average payable weekly DSM (Rs in	LC Amount (Rs in lakhs)	REVISED LC AMOUNT (Rs in lakhs)	Remark
--------	-------------------------------	----------------------------------	-----------------------------------	-------------------------	---------------------------------	--------

		during FY 15-16	lakhs)			
1	CSPDCL	45	247	272		
2	MP Power Management Co. Ltd.	9	119	130		Opened the LC of Rs 129 lakhs on dtd 01.07.16
3	Goa	47	99	109		
4	D&D	41	39	43		
5	D&NH	13	6	6		
6	JPL	17	56	62		
7	LANCO	11	7	7		
8	ACBIL	40	51	56		Opened the LC of Rs 56 lakhs on dtd 11.04.16
9	RGPPL	42	29	32		
10	BALCO	43	48	53	380	LC amount revised to Rs 380lakhs, not opened.
11	CGPL UMPP MUNDRA	6	17	19		
12	ESSAR MAHAN	52	6	79.04		Opened the LC of Rs 7.02 lakhs on dtd 06.05.16
13	KSK	9	22	24		
14	VandanaVidyut Ltd	51	1	506		Revised LC amount is Rs 506 lakhs as per our letter on dtd

						29.10.14
15	EMCO	14	13	14		Opened the LC of Rs 18 lakhs on dtd 14.06.16
16	KORBA WEST POWER Co. LTD	43	53	58	932	
17	DB POWER	22	29	32		
18	JAYPEE NIGRI	13	61	67	305	
19	Essar STEEL LTD	47	74	82	137.45	Not opened.Revised on 29.12.16
20	DGEN	32	12	13		
21	GMR CHHATTISGARH	44	53	58		
22	Dhariwal Infrastructure Ltd.	50	5	6		Opened the LC of Rs 6 lakhs on dtd 20.07.16
23	RKM POWERGEN	46	5	6	10.2	Opened the LC of Rs 6 lakhs on dtd 30.05.16
24	MB POWER	30	30	33		Previous LC of Rs 36.12 lakhs valid upto 08.03.17
25	JHABUA POWER	45	11	12		Previous LC of Rs 10.74 lakhs valid upto 04.03.17
26	SKS POWER	14	1.1	1.2		
27	TRN Energy Ltd	20	3.3	3.7	20.8	

All entities who are yet to open LC are requested to open LC at the earliest.

WRPC/TCC may like to note.

ITEM No.38 STATUS OF DEVIATION CHARGES

Payable/Receivable by WR entities to WR Deviation pool account fund maintained by WRLDC as on 05th Jan'17 is enclosed at Annexure 38.

Major Default by Entities towards Deviation charges –Payable

1. BALCO- **Rs1.63crs**
2. Vandana Vidyut Ltd- **Rs 9.48crs**
3. Essar Steel - **Rs 3.89 crs**
4. GMR Chhattisgarh- **2.07 crs**
5. Jhabua Power- **Rs1.01crs**

WRPC/TCC may like to note.

ITEM No. 39 STATUS OF REACTIVE ENERGY CHARGES

Payable/Receivable by WR entities to Reactive pool account fund maintained by WRLDC as on 05th Jan'17 is enclosed at Annexure 39.

Major Default by Entities towards Reactive Energy charges –Payable

1. **MSEDCL- Rs39.82 lakh**
2. **DD -10.67 lakh**

WRPC/TCC may like to note.

ITEM No.40 STATUS OF CONGESTION CHARGES

Payable/Receivable by WR entities to Congestion charges account fund maintained by WRLDC as on 05th Jan'17 is enclosed at Annexure 40.

Major Default by Entities towards Congestion charges –Payable

1. Lanco- Rs10.87 lakhs
2. KSK- Rs6.08 lakhs

3. KWPCCL-1.31
4. DB Power-1.86 lakh
5. JP Nigrie- 2.13 lakh
6. MB Power- 1.63 lakh

WRPC/TCC may like to note.

ITEM NO.41 STATUS OF RECONCILIATION OF DEVIATION AND REC POOL ACCOUNT FOR THE PERIOD JULY'16 TO SEPT'16.

WRLDC vide letter dated 18.10.2016, has sent the signed reconciliation statement for the period **July'16 to Sept'16** to all Deviation/Congestion/REC pool members as on 1st Oct'2016 . All the details of payments/receipts of Deviation charges, Congestion charges and REC during **July'16 to Sept'16** are also uploaded on WRLDC website (www.wrldc.com/commercial/PoolReconciliation). The following members are yet to send back the signed reconciled statement to WRLDC for the period mentioned above.

DSM Pool Members		REC Pool members		Congestion Pool Members	
1	CSPDCL	1	GETCO	1	CSPDCL
2	MP Power Management Co. Ltd.	2	MPMPCL	2	MP Power Management Co. Ltd.
3	GETCO LTD.	3	CSPDCL	3	GETCO LTD.
4	MSLDC UI Settlement account	4	MSEDCL	4	MSLDC UI Settlement account
5	D&D	5	DD	5	D&D
6	D&NH	6	DNH	6	D&NH

7	JINDAL POWER LIMITED	7	GOA	7	JINDAL POWER LIMITED
8	HVDC Vin.			8	HVDC Vin.
9	HVDC Bha.			9	HVDC Bha.
10	LancoAmarkantak Power Ltd			10	LancoAmarkantak Power Ltd
11	ACBIL			11	ACBIL
12	RGPPL			12	RGPPL
13	BALCO			13	BALCO
14	CGPL UMPP MUNDRA			14	CGPL UMPP MUNDRA
16	Essar Power MP Ltd			16	Essar Power MP Ltd
17	SASAN Power Limited			17	SASAN Power Limited
18	KSK Mahanadi			18	KSK Mahanadi
19	VandanaVidyut Ltd			19	VandanaVidyut Ltd
20	GMR Warora Energy Ltd.			20	GMR Warora Energy Ltd.
21	KORBA WEST POWER Co. LTD			21	KORBA WEST POWER Co. LTD
22	D. B.Power			22	D. B.Power
23	Essar Steel India Ltd			23	Essar Steel India Ltd
24	DGEN (Torrent Energy Limited)			24	DGEN (Torrent Energy Limited)
25	Dhariwal Infrastructure Ltd.			25	GMR Chhattisgarh Energy Ltd

26	TRN Energy Ltd.	27	RKM Powergen Pvt Ltd.
27	BARC (PAO, PREFRE, Tarapur)	28	MB Power (Madhya Pradesh) Ltd.
		29	Jhabua Power Ltd
		31	TRN Energy Ltd.
		32	BARC (PAO, PREFRE, Tarapur)

As per financial audit , signed reconciled statement is required, all the above entities are requested to reconcile at their end and send the signed statement to WRLDC at the earliest.

WRPC/TCC may like to note.

**ITEM NO. 42 INTEREST CALCULATION STATEMENT OF DEVIATION POOL
ACCOUNT FOR THE PERIOD FROM 1ST JULY '16 TO 30TH SEPT'16**

The summary of interest payable/receivable for Deviation pool account as on 01.10.16 is as given below.

Constituent	Net interest payable/ receivable (in Rs.)	Interest Paid
CSPDCL	85,485	
MP Power Management Co. Ltd.	7,171	
GETCO LTD.	0	
MSLDC UI Settlement account	1,46,508	
Goa	33,639	Paid
D&D	35,703	

D&NH	7,263	
NTPC	0	
JINDAL POWER LIMITED	3,71,788	
HVDC Vin.	0	
HVDC Bha.	6,233	
LancoAmarkantak Power Ltd	1,17,678	
NSPCL	0	
ACBIL	71,87,957	Paid
RGPPL	0	
BALCO	31,54,850	
CGPL UMPP MUNDRA	1,45,020	
DCPP JSPL	80,690	Paid
Essar Power MP Ltd	36,48,011	
SASAN Power Limited	6,359	
KSK Mahanadi	-13,122	
VandanaVidyut Ltd	2,76,85,720	
GMR Warora Energy Ltd.	1,60,768	Paid
Korba West Power Co.Ltd	11,68,469	
D. B.Power	1,51,819	
JaypeeNigrie TPP	10,68,684	
Essar Steel India Ltd	3,69,764	
DGEN (Torrent Energy Limited)	-166	
GMR Chhattisgarh Energy Ltd	-33,89,346	
Dhariwal Infrastructure Ltd.	-65	

RKM POWERGRN Pvt Ltd.	4,43,520	
MB POWER LTD	11,46,706	
JHABUA POWER LTD	9,13,016	
SKS Power	12,147	
TRN Energy Ltd	2,86,508	
BARC	0	

Note: +ve indicates payable by the constituent and –ve indicates receivable by the constituent.

WRPC/TCC may like to note.

ITEM NO. 43 INTEREST CALCULATION STATEMENT OF REACTIVE CHARGE

ACCOUNT FOR THE PERIOD FROM 1ST JULY '16 TO 30TH SEPT'16

The summary of interest payable/receivable for Reactive Charge account as on 01.10.16 is as given below:-

Constituent	Net interest payable/ receivable (in Rs.)
CSPDCL	-76,645
MP Power Management Co. Ltd.	-3,56,140
GETCO LTD.	-2,45,518
MSEDCL	5,06,554
Goa	-22,725
D&D	33,820
D&NH	-2,527

WRPC/TCC may like to note.

ITEM NO. 44 WORKINGARRANGEMENT FOR COMMERCIAL SETTLEMENT OF SCHEDULING OF ISGS DURING LOW DEMAND PERIOD TO MEET THE TECHNICAL MINIMUM REQUIREMENT OF ISGS.

Chief Engineer(SLDC Gujarat) informed that as per the 4th amendment of IEGC, 2010 notified on 6th April 2016, NLDC shall prepare a Detailed Operating Procedure in consultation with the generators and beneficiaries at RPC forums within 2 months' time and submit to the Commission for approval. The Detailed Operating Procedure shall contain the role of different agencies, data requirements, procedure for taking the units under reserve shut down and the methodology for identifying the generating stations or units thereof to be backed down upto the technical minimum in specific Grid conditions such as low system demand, Regulation of Power Supply and incidence of high renewables etc., based on merit order stacking.

In this regard, NLDC has already compiled the comments of all regions and sent it to the Hon'ble Central Commission. The approval of Hon'ble CERC in this regard is awaited.

In other words, provisions of sub-Regulation No. 6.3 B of IEGC (4th Amendment) – Technical minimum schedule for operation of central generating stations and ISGS is yet to be implemented in our region.

In light of the above, SLDC Gujarat has already raised the concerns in the matter. In many forums/meetings, it is decided to ensure injection schedule of the generating stations at least up to the technical minimum level. Hence, ideally every constituent has to ensure its minimum requisition according to its share in the generating station X technical minimum of the generating station (of 'on bar' machines). However, in case of requirement of other beneficiaries in the same generating station for more than its technical minimum share, remaining beneficiary(ies) can requisite lower than its technical minimum share accordingly.

NTPC/WRLDC coordinates for scheduling and requirement up to technical minimum. Whenever, need arises (particularly, during off peak hours when requisition of all the constituents are very less/NIL) Gujarat always support and requisite the power up to its technical minimum share (even more than technical minimum in many cases). Similarly, other constituents are required to support/requisition to ensure the technical minimum of the generating station.

SLDC Gujarat has been regularly requesting NTPC/WRLDC not to stress upon consideration of more than technical minimum allocation to Gujarat. It is opined that the states that requisite during the day time should requisite technical minimum during off peak hours for uniform/homogeneous interstate power pool allocation and its utilization. This will avoid serious concern of NTPC and subsequent plea to Gujarat for additional allocation during off peak hours with regular request.

Further, due to any of the reason, if it is not possible for any constituent to requisite up to the technical minimum and other beneficiary (ies) is able to take/accommodate that portion in their drawl schedule to support the grid and to ensure technical minimum requirement of the generator then such quantum of URS is to be considered in a different way than the regular/normal (on need basis) transfer of URS.

As per the existing agreed mechanism, constitutes availing URS should pay fixed and variable cost of that quantum of URS. However, in case of transfer of URS to support the technical minimum requirement of the particular generator, it is proposed that constitutes (availing URS) should only pay variable charges. The liability of fixed charges will remain on original beneficiary (ies). This is a WIN-WIN situation for all the entities.

In view of the above, it is requested to consider and approve above working arrangement till the detailed procedure as mentioned above is notified by Hon'ble CERC.

WRPC/TCC may like to note.

ITEM No. 45: ANY OTHER ITEM

ITEM No. 46: DATE AND VENUE OF NEXT WRPC MEETING



भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति

Western Regional Power Committee

एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093

F-3, MIDC Area, Andheri (East), Mumbai - 400 093

दूरभाष Phone: 022-2835 3222, 2820 01 94/95/96

Website: www.wrpc.gov.in



आई एस / आई एस ओ : 9001-
2000

IS/ISO: 9001-
2008

फैक्स Fax: 022-2837 0193

E-mail: comm1-wrpc@nic.in

No. WRPC/Comml-I/3/Corres/2016/ 1737

Date: 11.11.2016

To,

Joint General Manager,
REMCL,
Corporate Office,
Rites Bhawan, No. 1,
Sector-29,
Gurgaon-122001

**Subject: Standby arrangement of Power supply for Indian Railways in the States of
Maharashtra, Gujarat & Madhya Pradesh-reg.**

Sir,

This has reference to the discussions in the 32nd TCC/WRPC held on 23rd/24th August 2016 at Pune, regarding alternate/standby arrangement of Power to Indian Railways in the event of loss of generation at RGPPL.

In the 32nd WRPC meeting States have raised concerns over drawl of power by Indian Railways from the State grids against no schedule in the event of loss of generation at RGPPL. Such incidents have happened in the past, where somehow the states managed to feed Railway loads causing technical difficulty and commercial complications to states. Being emergency nature of loads, there is a need of standby arrangement to be done by IR with State Discoms so that Railway Loads are fed (at the cost of Diccom Loads) under such contingencies. Further, necessary standby arrangement is not made by Indian railways, they would be compelled to stop the power drawl by Indian railways in the event of loss of generation at RGPPL or Low generation at RGPPL.

In view of the decision in the 32nd WRPC meeting, you are requested to make standby arrangements of power supply for Indian Railways installations in the above mentioned States at the earliest.

Copy of extracts of 32nd MoM of WRPC is enclosed.

Yours faithfully,

(S.D. Taksande)

Member Secretary

M/C

Copy to:

1. Group General Manager, SCOPE Minar, Laxmi Nagar, Delhi - 110092
2. Chief Engineer (LD), State Load Despatch Centre, MSETCL, New Mumbai - 400 708.
Fax: 022-27601769
3. Chief Engineer (LD), M P Power Transmission Company Ltd., SLDC, Jabalpur 482 008.
Fax: 0761-2661884

TCC:

MS WRPC informed the above agenda position.

CE, SLDC GETCO informed that IR is a deemed DISCOM and have tied up power with only RGPPL. There is no alternate arrangement of power supply to IR in case of tripping or low generation at RGPPL. Under such cases IR is drawing power under DSM. Without a tie-up or standby arrangement, drawl of power from the grid is not correct. IR has to enter a tie up, preferably with Discoms of state for stand-up power, in case of tripping of RGPPL. Other SLDCs agreed to the observations of Gujarat.

AGM(Comml), RGPPL informed that railways representative will attend the WRPC meeting and will share its point of view on the above. He informed that the chances of tripping of units is reduced as they are operating two blocks instead of only one.

TCC recommended that IR should have a standby arrangement preferably with State Discoms as the possibility of unit tripping is always there and standby arrangement is must. This option is better than tying standby with exchange or any other generator will not be suitable. Alternatively, RGPPL can sign up with the DISCOMs for such standby arrangement. It was also decided to bring the above points to the knowledge of Railways representative who was to attend the WRPC meeting the following day.

WRPC:

MS WRPC informed the agenda position and TCC discussions.

- (i) Dy CEE, HO, Western Railways who was Indian Railways (IR) representative informed that as per their agreement with RGPPL, in the case of tripping of units, RGPPL shall have to procure the power, and any differential rates in this power shall be borne by RGPPL. Further IR is also tying up with Power Exchange to have power in case the RGPPL units trip. During the time the RGPPL units trip, the drawl of IR is very small compared to the grid, and the exchange is accounted under DSM.
- (ii) Chairman WRPC informed that IR is a 24 hour load. Further it is has recently acquired a DISCOM status. He stated that IR has to enter a standby

arrangement with the state Discoms to cater to the contingency of RGPPL tripping. To clarify, he cited that Mumbai is an example of a 24 hour load. Here the Discoms of Tata and Reliance have Standby arrangement with Maharashtra Discom, which ensures that in the event of tripping or shortfall at Mumbai due to loss of generation by Tata or Reliance, Mumbai loads are fed by Maha Discom in that period. Similar Standing Arrangement has to be entered by IR with the State Discoms and that is irrespective of their RGPPL tie-up or power exchange or any other tie-up. If such an arrangement does not exist, and the source of power for Railways such as RGPPL is not available, then as per the law the SLDCs are supposed to disconnect the Railway loads. That will lead to a lot of inconvenience to IR and embarrassing situation for all of us. However, if IR is not willing to enter such a standby arrangement, then the next time RGPPL trips, the SLDCs shall instruct the IR loads to be cut off accordingly. He asked IR representative to take up the issue seriously with their management and immediately enter into a standby arrangement.

- (iii) WRPC also suggested that Member Secretary, WRPC on behalf of WRPC shall also write a letter to Min of Railways informing the position.
- (iv) MD, GETCO enquired about who is to disconnect the IR in the event of tripping of RGPPL and no standby arrangement made by them in spite of so much persuasion. It was clarified by WRLDC that IR is an embedded customer of the states. The IR schedule at state boundary is communicated by WRLDC. Any control of an embedded customer lies in the jurisdiction of the respective SLDCs. Hence the SLDCs have to take the action to curtail the load of IR.
- (v) MD, GETCO suggested that all DISCOMs should file a petition with the CERC on this issue as so far no response is coming from IR in spite of so much of persuasion.
- (vi) Chairman WRPC once again asked IR representative to immediately proceed to make a standby arrangement with states Discoms, so that IR loads need not be tripped when the source of power for IR (either RGPPL or power

exchange etc) is not available. **If IR fails to enter the standby arrangement and the event of such loss of power takes place, then IR loads shall have to be tripped by the law, and IR is responsible for the same.** So far in the past, somehow the SLDCs have not tripped the IR loads on the past few occasions of RGPPL shortfall or tripping and the matter was pleaded with IR to make standby arrangements. Now the SLDCs cannot continue this practice and they will be forced to cut of the IR loads in such cases. The matter is very serious and IR representative was advised to take up with management on top priority.

WRPC agreed as above.

ITEM NO. 14: STATUS OF URTDSM

Agenda Background:

CE, SLDC, Gujarat vide their letter SLDC/SCADA/URTDSM/4898 dated 19.07.2016 (copy enclosed at Annexure- 14) has requested to convey detailed status of URTDSM covering schedule of erection and commissioning, FAT, SAT, status of analytics development by IIT-Mumbai, future plan of the project, time line of the project and status of Phase-II.. Further, it has been requested that a detailed presentation may be given by PGCIL.

TCC:

MS WRPC requested the progress of the project be informed by PGCIL.

ED(AM),CC, PGCIL informed that in Phase-I 305 PMUs are to be installed by March 17. Out of these 54 PMU have been installed. IIT-B has developed two analytics. The CERC have not cleared the phase -II. After completion of Phase-I CERC may give a go ahead for phase-II and therefore PGCIL cannot take up phase-II till CERC gives clearance for the same.



Headquarter Office,
Churchgate, Mumbai-20

No. EL/84/17/1(RGPPL) Vol.V

Dt.: 07.12.16

Member Secretary
Western Regional Power Committee
F-3,MIDC Area, Andheri (East)
Mumbai-400 093.

प. क्ष. वि. स. मुंबई /WRPC
आवक संख्या /Inward No. 2179
दिनांक /Date: 15/12/16

Sub: Regarding Alternate arrangement of power for Indian Railway Gujarat (IR_Guj).

Ref.: WRPCC, Mumbai letter No. WRPC/32nd WRPC Mtg./AS/2016 Dt. 16.08.2016

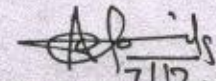
As per MOM of 32nd WRPC meeting held at Pune on dt. 24.8.2016, under agenda No. 13, it has been advised that Railway shall enter into standby agreement with the State DISCOMs to cater for the contingency of RGPPL supply tripping.

It is submitted that Railway is a deemed distribution licensee as per third proviso of section 14 of Electricity Act, 2003. Consequent upon the CRC ruling dt. 05.11.15, Railway has started availing power through open access as per provisions in EA – 2003 and regulations this regard. WR is availing power supply in Gujarat state from RGPPL through interstate open access following proper procedure. It is mentioned that power from RGPPL is being availed as per allotment from MoP under PSDF support scheme for standard gas based power plants. Under this scheme M/s. RGPPL enjoys the benefit of PSDF support, additional PSDF support, cheaper RLNG and other benefits. Railway is procuring power at the rate as decided based on the tendering process of MoP which has been won by M/s. RGPPL. A Power Purchase Agreement has been signed between WR and RGPPL based on guidelines given by MoP for procurement of power from stranded gas based power plants under the scheme. As per policy of MoP in this regard, all stack holders shall support the gas based power plants as decided.

As per Para 6.2.2 of above PPA, RGPPL will arrange to supply power to Railway from alternative sources if it is not able to supply the power from its own plant. The RGPPL is connected to STU network as a interstate generating station (ISGS). As such, it is responsible to dispose it's liabilities as laid down in Indian Electricity Grid Code.

In view of above WRPC is requested to review the matter and impress upon M/s. RGPPL to fulfill its responsibility to arrange alternate supply to Railways in case of tripping of it's plant.

This is for your kind information please.


(G.C. Pauhikar)
CEDE

For Chief Electrical Engineer



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II
सेवा भवन, रा. कृ.पुरम, नयी दिल्ली -110066
Sewa Bhawan, R. K. Puram, New Delhi-110066



[ISO: 9001:2008]

No. CEA/PSPA-II/51/4(40th SCPSPSR)- 2016/

Date: 22-Nov-2016

To

1. **The Member Secretary,**
Southern Regional Power Committee,
29, Race Course Cross Road,
Bangalore 560 009.
2. **The Member Secretary,**
Western Regional Power Committee
MIDC area, Marol, Andheri East,
Mumbai 400 093

Subject: Enhancement in TTC of Southern Region by increasing the loading limit on Raichur – Solapur 765kV 2xS/c & Solapur – Aurangabad 765kV D/c lines from 2500 MW to 2750 MW(under N-1 condition).

Sir,

The enhancement of Total Transfer Capability(TTC) of Southern Region was discussed during the 40th Standing Committee Meeting of SR held on 19.11.2016, wherein it was agreed that loading limit on Raichur – Solapur 765kV 2xS/c can be enhanced from 2500 MW to 2750 MW(under N-1 condition). In this regard studies were carried out with CTU and study results are enclosed.

The studies indicate that the TTC of NEW Grid to SR grid can be enhanced by 400 MW ,i.e from 6650 to 7050 MW by increasing loading limit of Raichur – Solapur 765kV 2xS/c lines and Solapur – Aurangabad 765kV D/c lines to 2750 MW under n-1 contingency. From the load flow studies, it is observed that all line loadings are generally in order both under base case and contingency.

It is requested that RPCs may study the proposal of enhancing the limit and accordingly the associated SPS designed for contingency of Raichur-Sholapur and Aurangabad-Sholapur lines may be reviewed so as to facilitate enhancement of TTC of NEW to SR Grid by 400 MW, at the earliest.

This issue with the approval of Member(PS), CEA.

Thanking you

Yours faithfully,

Chief Engineer(PSPA-II)

Copy to: GM(WRLDC)/ GM(SRLDC)

Study for enhancement of Total Transfer Capability of Southern Region

1.0 The enhancement of Total Transfer Capability(TTC) of Southern Region was discussed during the 40th Standing Committee Meeting of SR held on 19.11.2016, wherein it was agreed to enhance the loading limit on Raichur – Solapur 765kV 2xS/c lines from 2500 MW to 2750 MW(under N-1 condition). In this regard studies have been carried out by CTU and study results are described as below :

2.0 Power Flow & TTC Enhancement

2.1 The studies were carried out for present time frame i.e Dec'16 with load generation balance of “All India” and “Southern Region” is enclosed at **Annexure-A&B**.

2.2 With base case import of 6650 MW to SR, the power flow on each circuit of Raichur – Solapur 765 kV line is about 1330 MW and on each circuit of Narendra– Kolhapur line is about 175 MW and no constraint is envisaged regarding loading on transmission lines. Following Simulation results are enclosed at **Exhibit-I**.

Exhibit-I(a)	Base Case with 6650 MW import
--------------	-------------------------------

2.3 In order to determine the power transfer capacity from NEW Grid to SR with revised loading limit Transmission Interchange Limit Calculation(TLTG) functionality of PSS/E was used with increased loading limit of Raichur – Solapur 765kV 2xS/c and Solapur-Aurangabad 765 kV D/c lines to 2750 MW. The results of TLTG is given at **Annexure-C**

2.4 With increase in loading limit on Raichur – Solapur 765kV 2xS/c and Solapur-Aurangabad 765 kV D/c lines from 2500 MW to 2750 MW(under N-1 condition) the enhancement of TTC of about 400 MW has been observed with limiting constraint as Raichur-Solapur 765 kV S/c line.

3.0 Further, simulation results with import of 7050 MW, power flow on each circuit of Raichur – Solapur 765 kV line is about 1495 MW and on each circuit of Narendra– Kolhapur line is about 215 MW. Even under contingency of one

circuit of Raichur – Solapur 765 kV line all line loadings are generally in order. Following Simulation results are enclosed at Exhibit-II(a) to II(c).

Exhibit-I(a)	Base Case with 7050 MW import
Exhibit-I(b)	Base Case with 7050 MW import & N-1 of Raichur-Solapur 765 kV S/c line
Exhibit-I(c)	Base Case with 7050 MW import & outage of Kudankulam Unit-I

4.0 Stability Study

Dynamic simulation study has also been carried out to study stability of the system with 7050 MW import to SR for following cases

1. Fault near Raichur followed by opening of one circuit of Raichur– Solapur 765 kV S/c line
2. Outage of one unit of Kudankulam
3. Fault near Solapur followed by opening of one circuit of Solapur – Aurangabad 765 kV D/c line

The plots for power flow on all inter regional AC lines of Southern Region, Solapur-Aurangabad 765 kV D/c line & plots for rotor angle for machines at Raichur are given in **Exhibit-III**. From the study it has been observed that oscillations of machines gets stabilized within 10 to 15 seconds.

ANNEXURE-A

ALL INDIA LOAD GENERATION BALANCE REPORT

DESIRED X-- AREA --X INT	FROM -----AT AREA BUSES-----				TO		IN MW/MVAR		-NET INTERCHANGE-			
	GENE-	FROM IND	TO IND	TO	TO BUS	GNE BUS	TO LINE	FROM	TO	TO TIE	TO TIES	
	RATION	GENERATN	MOTORS	LOAD	SHUNT	DEVICES	SHUNT	CHARGING	LOSSES	LINES	+ LOADS	NET
1	38652.6	0.0	0.0	47990.0	0.0	0.0	0.0	0.0	1576.5	-10913.8	-10913.8	-
12360.0												
NORTH	-7651.8	0.0	0.0	11622.2	205.6	0.0	14351.3	54585.1	19558.0	1196.3	1196.3	
2	2492.7	0.0	0.0	2656.5	0.0	0.0	0.0	0.0	80.6	-244.4	-244.4	
500.0												
NRTHEAST	-451.1	0.0	0.0	640.3	1158.7	0.0	1361.5	4058.3	410.4	36.3	36.3	
3	63004.4	0.0	0.0	49379.3	0.0	0.0	0.0	0.0	2035.8	11589.2	11589.2	
0.0												
WEST	-960.8	0.0	0.0	12033.0	1421.4	0.0	34992.2	78944.7	28840.5	696.8	696.8	
4	25942.1	0.0	0.0	19231.3	0.0	0.0	0.0	0.0	620.2	6090.6	6024.3	
26000.0												
EAST	-1955.6	0.0	0.0	4685.8	2109.3	0.0	5138.3	19476.7	6958.7	-1370.9	-1386.9	
5	35486.3	0.0	0.0	40364.0	0.0	0.0	0.0	0.0	1785.5	-6663.1	-6663.1	-
6200.0												
SOUTH	1700.8	0.0	0.0	15589.6	-4971.7	0.0	7376.4	31577.6	15641.9	-357.8	-357.8	
6	710.0	0.0	0.0	66.3	0.0	0.0	0.0	0.0	0.6	643.2	709.4	
0.0												
BHUTAN	-157.1	0.0	0.0	16.0	0.0	0.0	0.0	7.5	54.3	-219.9	-203.8	
7	0.0	0.0	0.0	500.0	0.0	0.0	0.0	0.0	1.6	-501.6	-501.6	
0.0												
BANGLADESH	0.0	0.0	0.0	50.0	0.0	0.0	0.0	86.6	17.4	19.1	19.1	
COLUMN	166288.1	0.0	0.0	160187.3	0.0	0.0	0.0	0.0	6100.8	0.0	0.0	
7940.0												
TOTALS	-9475.6	0.0	0.0	44636.9	-76.7	0.0	63219.8	188736.6	71481.2	0.0	0.0	

ANNEXURE-B

SOUTHERN REGION LOAD GENERATION BALANCE REPORT

X-- ZONE --X	FROM -----AT ZONE BUSES-----				TO		IN MW/MVAR		-NET INTERCHANGE-			
	GENE-	FROM IND	TO IND	TO	TO BUS	GNE BUS	TO LINE	FROM	TO	TO TIE	TO TIES	
	RATION	GENERATN	MOTORS	LOAD	SHUNT	DEVICES	SHUNT	CHARGING	LOSSES	LINES	+ LOADS	
50	8409.8	0.0	0.0	6856.9	0.0	0.0	0.0	0.0	311.8	1241.1	1241.1	
ANDHRA	158.1	0.0	0.0	2277.9	771.3	0.0	3253.6	9996.7	2301.6	1550.3	1550.3	
51	6724.9	0.0	0.0	6506.5	0.0	0.0	0.0	0.0	357.2	-138.8	-138.8	
TELANGANA	-698.2	0.0	0.0	2771.8	-1345.0	0.0	736.2	4619.0	2458.1	-700.2	-700.2	
52	6148.5	0.0	0.0	8725.4	0.0	0.0	0.0	0.0	482.5	-3059.5	-3059.5	
KARNATKA	73.1	0.0	0.0	3558.4	-1916.3	0.0	1781.0	7493.5	4935.3	-791.8	-791.8	
53	1527.0	0.0	0.0	3703.7	0.0	0.0	0.0	0.0	122.1	-2298.8	-2298.8	
KERALA	466.2	0.0	0.0	1219.6	-698.0	0.0	0.0	1216.9	818.0	343.6	343.6	
54	12676.0	0.0	0.0	14214.1	0.0	0.0	0.0	0.0	498.6	-2036.6	-2036.6	
TAMILNAD	1701.6	0.0	0.0	5644.4	-1749.9	0.0	1605.6	8239.9	5019.8	-578.5	-578.5	
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CENTRAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
57	0.0	0.0	0.0	357.4	0.0	0.0	0.0	0.0	13.3	-370.6	-370.6	
PONDY	0.0	0.0	0.0	117.6	-33.8	0.0	0.0	11.7	109.2	-181.2	-181.2	
COLUMN	35486.3	0.0	0.0	40364.0	0.0	0.0	0.0	0.0	1785.5	-6663.1	-6663.1	
TOTALS	1700.8	0.0	0.0	15589.6	-4971.7	0.0	7376.4	31577.6	15641.9	-357.8	-357.8	

TLTG Results

INCR.										PRE- RATING									
TRANS <----- LIMITING ELEMENT ----->										SHIFT BAS/CNT									
CAPAB <----- F R O M -----> <----- T O ----->CKT										DISTR. FACTOR MW A/B <----- CONTINGENCY DESCRIPTION ----->									
-405.3	378040	SHOLAPUR	765.00	528003	RAIC800	765.00	2	-0.73949	2450.3	2750.0	-----								
											OPEN	378040	[SHOLAPUR	765.00]	TO	528003	[RAIC800	765.00]	CKT 1
-405.3	378040	SHOLAPUR	765.00	528003	RAIC800	765.00	1	-0.73949	2450.3	2750.0	-----								
											OPEN	378040	[SHOLAPUR	765.00]	TO	528003	[RAIC800	765.00]	CKT 2
-411.9	378040	SHOLAPUR	765.00	378043	AURANGABD-PG	765.00	1	0.38895	-2589.8	2750.0	-----								
											OPEN	378040	[SHOLAPUR	765.00]	TO	378043	[AURANGABD-PG	765.00]	CKT 2
-411.9	378040	SHOLAPUR	765.00	378043	AURANGABD-PG	765.00	2	0.38895	-2589.8	2750.0	-----								
											OPEN	378040	[SHOLAPUR	765.00]	TO	378043	[AURANGABD-PG	765.00]	CKT 1

SYSTEM STUDIES FOR ENHANCEMENT IN TTC OF SOUTHERN REGION

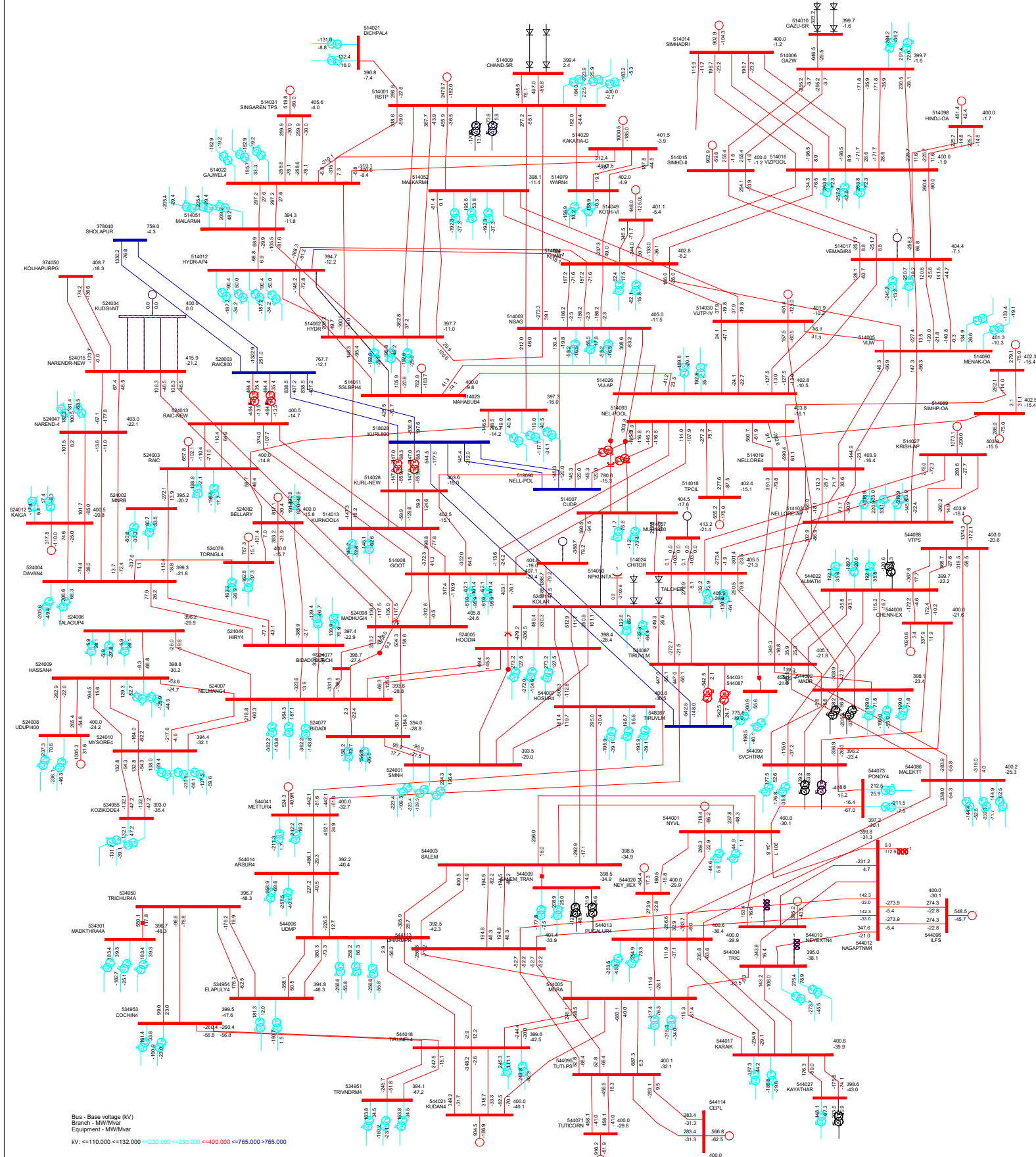


Exhibit-II(a) : Base case with 7050 MW SR Import

SYSTEM STUDIES FOR ENHANCEMENT IN TTC OF SOUTHERN REGION

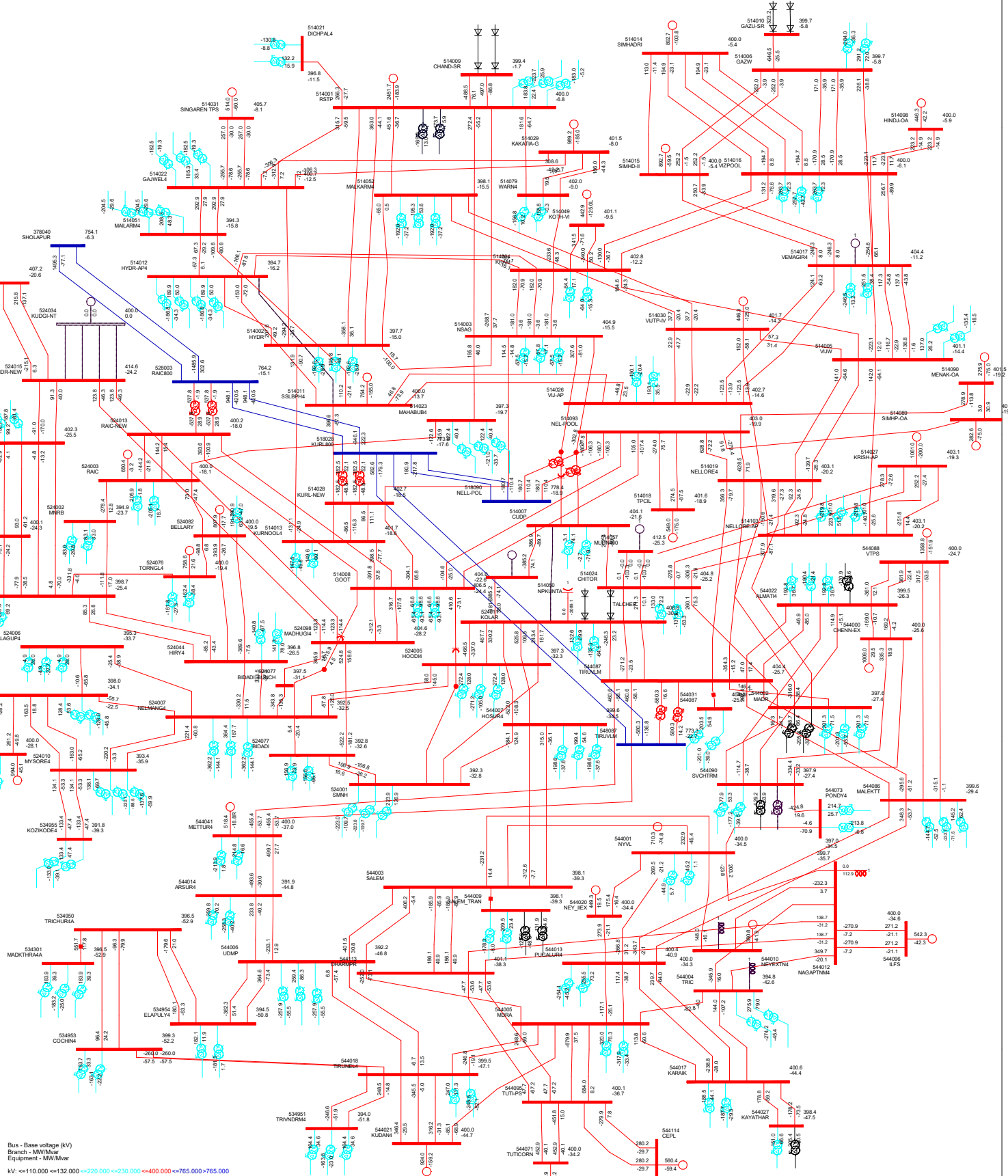


Exhibit-II(b) : Base case with 7050 MW SR Import & N-1 of Raichur-Solapur 765kV S/c line

SYSTEM STUDIES FOR ENHANCEMENT IN TTC OF SOUTHERN REGION

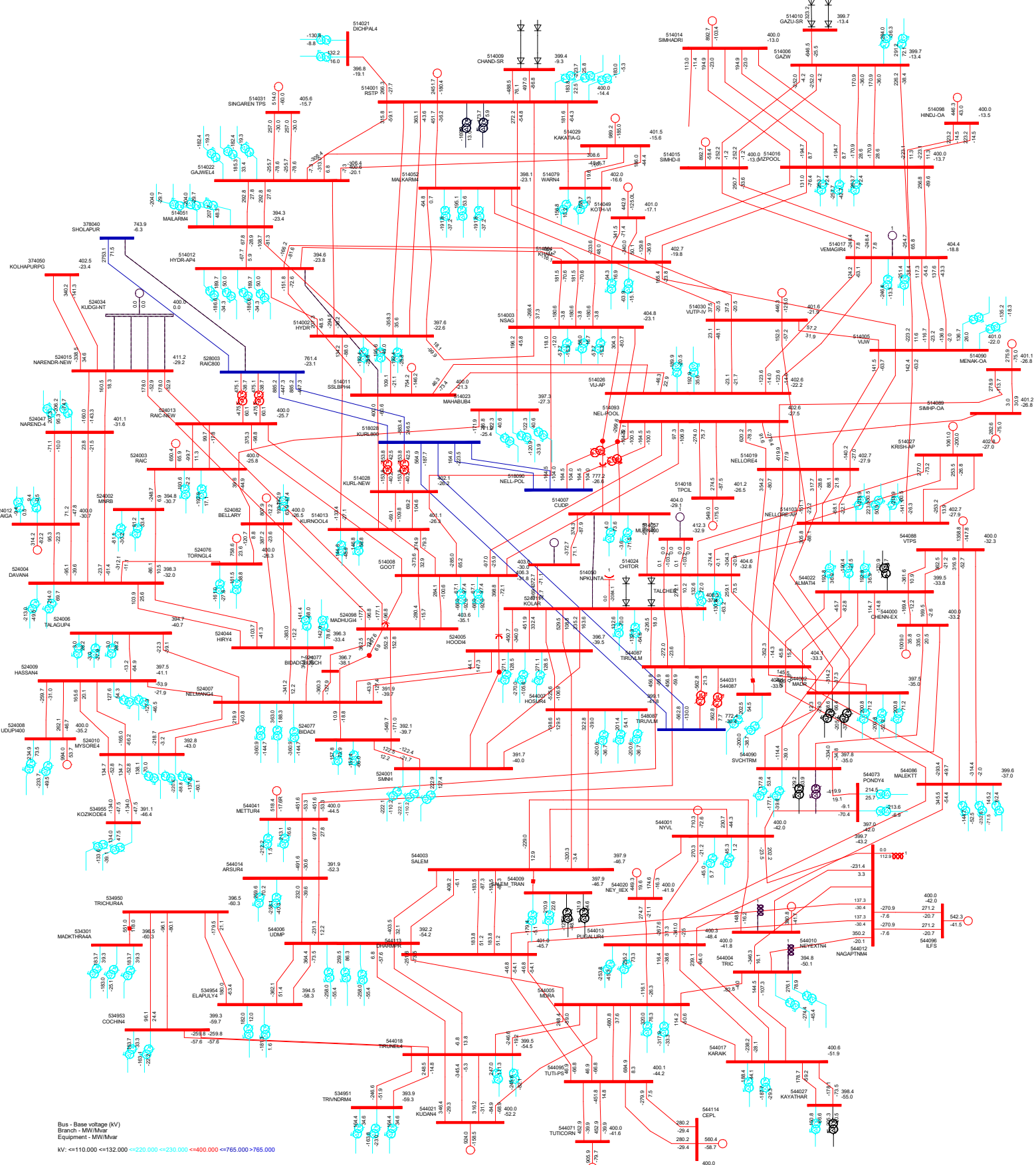
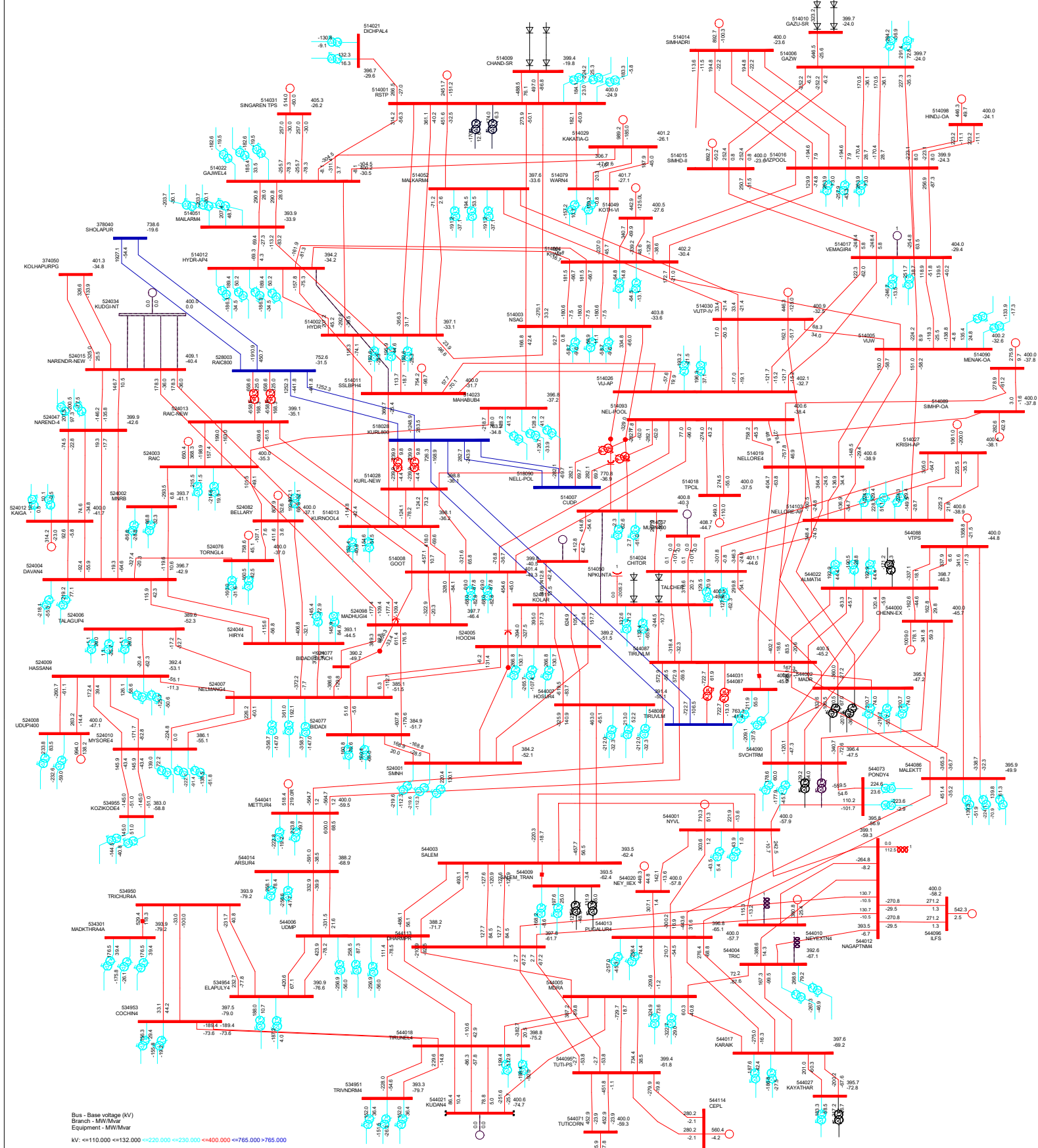
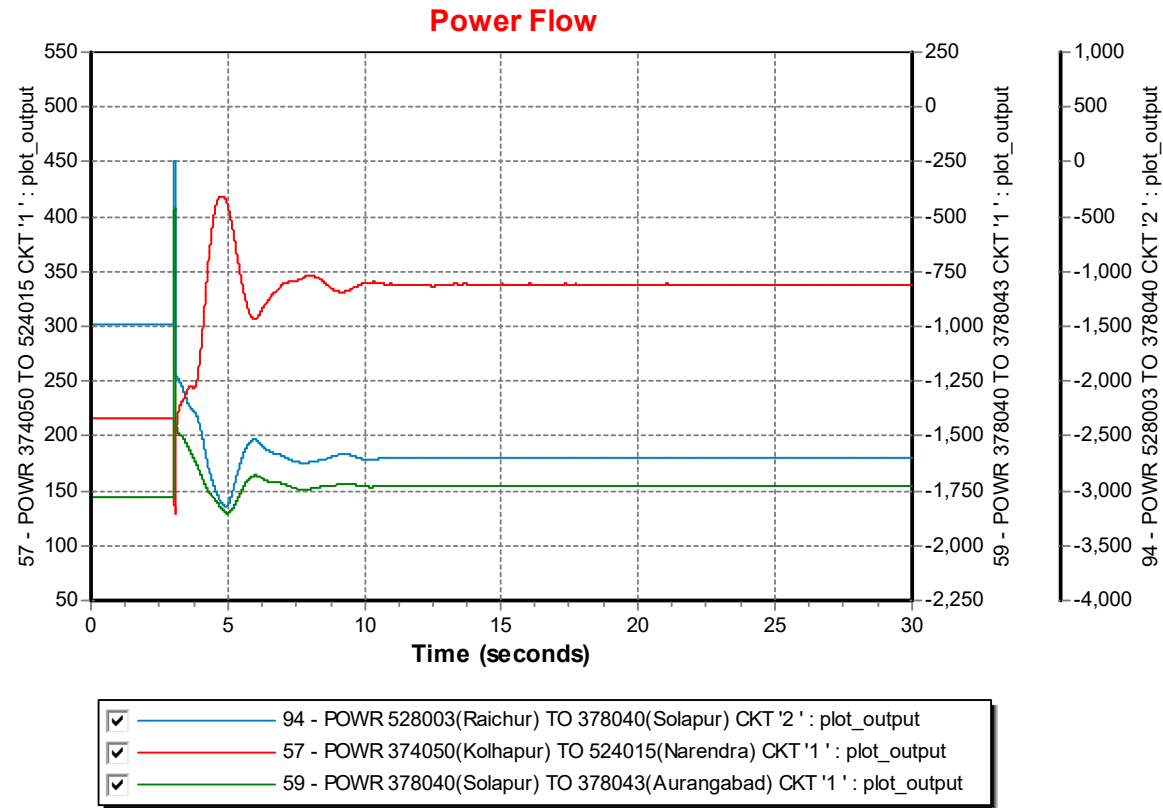


Exhibit-II(c) : Base case with 7050 MW SR Import & outage of Kudankulam unit-I

SYSTEM STUDIES FOR ENHANCEMENT IN TTC OF SOUTHERN REGION

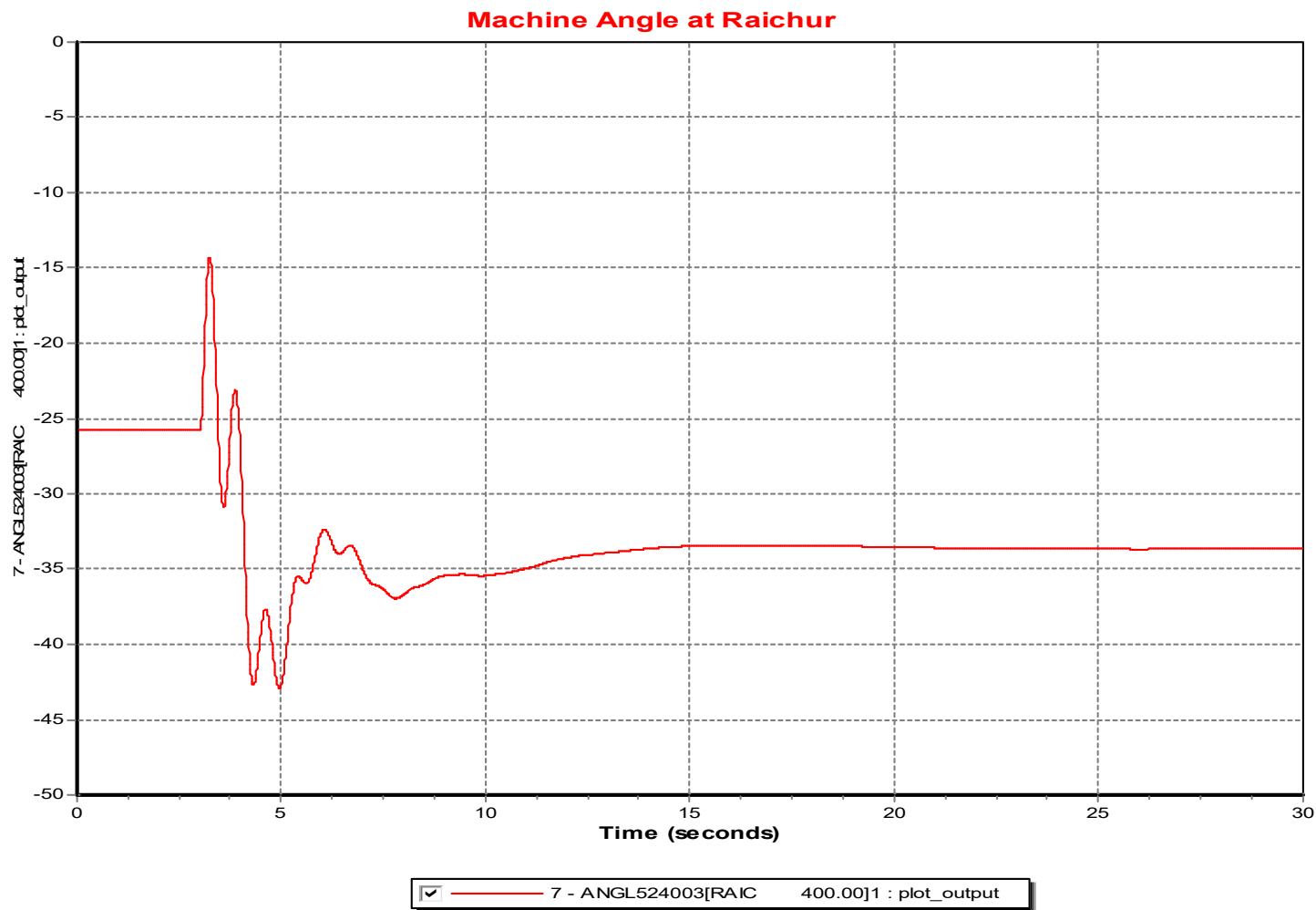


Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



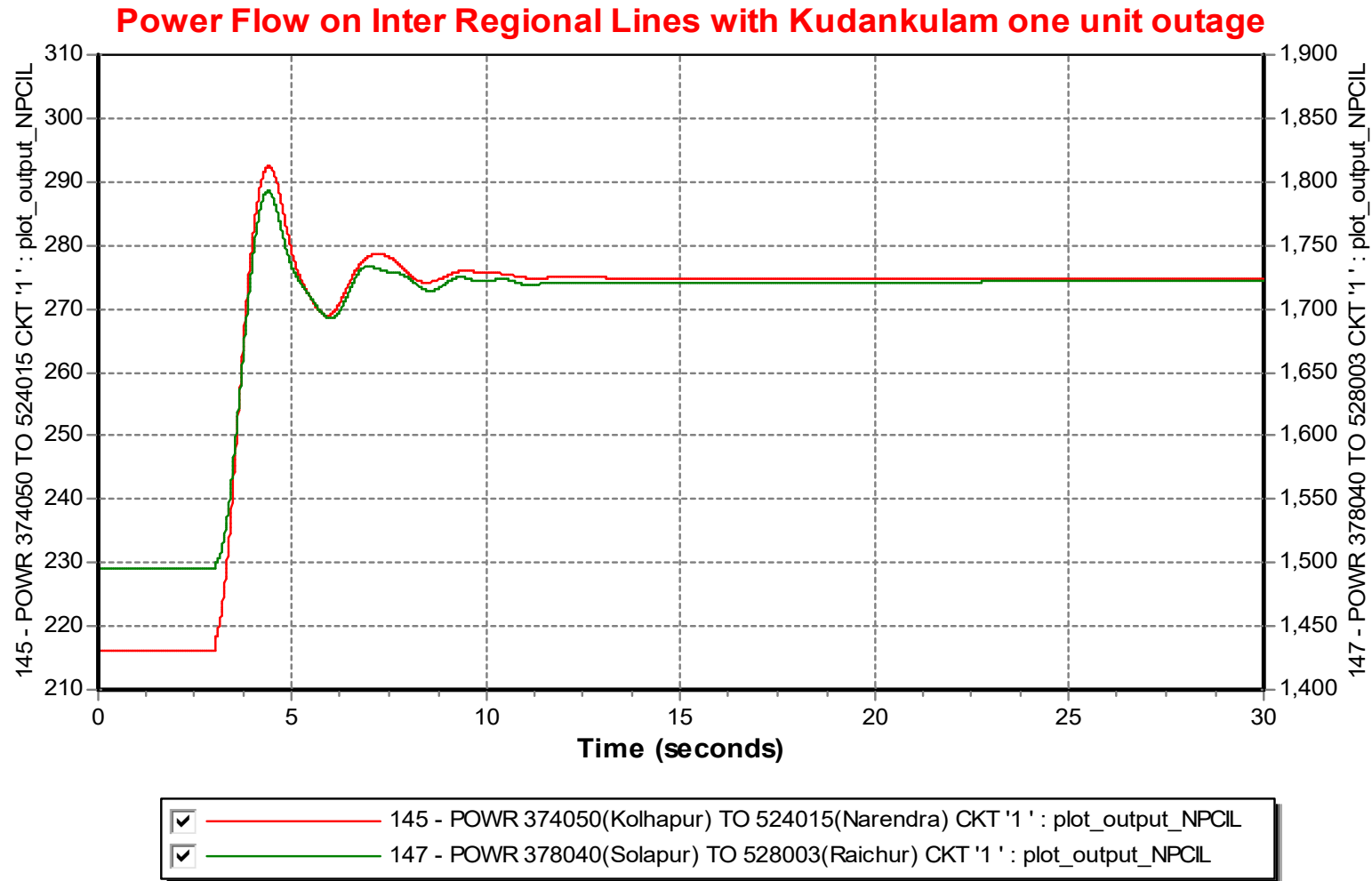
Power Flow on Inter regional AC lines & Aurangabad – Solapur 765 kV line with outage of one circuit of Raichur-Solapur
Subsequent to Fault near Raichur for 100 ms

Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



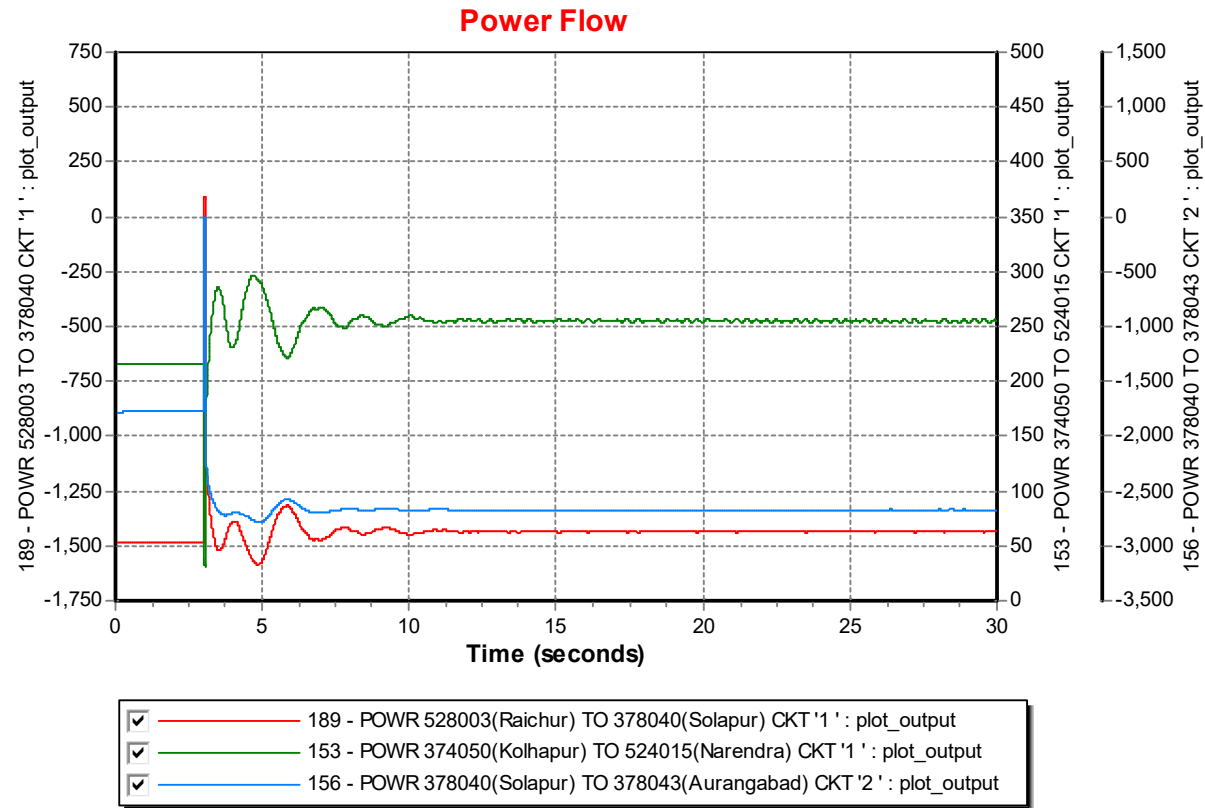
Machine Angle at Raichur with outage of one circuit of Raichur-Solapur Subsequent to Fault near Raichur for 100 ms

Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



Power Flow on Inter regional AC lines with outage of one circuit of one unit of Kudankulam

Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



Power Flow on Inter regional AC lines & Aurangabad – Solapur 765 kV line with outage of one circuit of Solapur-
Aurangabad Subsequent to Fault near Solapur for 100 ms



भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति

Western Regional Power Committee

एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 93
F-3, MIDC Area, Andheri (East), Mumbai -93

दूरभाष Phone: 022- 28221636; 28200195; 28200194; फैक्स Fax : 022 -28370193

Website : www.wrpc.gov.in

E-mail : ms-wrpc@nic.in



आई एस ओ : 9001 : 2008
ISO : 9001:2008

NO.WRPC/OPN-TTC of SR/2016/

1767

Date: 23.11.2016.

To,

1. Chief Engineer (SP&PA),CEA, Sewa Bhavan, R.K.Puram, New Delhi-110066.
2. General Manager, POSOCO,WRLDC,Mumbai.
3. Chief Executive Officer,NLDC, 9, Qutab Industrial Area,Katwaria Sarai
New Delhi-110016.

Subject:- Enhancement in TTC of Southern Region by increasing the loading limit on Raichur-Solapur 765 kV 2xS/c & Solapur-Aurangabad 765 kV D/c lines from 2500 MW to 2750 MW (under N-1 condition).

Sir,

Please find enclosed herewith letter No.CEA/PSPA-II/51/4(40th SCPSPSR)-2016/ dated 22.11.2016 from Chief Engineer (PSPA-II),CEA, New Delhi on the above mentioned subject. The exhibits of this letter are being sent on respective E-mail IDs. The proposal of enhancement in TTC of NEW grid to SR by 400 MW i.e. from 6650 MW to 7050 MW by increasing loading limit on Raichur-Solapur 765 kV 2xS/c & Solapur-Aurangabad 765 kV D/c lines from 2500 MW to 2750 MW under N-1 contingency needs to be studied by Western Region in view of the various SPS already existing as formulated by NLDC. Therefore, your comments / suggestions after studying the proposal may be forwarded to us to facilitate enhancement in TTC of NEW grid to SR at the earliest.

Thanking you,

Yours faithfully,

Encl:-As above.


(S.D.TAKSANDE)
Member Secretary.

Copy to:- 1. Chief Engineer (PSPA-II), CEA, New Delhi.

2. Chief Engineer (GM), CEA, New Delhi.



Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II
सेवा भवन, रा. क. पुरम, नयी दिल्ली -110066
Sewa Bhawan, R. K. Puram, New Delhi-110066



[ISO: 9001:2008]

No. CEA/PSPA-II/51/4(40th SCPSPSR)-2016/

Date: 22-Nov-2016

To

1. The Member Secretary,
Southern Regional Power Committee,
29, Race Course Cross Road,
Bangalore 560 009.
2. The Member Secretary,
Western Regional Power Committee
MIDC area, Marol, Andheri East,
Mumbai 400 093

Subject: Enhancement in TTC of Southern Region by increasing the loading limit on Raichur – Solapur 765kV 2xS/c & Solapur – Aurangabad 765kV D/c lines from 2500 MW to 2750 MW(under N-1 condition).

SE (C)

pl include in
490th agenda

[Signature]
23-11-2016

Sir,

The enhancement of Total Transfer Capability(TTC) of Southern Region was discussed during the 40th Standing Committee Meeting of SR held on 19.11.2016, wherein it was agreed that loading limit on Raichur – Solapur 765kV 2xS/c can be enhanced from 2500 MW to 2750 MW(under N-1 condition). In this regard studies were carried out with CTU and study results are enclosed.

The studies indicate that the TTC of NEW Grid to SR grid can be enhanced by 400 MW, i.e from 6650 to 7050 MW by increasing loading limit of Raichur – Solapur 765kV 2xS/c lines and Solapur – Aurangabad 765kV D/c lines to 2750 MW under n-1 contingency. From the load flow studies, it is observed that all line loadings are generally in order both under base case and contingency.

It is requested that RPCs may study the proposal of enhancing the limit and accordingly the associated SPS designed for contingency of Raichur-Sholapur and Aurangabad-Sholapur lines may be reviewed so as to facilitate enhancement of TTC of NEW to SR Grid by 400 MW, at the earliest.

This issue with the approval of Member(PS), CEA.

Thanking you

Yours faithfully,

[Signature]
22/11/2016
Chief Engineer(PSPA-II)

Copy to: GM(WRLDC)/ GM(SRLDC)

Power System Operation Corporation Limited
National Load Despatch Centre
New Delhi

28th Nov 2016

Subject: Enhancement in Total Transfer Capability (TTC) of Southern Region by increasing the loading limit on Sholapur-Raichur 765kV 2xS/c & Sholapur-Aurangabad 765kV D/c lines from 2500 MW to 2750 MW (under N-1) condition

Ref: CEA Letter No. CEA/PSPA-II/514/51/4(40th SCPSPSR)-2016, dated: 22nd November 2016 addressed to MS WRPC/SRPC, GM WRLDC/SRLDC and received at NLDC through email

1) Major differences in Generation and Network Topology in WR as per present operating conditions

a. Generation Pattern

S. No.	Name of Power Plant	Generation Considered by CEA	Generation to be Considered
1	Parli TPS	924	420
2	Koyna-1&2	255	0
3	Koyna-3	145	0
4	Koyna-4	378	235
5	GHATGHAR	175	0

- b. Network Topology:** Bus-split arrangement has been assumed at 400 kV Raipur Pool and at 400kV Raigarh Pool substations by opening 400 kV Raipur-Raipur Pool D/C and 400 kV raigarh-Raigarh pool D/C. However, in actual condition there is no bus-split arrangement at these substations.

Considering the above, generation and network topology has been modified in the study file sent by CEA. Power system studies have been carried out on the revised study file.

2) Power flow Observations for 6650 MW and 7050 MW import by SR on the revised study file

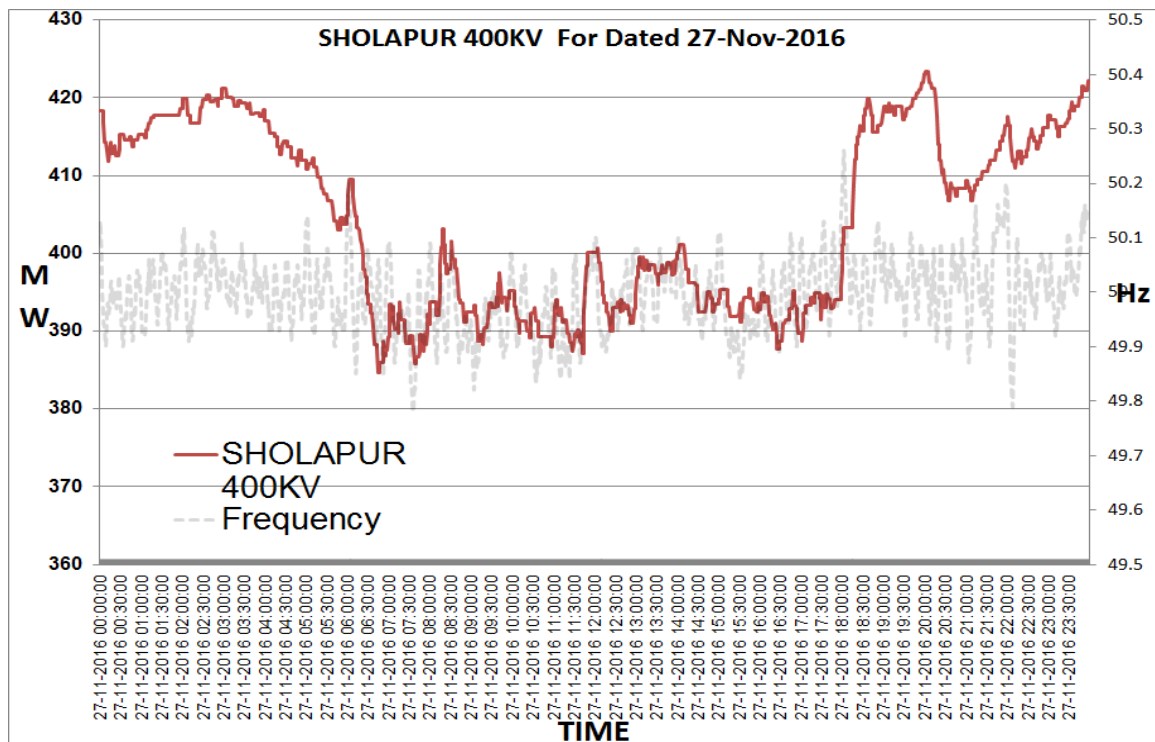
- a. Line Loadings:** With 7050 MW import by SR on the revised study file, loading on remaining 765kV Aurangabad-Sholapur would go upto 2950 MW under (n-1) contingency of one Aurangabad-Sholapur circuit.
- b. Voltage dip at 400kV & 765kV substations in WR due to tripping of 765 kV Aurangabad-Sholapur lines under two import scenarios**

S. No.	Name of the substation	7050 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
1	765kV Aurangabad	762	757	769
2	400kV Wardha	400	399	398
3	400kV Parli (PG)	391	383	370
4	400kV Sholapur (PG)	394	386	376
5	765kV Sholapur (PG)	748	734	726

N S. o No. t	Name of the substation	6650 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
e 1	765kV Aurangabad	766	761	770
: 2	400kV Wardha	401	400	399
3	400kV Parli (PG)	393	386	374
l 4	400kV Sholapur (PG)	397	390	381
n 5	765kV Sholapur (PG)	754	742	734

In case of (n-1-1) contingency of 765kV Aurangabad-Sholapur D/C, power flow is converging only after ignoring the reactive power limits (it was observed that in the case forwarded by CEA, it was converging).

Typical Voltage profile of 400kV Sholapur (PG) on 27th November 2016 is given below.



c. EXTREME angle under two import scenarios

S. No.	Particular	7050 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
1	Angular difference between 400kV Vindhyachal and 400kV Thrissur	98	105	126

S. No.	Particular	6650 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
1	Angular difference between 400kV Vindhyachal and 400kV Thrissur	93	100	119

Note: In case of (n-1-1) contingency of 765kV Aurangabad-Sholapur D/C, power flow is converging only after ignoring the reactive power limits.

The significance of the above extreme angle can be appreciated from the fact that power flow is entirely unidirectional from 400kV Vindhyachal to 400kV Thrissur spanning a geographical distance of over 2200 km making it an entirely longitudinal power system. This might not have been envisaged in the planning horizon as the southern region was envisaged to be surplus. The 765kV Aurangabad-Sholapur D/C line was planned as a contingency measure and approved by CEA in May 2013. This is a 765kV Double-Circuit section.

It is also pertinent to mention that entire 1050 km stretch from 400kV Raipur to 400kV Raichur (SR) has an insignificant amount of dynamic reactive reserves at intermediate points.

d. EXTREME angle under Talcher-Kolar Pole tripping

S. No.	Particular	7050 Import by SR		
		Basecase	Outage of Talcher-Kolar one pole carrying 1000 MW	Outage of Talcher-Kolar both poles carrying 2000 MW
1	Angular difference between 400kV Vindhychal and 400kV Thrissur	98	109	123

S. No.	Particular	6650 Import by SR		
		Basecase	Outage of Talcher-Kolar one pole carrying 1000 MW	Outage of Talcher-Kolar both poles carrying 2000 MW
1	Angular difference between 400kV Vindhychal and 400kV Thrissur	93	103	116

e. Angular difference between adjacent buses

S. No.	Particular	7050 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
1	Angular difference between 765kV Aurangabad and 765kV Sholapur	14	22	50

S. No.	Particular	6650 Import by SR		
		Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
1	Angular difference between 765kV Aurangabad and 765kV Sholapur	13	20	46

Note: In case of (n-1-1) contingency of 765kV Aurangabad-Sholapur D/C, power flow is converging only after ignoring the reactive power limits.

- 3) **PV analysis for 6650 MW import by SR:** Based on clues from above observations, PV curves have been plotted at 400 kV Wardha, 400 kV Sholapur (PG), 400 kV Parli (PG) and 765 kV Sholapur (PG) buses, starting from 6650 MW import by SR from NEW grid in the base case. The PV curves are enclosed at Annexe-2 and it can be observed from PV analysis that enhancement in power transfer to SR would lead to system insecurity and may lead to voltage collapse in Maharashtra. It is also pertinent to mention that relief observed from SPS implemented on NEW-SR corridor is inadequate and MSETCL has still not implemented the envisaged SPS.

- 4) **Low Frequency Oscillations (LFO):** While the transient stability simulations might suggest that the system is stable even for a 3 phase fault cleared in 100 milliseconds and one could assume a well damped system, the reality is somewhat different. The models assumed for generators, exciters, PSS and governors in the simulations remain untested. Availability of a well-tuned PSS is taken for granted. Standard models and tuned PSS are generally taken in studies. So simulations generally suggest a system which is hypersafe.

NLDC in its quarterly Operational Feedback to CEA and CTU as per section 4j of NLDC Rules 2005 has been highlighting various instances of Low Frequency Oscillations (LFO) experienced in the All India grid. In many instances, these are of inter area mode with frequency ranging between 0.22 Hz to 0.40 Hz and damping less than 5% in some instances.

Recently on 21st Nov 2016, the entire All India grid experienced 0.33 Hz severe low frequency Oscillations from 1337 to 1342 hours with zero damping. The root cause for such Oscillations is yet to be identified. Low Frequency Oscillations (LFO) observed in the system on 21st Nov 2016 is given below.



Fig-1: Frequency at different 400kV buses and 765kV Raichur-Sholapur line flow

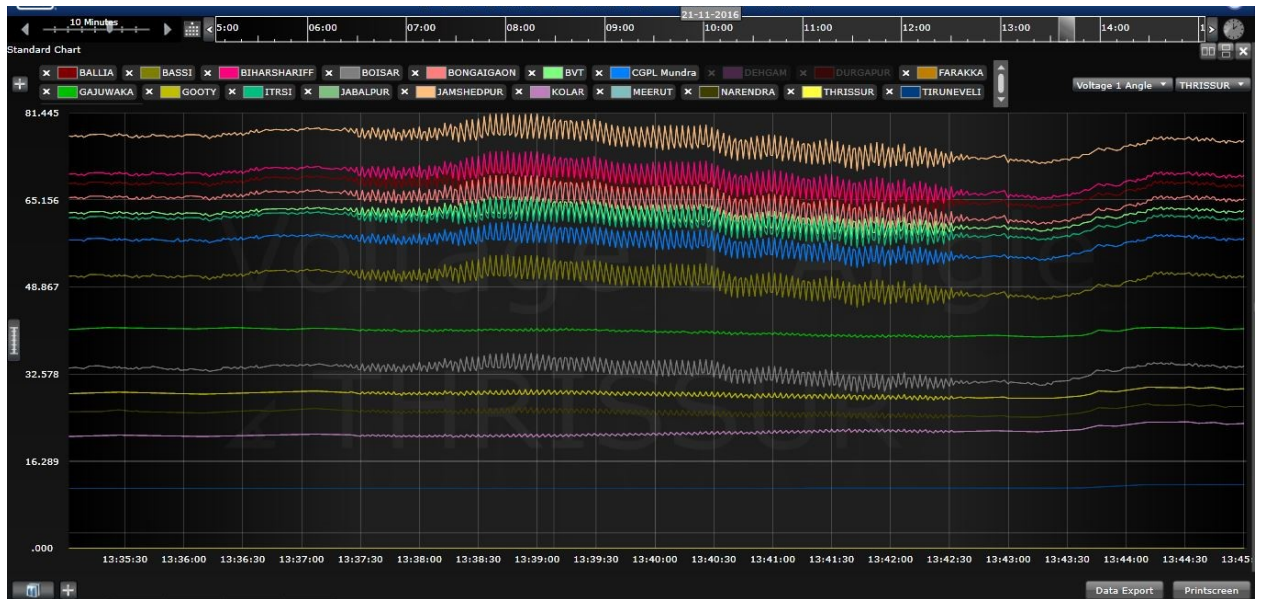


Fig-1: Angular difference between 400kV buses w.r.to 400kV Thrissur

The above aspects assume importance in the context of longitudinal power system mentioned above.

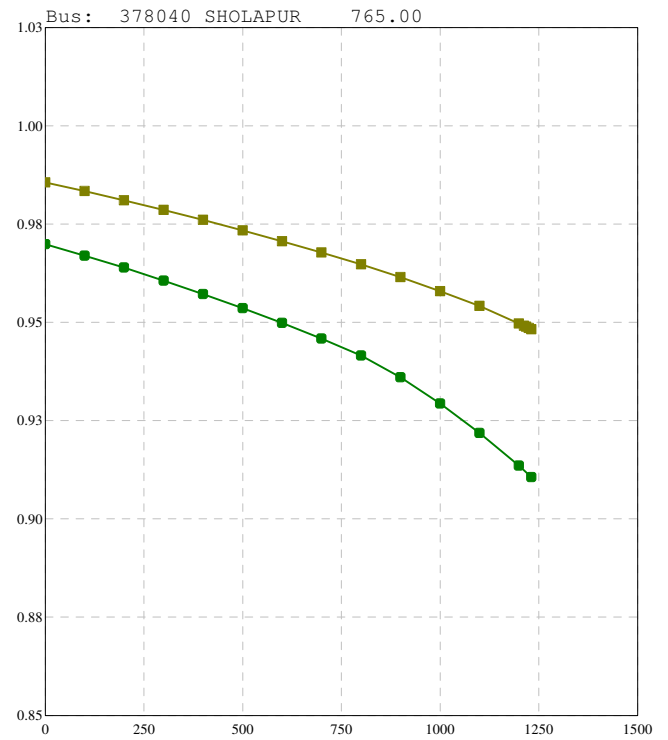
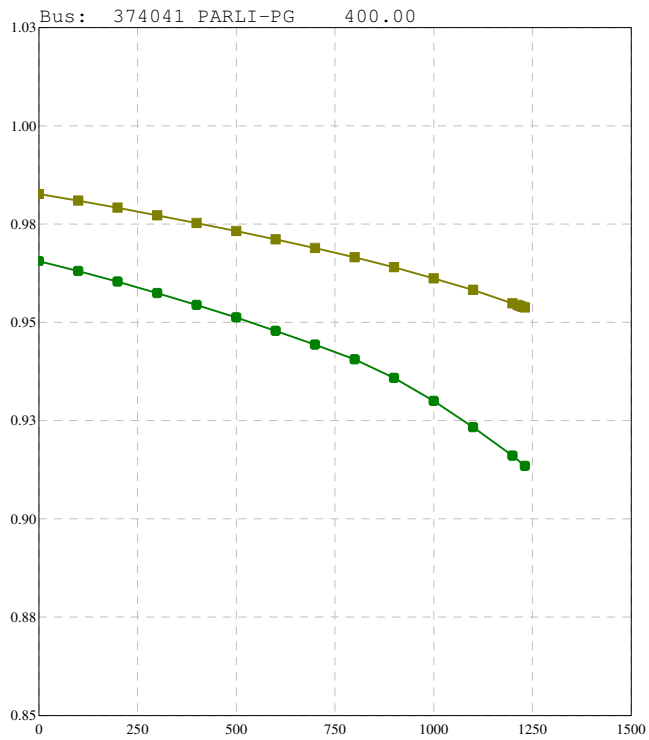
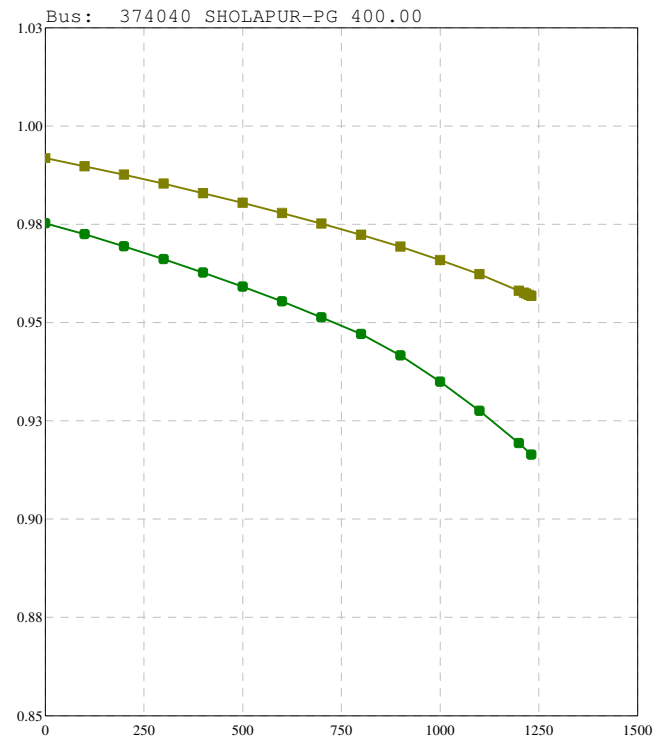
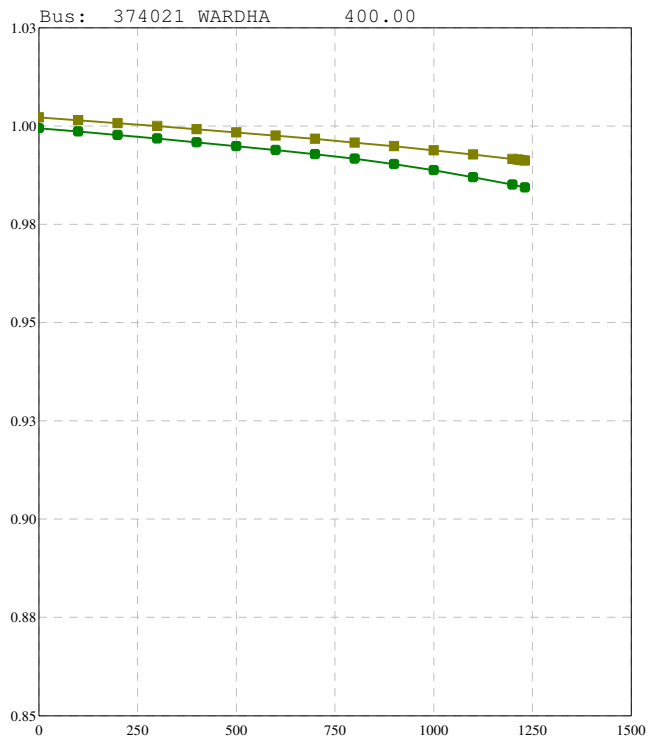
5) Other related issues: Parallel operation of 220kV lines between Maharashtra & Karnataka as well as Karnataka & Goa

It is to mention that a detailed study has been carried out in Sep'16 regarding parallel operation of 220kV Chikhodi-Talangade, 220kV Chikhodi-Mudsingi, 220 kV Ambewadi-Ponda and 220 kV Ambewadi-Xeldam with existing lines on NEW-SR corridor. It has been observed that parallel operation of these lines along with other inter-regional lines on NEW-SR corridor would increase the reliability, improves the voltage profile, enhances the transfer capability towards SR marginally and helps in reducing the small signal oscillations on 765kV Sholapur-Raichur lines due to any tripping in SR etc. A communication in this regard has been sent from ED, NLDC to WRPC, SRPC and NPC on 15th September 2016. Efforts may be taken to operate 220 kV lines in parallel which would strengthen the interconnection between NEW-SR corridor as well as augment TTC/ATC.

X-----X-----X

PV STUDY ON 6650 MW IMPORT BY SR

SUN, NOV 27 2016 16:38



MINUTES OF MEETING OF THE COMMITTEE FOR PHASING PLAN FOR IMPLEMENTATION OF NEW ENVIRONMENTAL NORMS ISSUED BY MOEF&CC

VENUE: CEA HQ., NEW DELHI

DATE: 21.10.2016

A committee was constituted by Ministry of Power; Govt. of India vide Office Order No. FU-1/2015-IPC dated 21.09.2016 for preparing a phasing plan for implementation of new environmental norms issued by MoEF&CC in December 2015. The Committee includes members from CEA, Ministry of Coal, MoEF&CC, CPCB, POSOCO, NTPC and DVC with Chairperson, CEA as the Chairman of the committee.

Chairperson, CEA welcomed all the participants to the meeting and briefed the members about the Terms of Reference of the committee and various implications of the new environmental norms. Detailed discussions were undertaken by the Committee members there-after. Following decisions were taken during the meeting:

1. The existing Coal/ Lignite based thermal units above 25 MW may be considered for phasing to meet the revised norms of SPM issued by MoEF&CC in December 2015 which is around 1,86,000 MW. The units below 25 MW are not to be considered for phasing plan as the same is not techno-economically viable for these units.
2. In CEA report of September 2015, a total capacity of 5857 MW was identified for retirement and replacement with Super-Critical units in phased manner out of which capacity of 680 MW has already been retired and deleted from National Installed capacity. CEA has further identified 3730 MW capacity for retirement considering various factors like age, SHR, PLF and variable cost of the units. Therefore, a capacity of 8907 MW (5857-680+3730) has been identified by CEA for either replacement or retirement. Committee decided to exclude these plants/units from phasing plan for implementation.
3. To identify units for phasing of implementation plan for meeting revised SPM norms, the present SPM norm, and present actual SPM emission levels are important input and require high level of accuracy. CEA informed the difficulties being faced in collecting the data from power utilities. It was decided by the Committee that list of existing coal/lignite based thermal units shall be furnished by CEA to CPCB and CPCB shall collect this information from respective SPCB and furnish the same to CEA by 10th of November 2016. This information shall be used to identify the units for phasing plan.
4. Methodology for identifying the units was discussed in detail and Committee decided that units having present SPM norms higher than revised norm or the units whose actual SPM emission level is 20% higher than the revised norms may be considered for phasing plan.
5. As per the Environmental Clearances being issued by MoEF&CC, the units above 500 MW, installed after 01.01.2004, are generally having the provision of space for installation of FGD in future. CEA informed that there are some other units of lesser

capacity which have indicated availability of space for FGD. Considering the fact that installation of FGD reduces SPM emission level considerably and ESP upgradation may not then be required, the committee decided that initially FGD may be installed for these units and thereafter in some cases where SPM level still remain high, then ESP upgradation may be considered. This approach will avoid the unnecessary expenditure done on ESP upgradation for most of these units.

6. The balance identified units that do not have space to install FGD for controlling SO_x in future or are already equipped with CFBC boilers (not requiring FGD for SO_x emission control), are to be considered for retrofitting/upgrading of ESP. It was informed to Committee that cost of ESP upgrade will vary from case to case basis and the same will be of the order of Rs. 0.10-0.13 crores/MW.
7. It was decided that after receipt of information from CPCB, CEA shall prepare the region-wise list of units identified for implementation of FGD installation and ESP upgradation . It was also agreed that other appropriate technologies such as ammonia dosing etc. for reducing the SPM emission to desired level (with or without ESP upgradation as per the requirement) may be adopted by power utilities.
8. The committee decided that region-wise list of units identified for phasing for implementation of new environmental SPM norms, will be furnished to Regional Power Committees (RPCs). RPCs shall prepare phasing of implementation plan in consultation with concerned power utilities at regional level and POSOCO considering the power supply position and furnish the same to the Committee. As per the TOR of the committee, the newer plants shall be considered for implementation first.
9. Techno-commercial feasibility for installation of low NO_x burners in all thermal power plants was discussed by the committee. It was discussed that all units are being supplied with low NO_x burners presently, however, old units may not be having low NO_x burners. Members of the Committee opined to take up installation of low NO_x burners in these units during their next over-hauling period but not later than in a maximum of 2 years period. Chairperson, CEA asked representative of NTPC to furnish their views on this issue and sought the cost of installing low NO_x burners. It was decided to review the matter in the next meeting.
10. The committee was of the opinion that units in which ESP retrofitting/upgrade is implemented should be allowed to run at least 5 years from the date of completion of work.
11. The representatives from power utilities raised the issue of capitalization of this additional investment and expressed their reservations about difficulty in selling power with increased tariff due to this additional investment. They requested for funding support from PSDF for implementation of pollution control equipments and also taking up the matter with regulators regarding capitalization of this additional investment.
12. The next meeting shall be held in the 4th week of November 2016.

The meeting ended with vote of thanks to Chair.

List of Participants for 1st Committee meeting held on 21st October 2016

CEA

- | | |
|------------------------|-----------------------|
| 1. Shri S.D. Dubey | Chairperson- in Chair |
| 2. Shri T.K. Barai | Member(Th.) |
| 3. Shri P.D. Siwal | Secretary |
| 4. Shri B.K. Sharma | Chief Engineer |
| 5. Shri Narendra Singh | Director |
| 6. Shri Rajesh Kumar | Deputy Director |
| 7. Shri K.K. Sharma | Deputy Director |
| 8. Shri Chetan Sharma | Assistant Director |

Ministry of Coal

- | | |
|---------------------|---------|
| 1. Shri D.N. Prasad | Advisor |
|---------------------|---------|

MoEF&CC

- | | |
|-----------------------|----------------|
| 1. Dr. Dinesh Raniwal | Joint Director |
|-----------------------|----------------|

MoP

- | | |
|---------------------|-----------------|
| 1. Shri S. Majumdar | Under Secretary |
|---------------------|-----------------|

CPCB

- | | |
|----------------------|---------------|
| 1. Shri S.K. Paliwal | Scientist 'D' |
|----------------------|---------------|

NTPC

- | | |
|----------------------|---------|
| 1. Shri Amitava Roy | GM |
| 2. Shri Uday Shankar | DGM(OS) |

DVC

- | | |
|-------------------------------|-------------------|
| 1. Shri Amitava Roy Choudhary | Chief Engineer |
| 2. Shri Arunava Mitra | Dy Chief Engineer |

POSOCO

- | | |
|-------------------|------------|
| 1. Shri N.L. Jain | DGM (NLDC) |
|-------------------|------------|

MINUTES OF 2nd MEETING OF THE COMMITTEE FOR PHASING PLAN FOR IMPLEMENTATION OF NEW ENVIRONMENTAL NORMS HELD ON 13.12.2016

1. The Minutes of 1st Meeting held on 21.10.2016 at CEA HQ., New Delhi were confirmed.
2. **ESP upgradation for SPM control:**
 - (i) A total coal/ lignite based installed capacity of 1,79,548 MW (555 units) was considered for phasing of implementation of pollution control equipment. After analysis of data obtained from power utilities and CPCB regarding present SPM norms and present SPM levels of units, it was concluded that 1,15,214 MW (299 units) capacity meets the new SPM norms with existing ESP installations. Remaining capacity of 64,334 MW (256 units) does not meet the new environmental norms regarding SPM.
 - (ii) A region-wise list of units was presented to the committee which requires ESP upgradation (Capacity 46,479 MW, 211 units) based on the methodology recommended by the committee in the 1st meeting. It was also informed that, the tariff implication for ESP upgradation is estimated to be 9 Paisa/ kWh (based on estimated cost 0.13 Cr/MW, remaining operation for next 5 years and PLF of 62%). Chairperson, CEA desired that tariff calculations may also be done with 50% PLF. The same will be carried out and revised tariff implication would be intimated to RPC's. The committee approved the above lists.
 - (iii) The balance 45 Units having installed capacity of 17,855 MW have space for FGD installation and accordingly were proposed for FGD installation in place of ESP upgradation to avoid double expenditure as effective SPM reduction would be possible by FGD apart from control of SOx emissions. The committee approved the proposed approach. **Accordingly, these units are included in list of identify units for FGD installation (in para 3 below).**
 - (iv) It was also decided by the committee that Region-wise lists identified for ESP upgradation may be forwarded to concerned RPC for phasing the implementation of ESP upgradation. RPCs would be advised to complete the phasing within 1-month time and furnish the same to the CEA Committee. RPCs would be requested to convene Special Meeting with Power Utilities, SLDC and POSOCO to finalize the phasing plan. RPC's may also obtain confirmation from power utilities that their other units are meeting the revised SPM norms and therefore does not require any intervention.
3. **FGD(Flue Gas Desulphurization) installation for SPM & Sox emissions:**

- (i) During meeting on review of status of implementation of new environmental norms held on 01.12.2016, MoP requested to include phasing of FGD also in the scope of committee. In view of this, units having total capacity of 95,915 MW (202 units) having space provision for installation of FGD were identified. The remaining installed capacity of 74,123 MW (314 units) does not have adequate space for installation of FGD. It was also mentioned that a capacity of 9,510 MW (39 units) have either already installed FGD or are having CFBC boilers enabling them to comply with new SO_x emission norms without installing FGD.
- (ii) Region-wise list of units for installation of FGD was presented to the committee. It was also informed that estimated cost for installation of wet lime stone based FGD is about 0.5 Cr/MW. The tariff implication shall be 32 Paise/kWh considering the operational life of next 15 years, APC of 1.5% and PLF of 62%. Chairperson, CEA desired that tariff calculations may also be performed with 50% PLF. The same will be carried out and revised tariff implication would be intimated to RPCs. After the discussions, committee approved the above lists.
- (iii) It was also decided by the committee that Region-wise lists identified for FGD upgradation may be forwarded to concerned RPC for phasing the implementation of FGD installation. RPCs would be advised to complete the phasing within 1-month time and furnish the same to the CEA Committee. RPCs would be requested to convene Special Meeting with Power Utilities, SLDC and POSOCO to finalize the phasing plan.
- (iv) NTPC informed that lining of existing stacks will have to be done along-with installation of FGDs which would not only increase the cost incurred but also increase the shutdown period of unit to 4-6 months. NTPC therefore requested that committee may consider to recommend that **“MoEF&CC may exempt these units from the stipulated stack height requirement”, considering the fact that these units will comply with new stringent norms of SPM, SO_x emissions”**
- (v) The proposal of NTPC was discussed and Committee opined that this exemption will enable power utilities to erect a short Stack and reduce the shutdown period, as work on new smaller stack could be taken up simultaneously with ESP installation without shutting down the unit. In view of this Committee decided to recommend the same in the report.
- (vi) The members opined that availability of good quality lime stone (90% purity) from nearby area of plants and disposal of produced gypsum is very crucial for successful implementation of FGDs. As Ministry of Mines is the nodal agency dealing with lime stone mining, it was decided that matter may be taken up with Ministry of

Mines for furnishing the region-wise availability of lime stone (90% purity) for consumption by FGD Systems of Thermal Plants.

- (vii) It was also informed to members that Gypsum can possibly be utilized mainly in cement industry, wall-board making and agriculture for soil improvement. The committee decided to recommend that **MoEF&CC may issue suitable guidelines for utilization of gypsum produced by the Thermal Plants and also notify its mandatory use by cement industry or in any other areas.** Failing this, it is apprehended that large quantity of gypsum would get accumulated in plants adversely affecting the environment.

4. **Reduction of NOx emissions:**

(i) **For units commissioned up to 31.12.2003, following was proposed: -**

- In case Wall fired boilers installed before 31.12.2003, modification in combustion system such as reducing excess air, combustion optimization and installation of Low NOx burners (if required) may be taken up to bring down NOx emission within stipulated norms of 600 mg/Nm³.
- In case of tangential fired boilers installed before 31.12.2003, following modification in combustion system may be taken up to bring down NOx emissions within stipulated norms of 600 mg/Nm³:
 - Reduction in excess air (considering increase in CO, flame length and its stability)
 - Wind box modifications like air nozzle, coal nozzle, port size modification, installation of Over Fire Air (OFA) and changing its operation from manual to pneumatic
 - Combustion optimization
- It was also informed to members that above notification (except installation of Low NOx burner) are of minor in nature and estimated cost will be about 1 lakh/MW only.

(ii) **For units commissioned after 31.12.2003, following was proposed:**

- All the available feasible modifications in combustion system like use of Low NOx burners, OFA with dynamic classifier (in wall fired boilers) and Low NOx system with additional provision of wind box for installing Separate Over fire Air System (SOFA) with dynamic classifier (in tangentially fired boilers) need to be done to bring down NOx emissions below 450 mg/Nm³ which is achievable.
- Considering estimated cost of 10 Lacs/MW, the tariff implication to carry out above mentioned modification in combustion system, is of the order of 7 Paisa/kWh considering operational life of next 5 years. Chairperson, CEA desired that tariff

calculations may also be performed with 50% PLF. The same will be carried out and revised tariff implication would be installed to RPCs.

- After deliberations on requisite NOx control provisions, the Committee approved the above proposal for adopting plan to reduce NOx emissions. **It was also decided that all the requisite modifications to reduce NOx emissions shall be taken up by utilities during Annual Over hauling of Units.**
5. Members re-iterated earlier decision of the committee, that the new units shall be taken up first for implementation. This may be adopted by the RPCs while finalising phasing of Implementation plan.
 6. The committee shall finalize the report by March 2017 subject to receipt of finalized phasing of Implementation plan by RPC by 1 week of February 2017.
 7. Committee discussed about inclusion of Captive Power Plants in the purview of the phasing of implementation plan. The committee was of the view that captive power plants are installed exclusively to cater the power need of the parent industries and are not likely to affect the power supply position in the National or regional grid, As such, their shutdown to make any changes envisaged for these units for complying with new environmental norms does not warrant specific phasing to be done. Further, in view very large of number of such small size captive units (10-100kW) it would be prudent that respective SPCB may evolve appropriate Monitoring and Verification systems to ensure desired environmental compliance by these Captive Units. Therefore, the **committee decided that captive power plants may be kept out of the purview of the phasing plan to be finalized by the committee.**
 8. Next meeting shall be held after submission of phasing plan by the RPC's.

-----XXXXX-----XXXXX-----XXXXX-----

List of Participants for 2nd Committee meeting held on 13thDecember- 2016

CEA

- | | |
|------------------------|-----------------------|
| 1. Shri S.D. Dubey | Chairperson- in Chair |
| 2. Shri T.K. Barai | Member(Th.) |
| 3. Shri P.D. Siwal | Secretary |
| 4. Shri B.K. Sharma | Chief Engineer |
| 5. Shri Dinesh Chandra | Chief Engineer |
| 6. Shri Narendra Singh | Director |
| 7. Shri Vijay Meghani | Director |
| 8. Shri Rajesh Kumar | Deputy Director |
| 9. Shri K.K. Sharma | Deputy Director |
| 10. Shri Chetan Sharma | Assistant Director |

Ministry of Coal

Nil

MoEF&CC

Nil

CPCB

Nil

NTPC

- | | |
|---------------------|------------------|
| 1. Shri S.K. Roy, | Ex. Director(OS) |
| 2. Shri Amitava Roy | GM |
| 3. Shri P.K. Gupta | AGM, PE-Mech |

DVC

- | | |
|-------------------------------|---------------------|
| 1. Shri Amitava Roy Choudhary | Chief Engineer-I(M) |
|-------------------------------|---------------------|

POSOCO

- | | |
|-------------------|------------|
| 1. Shri N.L. Jain | DGM (NLDC) |
|-------------------|------------|

UNITS IDENTIFIED FOR FGD INSTALLATION																					
WESTERN REGION										Annexure-4C											
Sr. No.	Developer	Name of Project	Sector	State	Region	Unit No	Total Capacity	DT-of COMMISSIONING	Age in years	Whether FGD Installed	Whether CFBC	Present SPM Norms	Revised SPM Norms	Present SPM Level	Whether ESP retrofit required	Whether FGD space available (Y/N)	Whether LE work completed/ Ongoing (Y/N)	Year of Completion/Ongoing of LE Works	Committee Recommendations		
	CSPGCL																				
217	CSPGCL	MARWA TPS	State Sector	Chhattisgarh	WR	2	500	15/07/2016	0	N	N	50	50	41	N	Y			FGD Installation	Jan-21	
216	CSPGCL	MARWA TPS	State Sector	Chhattisgarh	WR	1	500	30/03/2014	3	N	N	50	50	NA	N	Y			FGD Installation	Mar-21	
230	CSPGCL	KORBA-WEST Ext. TPS	State Sector	Chhattisgarh	WR	5	500	22/03/2013	4	N	N	50	50	48	N	Y			FGD Installation	May-21	
229	CSPGCL	KORBA-WEST TPS	State Sector	Chhattisgarh	WR	4	210	13/03/1986	31	N	N	150	100	172	Y	N			ESP Upgradation	Feb-20	
228	CSPGCL	KORBA-WEST TPS	State Sector	Chhattisgarh	WR	3	210	26/03/1985	32	N	N	150	100	165	Y	N			ESP Upgradation	Apr-20	
226	CSPGCL	KORBA-WEST TPS	State Sector	Chhattisgarh	WR	1	210	21/06/1983	34	N	N	150	100	144	Y	N			ESP Upgradation	Jun-20	
227	CSPGCL	KORBA-WEST TPS	State Sector	Chhattisgarh	WR	2	210	30/03/1983	34	N	N	150	100	142	Y	N			ESP Upgradation	Aug-20	
225	CSPGCL	KORBA-III	State Sector	Chhattisgarh	WR	2	120	05/04/1981	36	N	N	150	100	286	Y	N			ESP Upgradation	Oct-20	
224	CSPGCL	KORBA-III	State Sector	Chhattisgarh	WR	1	120	22/03/1976	41	N	N	150	100	286	Y	N			ESP Upgradation	Dec-20	
						9	2580														
	GUJARAT																				
401	GSECL	UKAI TPS	State Sector	Gujarat	WR	6	500	05/03/2013	4	N	N	50	50	65	Y	Y			FGD Installation	Aug-22	pre-feasibility study is planned and depending upon the feasibility report,approvals,further planning will be done
390	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	4	75	01/10/2009	7	N	Y	150	50	92	Y	N			ESP Upgradation	Jan-20	feasibility will be checked
358	GMD Corpn.	AKRIMOTA LIG TPS	State Sector	Gujarat	WR	2	125	19/12/2005	11	N	Y	100	50	80	Y	N/A			ESP Upgradation	Dec-20	space constraint, present SPM is around 55, to be upgraded if required by dec 20
357	GMD Corpn.	AKRIMOTA LIG TPS	State Sector	Gujarat	WR	1	125	31/03/2005	12	N	Y	100	50	80	Y	N/A			ESP Upgradation	Dec-20	space constraint, present SPM is around 55, to be upgraded if required by dec 20
413	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	7	210	31/12/1998	18	N	N	100	100	123	Y	N			ESP Upgradation	Mar-20	If required then only
389	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	3	75	31/03/1997	20	N	N	150	100	125	Y	N			ESP Upgradation	May-20	If required then only
388	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	2	70	25/03/1991	26	N	N	150	100	127	Y	N			ESP Upgradation	Jul-20	If required then only
387	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	1	70	29/03/1990	27	N	N	150	100	138	Y	N			ESP Upgradation	Sep-20	If required then only
412	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	6	210	18/11/1987	29	N	N	100	100	169	Y	N			ESP Upgradation	Nov-20	If required then only
411	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	5	210	23/09/1986	30	N	N	100	100	136	Y	N			ESP Upgradation	Jan-21	If required then only
410	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	4	210	09/03/1986	31	N	N	100	100	154	Y	N			ESP Upgradation	Mar-21	If required then only
400	GSECL	UKAI TPS	State Sector	Gujarat	WR	5	210	30/01/1985	32	N	N	150	100	146	Y	N			ESP Upgradation	Mar-17	work in progress
409	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	3	210	15/03/1984	33	N	N	100	100	182	Y	N			ESP Upgradation	Mar-18	work order placed
408	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	2	210	15/01/1983	34	N	N	100	100	160	Y	N			ESP Upgradation	Mar-18	work order placed
407	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	1	210	23/03/1982	35	N	N	100	100	190	Y	N			ESP Upgradation	Mar-17	work in progress
399	GSECL	UKAI TPS	State Sector	Gujarat	WR	4	200	28/03/1979	38	N	N	150	100	158	Y	N			ESP Upgradation	Mar-17	work in progress
398	GSECL	UKAI TPS	State Sector	Gujarat	WR	3	200	21/01/1979	38	N	N	150	100	115	Y	N			ESP Upgradation	Feb-17	completed in april 16, fine tuning
						17	3120														
	MADHYA PRADESH																				

838	MPPGCL	SHRI SINGHAJI TPP	State Sector	Madhya Prade	WR	2	600	15/10/2014	2	N	N	50	50	45	N	Y		FGD Installation	Nov-21	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant
816	MPPGCL	SATPURA TPS	State Sector	Madhya Prade	WR	11	250	25/12/2013	3	N	N	50	50	89	Y	Y		FGD Installation	Jan-22	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant
817	MPPGCL	SHRI SINGHAJI TPP	State Sector	Madhya Prade	WR	1	600	18/11/2013	3	N	N	50	50	45	N	Y		FGD Installation	Mar-22	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant
813	MPPGCL	SATPURA TPS	State Sector	Madhya Prade	WR	10	250	22/03/2013	4	N	N	50	50	92	Y	Y		FGD Installation	May-22	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant
800	MPPGCL	AMARKANTAK EXT TPS	State Sector	Madhya Prade	WR	5	210	15/06/2008	9	N	N	50	50	90	Y	N		ESP Upgradation	Apr-19	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant
805	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Prade	WR	5	500	18/06/2007	10	N	N	50	50	116	Y	Y		FGD Installation	Jul-22	consultant appointment for the work is in progress. The dates given are tentative and subject to change after recommendation report of consultant, technofinancial feasibility, regulatory clearances etc. Exact dates shall be intimated after reports of consultant

[illegible]

	NTPC																				
1080	NTPC	MAUDA TPS	Central Sector	Maharashtra	WR	3	660	28/03/2016	1	N	N	100	50	NA	Y	Y			FGD Installation	Dec-20	space constraint, major relocation of equipment required
1076	NTPC	MAUDA TPS	Central Sector	Maharashtra	WR	2	500	29/03/2013	4	N	N	100	50	NA	Y	Y			FGD Installation	Aug-21	
1075	NTPC	MAUDA TPS	Central Sector	Maharashtra	WR	1	500	19/04/2012	5	N	N	100	50	40	N	Y			FGD Installation	Dec-21	
1108	NTPC	SIPAT STPS	Central Sector	Chhattisgarh	WR	3	660	27/06/2011	6	N	N	50	50	44	N	Y			FGD Installation	Jan-22	
1074	NTPC	KORBA STPS	Central Sector	Chhattisgarh	WR	7	500	25/11/2010	6	N	N	50	50	56	N	Y			FGD Installation	May-22	space constraint, major relocation of equipment required
1107	NTPC	SIPAT STPS	Central Sector	Chhattisgarh	WR	2	500	13/08/2008	8	N	N	50	50	44	N	Y			FGD Installation	Feb-22	
1106	NTPC	SIPAT STPS	Central Sector	Chhattisgarh	WR	1	500	27/05/2007	10	N	N	50	50	45	N	Y			FGD Installation	Mar-22	
1141	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	10	500	08/03/2007	10	N	N	100	50	88	Y	N			ESP Upgradation	Sep-19	SPM is within limit, if required
1140	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	9	500	27/07/2006	10	N	N	100	50	90	Y	N			ESP Upgradation	Oct-19	If required
1137	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	6	210	01/02/1991	26	N	N	150	100	139	Y	N			ESP Upgradation	Mar-18	Work is in progress
1136	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	5	210	31/03/1990	27	N	N	150	100	137	Y	N			ESP Upgradation	Mar-18	Work is in progress
1135	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	4	210	26/12/1989	27	N	N	150	100	138	Y	N			ESP Upgradation	Mar-18	Work is in progress
1134	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	3	210	03/02/1989	28	N	N	150	100	138	Y	N			ESP Upgradation	Mar-18	Work is in progress
1133	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	2	210	23/07/1988	28	N	N	150	100	140	Y	N			ESP Upgradation	Mar-18	Work is in progress
1072	NTPC	KORBA STPS	Central Sector	Chhattisgarh	WR	5	500	25/03/1988	29	N	N	150	100	141	Y	N			ESP Upgradation	Mar-18	Work is in progress
1132	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prade	WR	1	210	10/10/1987	29	N	N	150	100	138	Y	N			ESP Upgradation	Mar-18	Work is in progress
1071	NTPC	KORBA STPS	Central Sector	Chhattisgarh	WR	4	500	31/05/1987	30	N	N	150	100	143	Y	N			ESP Upgradation	Mar-18	Work is in progress
1069	NTPC	KORBA STPS	Central Sector	Chhattisgarh	WR	2	200	31/10/1983	33	N	N	150	100	164	Y	N			ESP Upgradation	Mar-18	Work is in progress
1068	NTPC	KORBA STPS	Central Sector	Chhattisgarh	WR	1	200	28/02/1983	34	N	N	150	100	130	Y	N			ESP Upgradation	Mar-18	Work is in progress
	NTPC	VINDHYACHAL STPS				7														Mar-18	Work is in progress
	NTPC	VINDHYACHAL STPS				8														Mar-18	Work is in progress
						19	7480														
	IPP																				
22	ACB (INDIA)LTD	SWASTIK KORBA TPP	Private Sector	Chhattisgarh	WR	1	25	31/03/2015	2	N	N	NA	50	NA	Y	N			ESP Upgradation	Jun-19	
25	ACB (INDIA)LTD	KASAIPALLI TPP	Private Sector	Chhattisgarh	WR	2	135	21/06/2012	5	N	Y	50	50	49	N	Y			FGD Installation	Oct-20	
24	ACB (INDIA)LTD	KASAIPALLI TPP	Private Sector	Chhattisgarh	WR	1	135	13/12/2011	5	N	Y	50	50	49	N	Y			FGD Installation	Dec-20	
33	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	6	660	20/07/2011	5	N	N	50	50	39	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
32	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	5	660	26/12/2010	6	N	N	50	50	43	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
31	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	4	330	20/12/2010	6	N	N	50	50	32	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
30	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	3	330	02/08/2010	6	N	N	50	50	33	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
29	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	2	330	17/03/2010	7	N	N	50	50	39	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
28	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	1	330	04/08/2009	7	N	N	50	50	42	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
41	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	5	660	25/09/2014	2	N	N	50	50	31	N	Y			FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis

40	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	4	660	23/03/2014	3	N	N	50	50	23	N	Y		FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
39	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	3	660	10/06/2013	4	N	N	50	50	29	N	Y		FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
38	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	2	660	25/03/2013	4	N	N	50	50	47	N	Y		FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
37	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	1	660	11/09/2012	4	N	N	50	50	33	N	Y		FGD Installation		Adani is exploring the technology and filed petition to CERC, hence not able to commit timeline due to financial crisis
179	Bharat Aluminium Co. Ltd.	BALCO TPS	Private Sector	Chhattisgarh	WR	2	300	24/03/2016	1	N	N	NA	50	NA	Y	N		ESP Upgradation	Jun-19	
178	Bharat Aluminium Co. Ltd.	BALCO TPS	Private Sector	Chhattisgarh	WR	1	300	04/06/2015	2	N	N	NA	50	NA	Y	N		ESP Upgradation	Sep-19	
273	DB Power	BARADARHA TPS	Private Sector	Chhattisgarh	WR	2	600	24/03/2015	2	N	N	50	50	40	N	Y		FGD Installation	Oct-20	
272	DB Power	BARADARHA TPS	Private Sector	Chhattisgarh	WR	1	600	23/02/2014	3	N	N	50	50	42	N	Y		FGD Installation	Dec-20	
335	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	2	600	15/06/2012	5	N	N	50	50	48	N	Y		FGD Installation	Oct-20	
334	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	1	600	04/01/2012	5	N	N	50	50	49	N	Y		FGD Installation	Dec-20	
336	ESSAR power	MAHAN TPP	Private Sector	Madhya Pradesh	WR	1	600	24/02/2013	4	N	N	50	50	NA	N	Y		FGD Installation	Mar-21	
356	GIPCL	SURAT LIG. TPS	Private Sector	Gujarat	WR	4	125	23/04/2010	7	N	Y	150	50	70	Y	N		ESP Upgradation	Oct-20	
355	GIPCL	SURAT LIG. TPS	Private Sector	Gujarat	WR	3	125	12/04/2010	7	N	Y	150	50	73	Y	N		ESP Upgradation	Dec-20	
365	GMR	RAIKHEDA TPP	Private Sector	Chhattisgarh	WR	2	685	28/03/2016	1	N	N	50	50	NA	N	Y		FGD Installation	Oct-20	
364	GMR	RAIKHEDA TPP	Private Sector	Chhattisgarh	WR	1	685	24/02/2015	2	N	N	50	50	NA	N	Y		FGD Installation	Dec-20	
367	GMR emco ENERGY Ltd	EMCO WARORA TPS	Private Sector	Maharashtra	WR	2	300	27/08/2013	3	N	N	50	50	40	N	Y		FGD Installation	Mar-22	Dates are tentative, subject to technology finalization, financing, tariff pass through and acceptance by PPA customer
366	GMR emco ENERGY Ltd	EMCO WARORA TPS	Private Sector	Maharashtra	WR	1	300	07/02/2013	4	N	N	50	50	38	N	Y		FGD Installation	Jun-22	Dates are tentative, subject to technology finalization, financing, tariff pass through and acceptance by PPA customer
424	Gupta Energy P L	GEPL TPP Ph-I	Private Sector	Maharashtra	WR	2	60	08/09/2012	4	N	N	100	50	50	Y	N		ESP Upgradation	Jun-19	
423	Gupta Energy P L	GEPL TPP Ph-I	Private Sector	Maharashtra	WR	1	60	28/04/2012	5	N	N	100	50	50	Y	N		ESP Upgradation	Aug-19	
452	Ideal Energy Projects Ltd.	BELA TPS	Private Sector	Maharashtra	WR	1	270	20/03/2013	4	N	N	100	50	NA	Y	Y		FGD Installation	Jun-22	
479	Jaiprakash Power Venture Ltd	NIGRI TPP	Private Sector	Madhya Pradesh	WR	2	660	27/02/2015	2	N	N	50	50	40	N	Y		FGD Installation	Oct-20	
478	Jaiprakash Power Venture Ltd	NIGRI TPP	Private Sector	Madhya Pradesh	WR	1	660	29/08/2014	2	N	N	50	50	35	N	Y		FGD Installation	Dec-20	
496	Jhabua Power Ltd.	SEIONI TPP	Private Sector	Madhya Pradesh	WR	1	600	22/03/2016	1	N	N	50	50	NA	N	Y		FGD Installation	Jun-22	
522	KORBA-WEST TPS Pvt Ltd	AVANTHA BHANDAR	Private Sector	Chhattisgarh	WR	1	600	31/03/2014	3	N	N	50	50	34	N	Y		FGD Installation	Oct-20	
671	KSK Mahanadi Power Co Ltd	AKALTARA TPS	Private Sector	Chhattisgarh	WR	2	600	22/08/2014	2	N	N	50	50	30	N	Y		FGD Installation	Jun-22	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back
603	KSK Mahanadi Power Co Ltd	AKALTARA TPS	Private Sector	Chhattisgarh	WR	1	600	13/08/2013	3	N	N	50	50	31	N	Y		FGD Installation	Aug-22	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back

716	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhattisgarh	WR	4	600	28/03/2015	2	N	N	50	50	NA	N	Y			FGD Installation	Jan-21	
705	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhattisgarh	WR	3	600	07/01/2015	2	N	N	50	50	38	N	Y			FGD Installation	Mar-21	
704	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhattisgarh	WR	2	600	30/03/2014	3	N	N	50	50	37	N	Y			FGD Installation	May-21	
703	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhattisgarh	WR	1	600	10/03/2014	3	N	N	50	50	38	N	Y			FGD Installation	Jul-21	
702	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhattisgarh	WR	4	250	17/06/2008	9	N	N	50	50	39	N	Y			FGD Installation	Sep-21	
701	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhattisgarh	WR	3	250	06/03/2008	9	N	N	50	50	40	N	Y			FGD Installation	Nov-21	
700	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhattisgarh	WR	2	250	10/02/2008	9	N	N	50	50	39	N	Y			FGD Installation	Jan-22	
699	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhattisgarh	WR	1	250	02/09/2007	9	N	N	50	50	41	N	Y			FGD Installation	Mar-22	
772	Maruti Power Limited	BANDAKHAR TPP	Private Sector	Chhattisgarh	WR	1	300	31/07/2015	1	N	N	50	50	47	N	Y			FGD Installation	May-20	
797	MB Power	ANUPPUR TPP	Private Sector	Madhya Prad	WR	2	600	30/03/2016	1	N	N	50	50	NA	N	Y			FGD Installation		Sox emission is within norms using indian coal with sulphur content in coal is 0.37%
773	MB Power	ANUPPUR TPP	Private Sector	Madhya Prad	WR	1	600	20/04/2015	2	N	N	50	50	NA	N	Y			FGD Installation		Sox emission is within norms using indian coal with sulphur content in coal is 0.37%
1158	NTPC & Sail	BHILAI TPS	Central Sector	Chhattisgarh	WR	2	250	12/07/2009	7	N	N	50	50	NA	N	Y			FGD Installation		Sox, Nox, SPM is within permissible limits
1157	NTPC & Sail	BHILAI TPS	Central Sector	Chhattisgarh	WR	1	250	20/04/2008	9	N	N	50	50	NA	N	Y			FGD Installation		Sox, Nox, SPM is within permissible limits
1268	Ratan Power	AMARAVATI TPS	Private Sector	Maharashtra	WR	5	270	12/03/2015	2	N	N	50	50	32	N	Y			FGD Installation		Representative informed that SOx is within permissible limit
1267	Ratan Power	AMARAVATI TPS	Private Sector	Maharashtra	WR	4	270	04/03/2015	2	N	N	50	50	19	N	Y			FGD Installation		Representative informed that SOx is within permissible limit
1266	Ratan Power	AMARAVATI TPS	Private Sector	Maharashtra	WR	3	270	29/01/2015	2	N	N	50	50	24	N	Y			FGD Installation		Representative informed that SOx is within permissible limit
1265	Ratan Power	AMARAVATI TPS	Private Sector	Maharashtra	WR	2	270	17/02/2014	3	N	N	50	50	23	N	Y			FGD Installation		Representative informed that SOx is within permissible limit
1264	Ratan Power	AMARAVATI TPS	Private Sector	Maharashtra	WR	1	270	25/03/2013	4	N	N	50	50	22	N	Y			FGD Installation		Representative informed that SOx is within permissible limit
1274	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Prad	WR	6	660	19/03/2015	2	N	N	50	50	NA	N	Y			FGD Installation		SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years
1273	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Prad	WR	5	660	24/08/2014	2	N	N	50	50	NA	N	Y			FGD Installation		SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years
1271	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Prad	WR	3	660	21/05/2014	3	N	N	50	50	30	N	Y			FGD Installation		SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years
1272	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Prad	WR	4	660	25/03/2014	3	N	N	50	50	25	N	Y			FGD Installation		SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years

1270	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	2	660	18/12/2013	3	N	N	50	50	35	N	Y		FGD Installation	SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years
1269	Reliance Power Ltd	SASAN UMTTP	Private Sector	Madhya Pradesh	WR	1	660	30/05/2013	4	N	N	50	50	21	N	Y		FGD Installation	SASAN Representative informed that they have done initial design, filed petition before CERC, commencement is subject to approval from CERC, implementation period from 3-5 years
1277	RKM Powergen Private Ltd.	UCHPINDA TPP	Private Sector	Chhattisgarh	WR	3	360	28/01/2016	1	N	N	50	50	43	N	Y		FGD Installation	unit not in the running condition. If Sox is not in limits, consultant will tell the space constraint and time
1276	RKM Powergen Private Ltd.	UCHPINDA TPP	Private Sector	Chhattisgarh	WR	1	360	28/10/2015	1	N	N	50	50	43	N	Y		FGD Installation	unit not in the running condition. If Sox is not in limits, consultant will tell the space constraint and time
1454	Tata Power (CGPL)	MUNDRA UMTTP	Private Sector	Gujarat	WR	5	800	22/03/2013	4	N	N	50	50	39	N	Y		FGD Installation	date is subjected to 3 years after CERC approval
1453	Tata Power (CGPL)	MUNDRA UMTTP	Private Sector	Gujarat	WR	4	800	21/01/2013	4	N	N	50	50	43	N	Y		FGD Installation	date is subjected to 3 years after CERC approval
1452	Tata Power (CGPL)	MUNDRA UMTTP	Private Sector	Gujarat	WR	3	800	27/10/2012	4	N	N	50	50	40	N	Y		FGD Installation	date is subjected to 3 years after CERC approval
1451	Tata Power (CGPL)	MUNDRA UMTTP	Private Sector	Gujarat	WR	2	800	30/07/2012	4	N	N	50	50	38	N	Y		FGD Installation	date is subjected to 3 years after CERC approval
1409	Tata Power (CGPL)	MUNDRA UMTTP	Private Sector	Gujarat	WR	1	800	07/03/2012	5	N	N	50	50	41	N	Y		FGD Installation	date is subjected to 3 years after CERC approval
1466	TATA Power Co.	TROMBAY TPS	Private Sector	Maharashtra	WR	5	500	25/01/1984	33	Y	N	150	100	104	Y	N/A		ESP Upgradation	work is under progress
1625	Vandana Vidyut	KATGHORA TPP	Private Sector	Chhattisgarh	WR	1	35	14/02/2012	5	N	Y	NA	50	NA	Y	N		ESP Upgradation	
1630	Vidarbha Industries Ltd	BUTIBORI TPP	Private Sector	Maharashtra	WR	2	300	19/03/2013	4	N	N	50	50	43	N	Y		FGD Installation	VIPL Representative informed that they have done initial design, filed DPR before MERC, commencement is subject to approval from MERC
1629	Vidarbha Industries Ltd	BUTIBORI TPP	Private Sector	Maharashtra	WR	1	300	17/08/2012	4	N	N	50	50	44	N	Y		FGD Installation	VIPL Representative informed that they have done initial design, filed DPR before MERC, commencement is subject to approval from MERC
1634	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	4	135	30/04/2011	6	N	N	100	50	33	N	Y		FGD Installation	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back
1633	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	3	135	21/01/2011	6	N	N	100	50	32	N	Y		FGD Installation	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back

1632	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	2	135	10/10/2010	6	N	N	100	50	38	N	Y			FGD Installation	Nov-21	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back
1631	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	1	135	05/06/2010	7	N	N	100	50	40	N	Y			FGD Installation	Jan-22	KSK is exploring and evaluating FGD technologies. Need further clarification related to limestone availability, chimney heights etc for finalisation of technical aspects. Shall discuss with management and revert back

30
1218116

Annex 3

GUJARAT URJA VIKAS NIGAM LIMITED

Sardar Patel Vidyut Bhavan, Race Course, Vadodara 390007

Tele. No. : 0265-2310582 to 86 (PBX)
Fax : 0265-2344543, 2337918

Ref. No.: GUVNL : GM (Comm.): 640
Date : 12.08.2016

To
✓ Member Secretary
Western Region Power Committee
F-3, MIDC Area
Andheri (East)
Mumbai 400 093

व. क्ष. वि. स. मुंबई / WRPC

आवक संख्या / Inward No. 1855

दिनांक / Date: 13/10/16

Fax no: 022 2837 0193

Sub.: Incorporating the agenda in WRPC on methodology of levy of transmission charges by PGCIL on the long term beneficiaries in Western Region.

Sir,

M/s PGCIL is recovering the transmission charges in accordance with the Sharing of Transmission Charges, Regulation 2010 notified by Hon'ble CERC. Accordingly the transmission charges are recovered under POC mechanism instead of the earlier postage stamp method. It is observed that the transmission charges of state of Gujarat have increased many fold in the recent past and same may be the case with other states too. Moreover, it is understood that many Independent Power Producers have sought connectivity and Long Term Open Access from PGCIL, transmission lines / system must have been augmented / set up to grant such Connectivity / OA. However, majority of these IPPs may not have commissioned their power projects though the evacuation facility is developed by PGCIL.

In order to understand – (a) The methodology and calculation of levy of transmission charges on the Long Term beneficiary and (b) Recovery of Transmission charges / treatment of the transmission lines which are set up to grant Connectivity / LTA to IPPs but the power projects are not commissioned, PGCIL may be asked to make a detailed presentation to the WRPC members during the forthcoming WRPC meeting. PGCIL may also incorporate in the presentation, the region wise approved transmission charges, transmission capacity in use and details of elements which are operating at lower than rated capacity or lying idle due to IPP project not commissioned.

Thanking You,

Yours faithfully,

(S. B. Khyalia)
Director (Finance)

Copy: as per Mailing list



भारत सरकार
विद्युत मंत्रालय
केंद्रीय विद्युत प्राधिकरण
राष्ट्रीय विद्युत समिति
कटवारिया सराय, नई दिल्ली-110016
वेबसाइट / Website: www.cea.nic.in



ISO 9001:2008

No. 4/MTGS/NPC/CEA/2016/ 735-739

Date: 27th October 2016

Subject: Line Differential Protection – Agenda for OCC / Protection Sub-Committee Meetings - Reg.

Kind attention is invited to the following recommendation of the Sub-Committee on Relay/Protection under task Force for Power System Analysis under contingencies (Para 14 in Section-6 of the report under Relay setting guide lines for Transmission lines):

“ 14. LINE DIFFERENTIAL PROTECTION

Many transmission lines are now having OPGW or separate optic fibre laid for the communication. Where ever such facilities are available, it is recommended to have the line differential protection as Main-I protection with distance protection as backup (built-in Main relay or standalone). Main-II protection shall continue to be distance protection. For cables and composite lines, line differential protection with built in distance back up shall be applied as Main-I protection and distance relay as Main-II protection. Auto-recloser shall be blocked for faults in the cables. ”

All the RPCs are requested to include this as agenda for detailed deliberation in the forthcoming OCC / Protection Sub-Committee meetings.

प. क्ष. वि. स. मुंबई /WRPC
आवक संख्या /Inward No. 1980
दिनांक /Date: 07/11/16

B. C. Mallick
(B.C. Mallick)
Chief Engineer

To:

1. Shri P.S.Mhaske, Member Secretary, NRPC, New Delhi-110 016.
- ✓ 2. Shri S. D. Taksande, Member Secretary, WRPC, Mumbai-400 093.
3. Shri S. R. Bhat, Member Secretary, SRPC, Bengaluru-560 009
4. Shri A.K. Bandyopadhyay, Member Secretary, ERPC, Kolkata- 700 033.
5. Shri P.K..Mishra, Member Secretary, NERPC, Shillong-793003.



केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन -2 प्रभाग
Power System Planning & Appraisal -II Division
सेवा भवन, रा. कृ. पुरम, नयी दिल्ली -110066
Sewa Bhawan, R. K. Puram, New Delhi-110066



No. CEA/PS/PSPA-II/2017/200/17-31-35

Dated: 11.01.2017

To

The Member Secretary, Southern Regional Power Committee, 29, Race Course Cross Road, Bangalore 560009.	The Member Secretary, Eastern Power Committee, 14, Golf Club Road Tollygunje Kolkata-700033.
The Member Secretary, Northern Regional Power Committee, 18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016	The Member Secretary, Western Regional Power Committee, F-3, MIDC Area, Marol, Opp. SEEPZ, Central Road, Andheri (East), Mumbai - 400093
The Member Secretary, North- Eastern Regional Power Committee, NERPC Complex, Dong Parmaw Lapalang, Shillong – 793006 (Meghalaya)	

Sub.: Draft National Electricity Plan-Vol.-II (Transmission and RE Integration).

Sir,

1. As per the Electricity Act, 2003, CEA is to prepare the National Electricity Plan once in five years. For preparing the Draft National Electricity Plan (Vol-II: Transmission), two sub-committees were constituted on **“Transmission Planning”** and **“Integration of Renewable Energy Sources”** under the chairmanship of Member (Power System), CEA for preparation of the National Electricity Plan (NEP). Final meeting of these committees was held on 28-12-2016. Based on the deliberations, the Draft National Electricity Plan (Vol-II: Transmission) has been prepared by CEA.
2. The Draft covers a review of the 12th Plan, plan for 2017-22 in detail along with details for RE integration and a perspective for the period beyond 2022. While preparing the NEP, tentative demands for 2021-22, as part of working of 19th EPS have been taken into consideration. The Report of the 19th Electric Power Survey Committee is expected shortly. Changes, if any, in demand projections would be suitably incorporated while finalizing the NEP.
3. In this regard, it is requested that the Draft National Electricity Plan (Vol-II: Transmission) may be forwarded/shared with members of RPC, TCC and OCC of your region. For views/suggestions/objections (if any) on the above Draft National Electricity Plan a time period of 45 days i.e. by 11th February, 2017 has been kept.
4. The soft copy of Draft National Electricity Plan (Vol-II: Transmission) is available on CEA website at given below link:
http://www.cea.nic.in/reports/others/ps/pspa2/draft_nep_trans_2016.pdf

The inputs/comments/suggestions regarding Draft National Electricity Plan may be sent at the following address:

Shri Pardeep Jindal

Chief Engineer(PSPA-II)

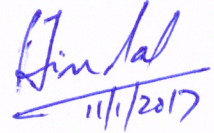
Central Electricity Authority

Sewa Bhawan, R K Puram

New Delhi-110066

Email: ceatransplan@gmail.com

Yours faithfully,



(Pardeep Jindal)

Chief Engineer (PSPA-II)



MP POWER MANAGEMENT COMPANY LIMITED

(A GOVT. OF M.P. UNDERTAKING)

Shakti Bhawan, Block No.11 (1st Floor), Rampur, Jabalpur

Tele/fax-(0761) 2667511 Tel- 2702402, 2702400, e-mail - kaushal.agrawal@mppmcl.com

No.07-11/IPC/SPL/ 954

Dtd. 31.12.2016

To,

The Asstt. Secretary,
Western Regional Power Committee,
F-3 MIDC Area, Central Road, Seepz, Andheri (East)
Mumbai - 400 093

Sub: Agenda Request for 33rd meeting of Western Regional Power Committee (WRPC).

Ref: i) Minutes of 24th meeting of TCC/WRPC held on 9.10.2013 at Goa.

ii) Superintending Engineer (Comml.), WRPC letter No. WRPC/Comml.I/ABTREA/2016/Sasan/1883 dtd.29.12.2016

Dear Sir,

Kindly refer to the Minutes of 24th meeting of TCC/WRPC held on 9.10.2013 at Goa, wherein item No.18 - "Declaration of Generating units into commercial operation". It has been decided as under:-

A. Scheduling of allocated contracted capacity of Sasan since 16.08.2013 onwards.
Member Secretary, WRPC informed that WRLDC has started scheduling Sasan power from 16.08.2013. Accordingly the same is included in the REA accounts issued by WRPC. Also a petition on the same is pending with the Hon'ble CERC. Any outcome on the same would be dealt as per instructions in the order, if any.

The matter of COD declaration was concluded in Supreme Court and Hon'ble Supreme Court of India vide its judgment on 8.12.2016 have reinstated the judgement dated 8.8.2014 of Central Electricity Regulatory Commission ("Commission") declaring COD date of first unit of Sasan UMPP on 16th August, 2013.

In accordance to the above, following item may be included as Agenda item so that revise REA be issued.

"REA as per Hon'ble Supreme Court judgement dated 8.12.2016 reinstating the judgement dated 8.8.2014 of Central Electricity Regulatory Commission ("Commission") in petition No. 85/MP/2014 regarding change of COD date of Sasan UMPP as on 16th August, 2013."

On our request, Superintending Engineer (Comml.), WRPC vide letter dated 29.12.2016 has intimated that after receipt of revised data from WRLDC the UI accounts and REA shall be revised tentatively within 15 days by WRPC.

Thanking you,

Yours faithfully,

Chief General Manager (IPC)
MP Power Management Co. Ltd.
Jabalpur

Copy to: The SO to MD, MPPMCL, Jabalpur

SE (operation)

Des. No.
O/o S.G.M. (IPC) MPPMCL
Jabalpur



भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति

Western Regional Power Committee

एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093

F-3, MIDC Area, Andheri (East), Mumbai - 400 093

दूरभाष Phone: 022- 28209506; 28200194; 28200195; 28200196 फैक्स Fax : 022 - 28370193

Website: www.wrpc.gov.in

E-mail : opc-wrpc@nic.in



आई एस ओ : 9001-2008
ISO: 9001-2008

सं: पक्षेविस/प्रचा. / प्रसस-कार्यवृत्त /2016-17/

दिनांक

08 नवम्बर 2016

सेवा में,

12072

As per List

विषय:- Minutes of Meeting on RTU & Communication
Meeting held on 24th October 2016 at WRPC, Mumbai

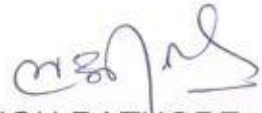
महोदय,

Please find enclosed regarding Minutes of Meeting on RTU & Communication Meeting held on 24th October 2016 at WRPC, Mumbai.

धन्यवाद ।

भवदीय,

संलग्न : उपरोक्तानुसार


(L K SINGH RATHORE)
Deputy Director(Opn)

Minutes of Meeting on RTU & Communication Meeting

held on 24th October 2016 at WRPC, Mumbai

List of participants is enclosed in annexure - I

Member Secretary, WRPC welcomed all participants on the 3rd meeting of the committee on RTU and Communication replacement in WR held on 24th October 2016 at WRPC, Mumbai. In his opening remarks, he informed the forum that as decided in the meeting at WRPC on 9.8.2016, POWERGRID WR-I has submitted the draft report on 9.10.2016. He further informed that data pertaining to RTU's was submitted only by MPPTCL and CSTPCL, and requested all the constituents to furnish the same urgently.

In his opening remarks he informed that during 32nd WRPC meeting at Pune on 24 Aug 2016, it has been discussed on the replacement/ upgrade/ maintenance of ULDC equipment beyond 15 years. During the WRPC meeting, director (Operation) PGCIL have informed that PGCIL will not take maintenance work of RTU's after the 15 year period would be over. Accordingly, the requirement for replacement and expansion shall be under respective utilities / States scope. Further considering the renewable integration in large scale need to be telemetered. During the last meeting status of the RTU and Communication system has been asked from all constituents so that modalities of replacement/ upgrade or procurement could be submitted to WRPC for approval. As discussed during the first meeting, it is agreed that the committee will make their recommendation for the above points for approval to WRPC for further action. He asked WRLDC to give their opening remarks before agenda points could be taken up. AGM, WRLDC informed that as per Indian Electricity Grid Code (IEGC) clause 4.6.2 (reproduced below), it is the responsibility of user to integrate data to respective control centre (SLDC / RLDC).

quote

"4.6.2 Data and Communication facilities

Reliable and efficient speech and data communication system shall be provided to facilitate necessary communication and data exchange, and supervision / control of the grid by the RLDC, under normal and abnormal conditions. All

agencies shall provide systems to telemeter power system parameter such as flow, voltage and status of switches / transformer taps etc. in line with interface requirements and other guidelines made available to RLDC / SLDC as the case may be, shall also be established by the concerned agency as specified by CTU in connection agreement. All agencies in coordination with CTU shall provide the required facilities at their respective ends and RLDC / SLDC as specified in the connection agreement."

Un-quote

Further, he told that as per Supreme Court Order on PTC vs CERC Ref 2010 Sec 603, regulation stands on higher pedestal than order or decision by CERC. Considering that IEGC is a regulation by CERC, it is the responsibility of user to provide telemetry for grid operation. Member Secretary, WRPC informed for discussion on the agenda points and asked constituents and generators to give their starters and opinion.

1. Chhattisgarh : The representative from Chhattisgarh informed that there is no RTU supplied under ULDC scheme in the state. They are on the process to upgrade 12 RTUs and all other works will be done through internal process. They desired to carry out all their RTU & communication activities themselves and meeting the IEGC compliance. They informed that IPPs in Chhattisgarh are integrating telemetry to SDLC.

2. Madhya Pradesh : The representative from MP informed that that there some of the RTUs are installed under ULDC scheme and some were old RTU integrated to SCADA system. They are on process to upgrade most of the RTUs and associated communication, all works will be done through internally by MPPTCL & MPPGCL. They desired to carry out all their RTU & communication activities themselves and meeting the IEGC compliance. They informed that without telemetry integrating telemetry to SDLC, charging / synchronization of new elements are not allowed by IPPs including renewable.

3. Gujarat : The representative from Gujarat informed that only a small number of RTU's were installed under ULDC scheme and a majority were

procured and maintained by them. Further they informed that RTUs and communication system are maintained by SLDC. They stated that replacement of RTU's through a central agency will be preferred by them. For renewable integration they will ensure telemetry integration by a IPP.

4. Maharashtra :The representative from Maharashtra informed that that their SCADA, RTU and communication system is commissioned separate from ULDC scheme. At present, all SCADA & RTUs works are under SLDC jurisdiction. As per the current status, the following details has been furnished

Total 242 RTU integrated to SLDC

146 RTUs under STU and States generations

98 RTU under IPP+CPP are under integration

SLDC certificate is required for data integration for first time charging of nw element.

Representative from Maharashtra informed that replacement / upgrade of RTU & communication system will be done through internal process and meet the IEGC compliance. Further, he informed that a new Chief Engineer post has been created for looking after protection, automation and communication who would be looking after all replacement / upgrade/ maintenance activities related to RTUs and communication system in the state.

5. NTPC : The representative from NTPC informed that so far all RTU and Communication has been provided by Power Grid Corporation under ULDC project. NTPC doesn't have any expertise on this field. They requested MS, WRPC to include all related work under central pool.

6. NCA : The representative from NCA informed that new RTU already installed and maintenance is included so there is no concern.

7. NPCIL :The representative from NPCIL informed that so far all RTU and Communication has been provided by all Power Grid Corporation under ULDC project. NPCIL doesn't have any expertise on this field. They requested MS, WRPC to include all related work under central pole. However it is understood

that telemetry from Kakrapar unit 3 & 4 is being done internally due to security reason as none of the vendors have agreed to abide by the agreement provision. AGM WRLDC also confirmed that Kakrapar Unit 3 & 4 officers have visited WRLDC once for discussion on the same.

8. DNH : The representative from DNH informed that new RTU already installed and maintenance is included so there is no concern.

9. DD: The representative from DD informed that new RTU already installed and maintenance is included so there is no concern.

10. Goa : The representative from Goa was not available.

DGM(Engg-e, TS and BDD) pointed out that all the states have expertise in procurement and maintenance of RTU's and more than 90 % of RTU's in their respective states have been procured by them. Even NTPC and other IPP's have been procuring / maintaining RTU's for their new stations since long time. Therefore as per the IEGC guidelines, all the users must procure and maintain the RTU's required for their system, and there is no requirement of a central agency just for procurement purpose.

AGM, WRLDC, informed that as discussed during meeting held on 05.08.2016 at DNH there are 7 RTUs data and report to SLDC & RKDC. However, due to communication and new configuration at RTU level proper data is not received. Considering the possible simulation for parallel operation of WR and SR grid in Goa proper telemetry is highly essential and thus requested MS to organize a meeting on higher level in Goa so that field condition can be accessed and proper decision can be taken.

After deliberation MS, WRPC expressed happiness about good participation from all agencies and also technical discussion. He suggested that the requirement could be furnished to PGCIL WR-I as soon as possible not later than 15 days after receiving starters it may be necessary to hold one more meeting of discussion and final report, the report will be submitted to WRPC for approval and implementation.

Presentation by Tejas Networks

DGM WR-I informed that in order to bring about clarity of availability of channel required for SCADA data under ULDC project and PMUs data under URTDSM project, the implementing agency M/s Tejas Networks have been invited for giving a presentation. Representative from M/s Tejas Networks has given a presentation for the benefit of all participants. It has been clarified that sufficient number of 2MB ports are available and the requirement of SCADA and PMU can be met. During discussion, it has emerged that there are still missing link to establish the complete fiber communication path due to various reason. Representative from POWERGRID has informed that all efforts are being made to complete fiber installation as per the approved project. The Presentation by M/s Tejas Networks on the progress of Communication Equipment Package (Package-III) for Establishment of Fiber Optic Communication System in western region is attached in annexure.

X-X-X

पश्चिम क्षेत्रीय भार प्रेषण केंद्र
पावर सिस्टम ऑपरेशन कार्पोरेशन लिमिटेड
(पावर ग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)

प.क्षे.भ.प्रे.के/लो-1/यूआरटीडीएसएम/2016-

दिनांक :10/10/2016

सेवा में ,
संलग्न सूची के अनुसार

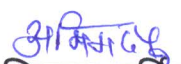
विषय: 28 सितंबर 2016 को गोवा में आयोजित यूआरटीडीएसएम की छठी परियोजना की बैठक का कार्यवृत्त.

महोदय,

गोवा में 28 सितंबर 2016 को आयोजित यूआरटीडीएसएम की छठी परियोजना के बैठक की कार्यवृत्त आपकी सूचनार्थ संलग्न है।

धन्यवाद ।

भवदीय,


(अभिमन्यु गतिया)

अपर महाप्रबंधक, प.क्षे.भ.प्रे.के

10/10/2016

Western Regional Load Despatch Centre
POWER SYSTEM OPERATION CORPORATION LIMITED,
(A wholly owned subsidiary of Power Grid Corporation of India Limited)

WRLDC/LOG-I/URTDSM/2016-

Date: 10/10/2016

To:
As per list enclosed

Subject: Minutes of Meeting (MOM) – 6th Meeting of Unified Real Time Dynamic State Measurement (URTDSM) project in Western Region held at Goa on 28.09.2016

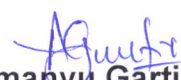
Sir,

6th Meeting of Unified Real Time Dynamic State Measurement (URTDSM) in Western Region was held at Goa on 28.09.2016.

The record note of discussions of the meeting is attached herewith for kind information.

Thanking You,

Yours faithfully,


(Abhimanyu Gartia)
Additional.Gen.Manager,
WRLDC
10/10/2016

Record notes of discussion -6th Meeting on Unified Real Time Dynamic State Measurement (URTDSM) project in Western Region held at Goa on 28.09.16

List of participants is enclosed in **Annexure-I**

6th meeting of Unified Real Time Dynamic Measurement (URTDSM) in Western Region was held at Goa on 28.09.2016 to review the project status. The meeting was attended by senior officials from WRPC, GETCO, MPPTCL, MSETCL, CSPTCL, WRLDC, POWERGRID LD&C, WR-I, WR-II & Project implementing agency M/s GE T&D (erstwhile ALSTOM).

At the onset, DGM, WRTS-I welcomed the members followed by introduction of the members. He requested MS, WRPC to deliver the opening address. MS, WRPC in his opening address stated that URTDSM project is being implemented by POWERGRID on pan India basis as approved in the joint standing committee of all 5 regions and approved by Honorable commission. He further stated that with the large penetration of Renewable Energy sources in the grid, power system scenario is changing and posing a new set of challenges and new perspective. He stated that power system visibility would improve significantly with the commissioning of URTDSM across the country by deploying WAMS technology, PMUs and fast sampling rate @25 samples per second. He was hopeful that URTDSM would also facilitate better Grid reliability and possibly self-healing capability of the grid can be achieved. Further he expressed that URTDSM project would help system operators on situational awareness. He stated that the project has been delayed and in the 32nd WRPC meeting held at Pune on 28.08.2016 constituents have desired for status update.

Executive Director LD &C, PGCIL informed that URTDSM is one of its kind and unique project in the world. He also mentioned that January 2016 is commissioning date as per original schedule. As per the progress of analytics development and field erections all efforts are being made to complete by March 2017, however, according to GE T&D (formerly Alstom) estimate, it may spillover to June 2017.

1. Project Status

Executive Director LD &C, PGCIL shared following information on the URTDSM project and status of commissioning:

- URTDSM Phase I project involves installation of 351 substations on existing communication wideband network.
- For Phase II of the project CERC has advised to come with a new petition after completion of Phase – 1 of URTDSM Project. All new sub stations have provision of PMU as part of transmission project and the same would be integrated to the URTDSM system
- 50 PMU have been installed
- 30 PMU have been dispatched to sites
- FAT of the hardware & software in integrated test mode is in progress at GE T&D Works at Noida for WRLDC, Gujarat and Maharashtra system.
- Performance FAT has started from 27.9.2016
- By December 2016, PDCs would be commissioned at respective control centers.
- On analytics development, IIT Mumbai team lead by Prof Soman have done commendable progress and prototypes are being tested in PGCIL location.

Chief Engineer Gujarat and Madhya Pradesh expressed that their officers should be involved during FAT. After deliberation, it has been agreed that LD & C would invite representative from constituents for participation in FAT activities for URTDSM system.

ED (LD & C), PGCIL requested GE T&D (formerly Alstom) to inform field progress on implementation to the members:

WRTS-I Status Update:

PMU (Total Scope- 178 PMUs in WR - I):

Location (No. of PMUs)	State	Progress			Remarks
		Supply	Ern	Comm.	
Mapusa (1)	PGCIL	Done	Completed	Completed	Link to be established to WRLDC
Navi Mumbai (1)	PGCIL	Done		--	Diverted to Bina Lab
Korba (E) (5)	CSEB	Done	Completed	Completed	--

Korba STPS (6)	NTPC	Done	Completed	Completed	--
Durg (9)	PGCIL	Done	Under Progress		Work hampered for Cable Laying between Kiosks in Substations of Chhattisgarh Area due to Incessant Rains.
Raigarh (Tam'r,8)	PGCIL	Done	Under Progress		
Raigarh(Kotra,15)	PGCIL	Done	Under Progress		
Dharamjaygarh(12)	PGCIL	Done	Under Progress		

WRTS-II Status Update:

PMU

S.No	Name of Station	No. of feeders	Name of Feeder	Supply &Commissioning
1	400 kV Itarsi	11	Indore 1&2,Bhopal 1&2,Khandawa 1&2, Satpura, Jabalpur 1,2,3,&4	Commissioning Completed
2	400 kV Jabalpur	10	Itarsi 1,2,3,&4, Vindhyachal 1,2 & 4,Sasan-I, 400kV Jabalpur pool 1&2	Commissioning Completed
3	400 kV Khandwa	12	Indore1 & 2, Dhule 1&2, Itarsi 1&2, Seoni 1&2, Rajgarh 1 &2, Betul 1&2	Commissioning Completed
4	400 kV Navsari GIS	6	Jhanor 1&2, KAPP 1&2, Magarwada 1&2	Commissioning Completed
5	400 kV Dehgam	14	Sami 1&2, Ranchodpura 1&2, Pirana 1,2,3&4, Jhanor 1&2, Wanakbori 1, Nagda 1&2, Soja 1	Commissioning Completed
6	Kala GIS	4	400kV Vapi 1 & 2, 400kV Kudus 1&2	Commissioning Completed
7	765 kV Jabalpur Pooling	14	Dharamjaygarh 1 ,2, 3 &4, Bina 1,2 & 3, Bhopal, Jabalpur 1 & 2,MB Power 1 & 2, Jhabua 1,2	WIP
8	400 kV Pirana	6	Dehgam 1,2,3,4, Vadodara 1&2	WIP
9	400 kV Rajgarh	8	SSP 1&2, Nagda 1&2, Kasor 1&2, Khandawa 1&2	WIP
10	Bina NHPTCL	2	Bina 1&2	Commissioning Completed
11	400 kV Vapi	7	Boiser, KALA 1&2,KAPP 1&2, Suzen	Supply Completed
12	400 kV Bachhau	8	Mundra 1&2, Ranchodpura 1&2, Essar TPS 1&2, Versana 1&2	Supply Completed
13	400 kV Gandhar (NTPC)	6	GPEC, Suzen, Dehgam 1&2, Navsari 1&2	Supply Completed
14	400 kV Kakrapar (NPCIL)	6	Vav 1&2, Vapi 1&2, Haldarwa 1&2	Supply Completed
15	765 kV Vadodara GIS	8	765kV Indore, 765kV Dhule, 400kV Pirana 1 & 2, Asoj 1 & 2, DGEN 1&2	Supply Completed
16	400 kV Magarwada GIS	4	400kV Navsari 1 & 2, 400kV Boisar 1&2	Supply Completed
17	400 kV Bhopal (MPPTCL)	8	Bina 1&2, Damoh 1&2, Itarsi 1&2, Bhopal (N) 1&2	Supply Completed

18	400 kV Bina (MPPTCL)	7	Bhopal 1&2, Bina PG 1,2,3&4, Bina Power	Supply Completed
19	400 kV Indore (MPPTCL)	9	Itarsi 1&2, Asoj 1&2, Nagda, Indira sagar 1&2, Indore(PG) 1&2	Supply Completed
20	400 kV Nagda (MPPTCL)	8	Rajgarh 1&2, Dehgam 1&2, Indira sagar, Indore, Shujalpur 1&2	Supply Completed
21	400 kV Katni (MPPTCL)	2	Birsinghpur, Damoh	Supply Completed
22	400 kV Varsana (GETCO)	9	Bhachau 1&2, Adani 1&2, Hadala	Supply Completed
23	400 kV Amreli (GETCO)	10	Jetpur, Chorania, Shaporji 1&2, Vadinar 1&2, Kasor 1&2 and Pipava 1&2	BoQ approved. FAT to be completed.
24	765 kV Bina	21	765kV Jabalpur PS 1,2&3,765kV Indore,Satna 1,2,3&4, Satna 765 1&2, Gwalior 765 1,2&3, Sujalpur 1&2, Bina 1,2,3&4, Seoni 765, Bina Power	BoQ
25	765 kV Gwalior	9	Bina765 1&2, Agra765 1&2,765kV Satna, 765kV Bina 765kV Bina 1,2 & 3, 765kV Jaipur 1 & 2, 765kV Agra 1 & 2, 765kV Satna 1 & 2	BoQ approved. FAT to be completed.
26	765 kV Satna	20	Bina PG 1,2,3&4, Bina 765 1 &2, Sasan 1&2,Vindhyachal 1,2,3&4, Sasan765 1&2, 765kV Satna 1&2,765kV VPOOL 1&2, Jaiprakash 1&2	BoQ approved. FAT to be completed.
27	400 kV Vindhyachal (NTPC)	12	Jabalpur PG 1&2, Singrauli 1&2, Satna 1,2.3&4, Sasan 1&2, KSTPS 1&2, 400kV V'Pool 1 & 2	FAT completed. Material dispatched / in transit.
28	400 kV Damoh	5	Katni, Birsinghpur 1&2, Bhopal 1&2	BoQ approved. FAT to be completed.
29	400 kV Shujalpur	4	Nagda 1&2, Bina 1&2	FAT completed. Material dispatched / in transit.
30	220 kV Kawas (NTPC)	6	Haldarwa 1&2, Vav 1&2, Navsari 1&2	FAT completed.
31	765 kV Indore	7	765kV Bina(PG), 765kV Vadodara, 765kV Bhopal, 400kV Indore (MP)1 & 2, 400kV Pithampur 1&2	Supply completed.
32	765 kV Vindhychal Pool	11	765kV Rihand III 1 & 2, 765kV Satna 1 & 2, 765kV Sasan, 400kV Sasan 1& 2, 400kV Vin IV 1 & 2, DB(MP) 1&2	FAT completed. Material dispatched / in transit.
33	400 kV Boiser	8	Tarapur 1&2, Padghe,Vapi,Magarwada 1&2, Aurangabad 1&2	BOQ
34	400 kV Birsinghpur (MPPTCL)	4	Damoh-1&2, Korba - 1&2	BOQ
35	400 Sasan (RELIANCE)	11	Satna765 1&2, Vindhyachal 1&2, Satna 1&2, 400kV Vpool 1&2, 765kV Vpool, 400kV	BoQ approved. FAT to be completed.

			Jabalpur 1&2	
36	400 kV SSP (NCA)	6	Rajgarh 1&2, Asoj, Kasor, Dhule 1&2	BoQ approved. FAT to be completed.

2. Analytics development

Prof. S.A.Soman and team presented the status of IIT-B Analytics being developed under the URTDSM project, viz.,

- a) Line Parameter Estimation
- b) Online Relay Vulnerability Analysis
- c) Linear State Estimation
- d) CT/PT Calibration
- e) Supervision of Zone 3 distance Protection

3. Agenda points of WR Constituents

Additional General Manager, WRLDC requested to take up MPPTCL, CSPTCL & GETCO agenda. All agenda items are listed below. The contract for URTDSM project was awarded to M/s Alstom T&D India Ltd (now GE T&D) on 15-01-2014 with implementation schedule of 24 months. Considering the agenda items are general in nature and related to project execution status, same shall be replied by project team / LD &C.

a) MPPTCL Agenda:

The agenda items and present status with respect to MP is as given hereunder:

- i. It is very surprising to note that even after lapse of 32 months of project award, not even single PMU is delivered at MP state sector site.

Representative from LD&C clarified that PMU supply for 5 out of 8 stations of MPPTCL as listed in Table above is completed and remaining is under manufacturing.

- ii. As per schedule given in last PRM, delivery of PMUs was supposed to commence from February 2015 and delivery of control center equipment was proposed from August 2015. However, delivery of control center equipment is still awaited. Even FAT for PMU/PDC of state sector is yet to be planned.

Representative from LD&C clarified that PDS System is delivered and installed. Integrated FAT of PDCs for Gujarat & Maharashtra SLDCs is under progress since mid of Aug'16 and is presently in advance stage of completion. For MPPTCL simplified FAT is expected to commence in January'17.

- iii. The development PDC delivered at MP SLDC is lying idle as no manpower is deployed and no activity is planned /communicated so far for development system delivered at SLDC.

LD&C clarified that after PMUs are installed at s/s, the PDS system shall be used for testing.

- iv. As important Thermal Generating Stations and 400KV Sub Stations of MP was not included in URTDSM project, the matter was taken up by SLDC MP and it was assured by PGCIL that the same shall be included in second phase of URTDSM project. However, no confirmation in the matter has been received from PGCIL.

LD&C informed that in compliance to CERC order on URTDSM Phase 2 petition by PGCIL, fresh petition with revised scheme is required to be filed after completion of URTDSM Phase 1.

- v. As per information given by PGCIL in last PRM, all trainings including Control center equipment training was to be completed by June 2015. However, the training on various modules covered under project is yet to commence.

LD&C informed that training on PDC system for Control Centers is planned from Nov.'16 onwards.

- vi. After constant pursuance by states, first meeting of URTDSM project was held on 12.11.2014. The first meeting of URTDSM project was called after 11 months of project award and no project review meeting was called since more than one year. The progress in the matter of development of Analytics by IIT is not shared to constituents. MPPTCL requested PGCIL/GE to provide schedule of FAT of PMU/PDC for equipment under MP portion, training and status of analytics.

LD&C stated that the above concerns of MPPTCL has been addressed under item 1, 2, 3 a) ii and 3 a) v above.

b) CSPTCL Agenda:

Representative from CSPTCL gave the status of PMU in Chhattisgarh as under:

- Korba East – PMU installed & data reporting to SLDC Raipur & WRLDC
- Korba West – PMU delivered 22.9.2016, Installation & commissioning schedule not given by ALSTOM

- Bhilai – PMU not yet delivered.

The agenda items and present status with respect to CSPTCL is given hereunder:

- As per schedule given in last PRM, delivery of PMUs was supposed to commence from February 2015 and delivery of control center equipment was proposed from August 2015. However, delivery of control center equipment is still awaited. Even FAT for PMU/PDC of state sector is yet to be planned.

LD&C informed that simplified FAT of PDC system for CSPTCL is expected in Jan.'17 and PMU manufacturing for balance quantity is in progress.

- The development PDC delivered at CSLDC is lying idle as no manpower is deployed and no activity is planned /communicated so far for development system delivered at SLDC.

LD&C clarified that after PMUs are installed at s/s, the PDS system shall be used for testing.

- As important Thermal Generating Stations like DSPM TPS, Marwa & Raitahave not been included in URTDSM project. The matter was taken up by CSLDC and it was assured by PGCIL that the same shall be included in second phase of URTDSM project. However, no confirmation in the matter has been received from PGCIL.

LD&C informed that in compliance to CERC order on URTDSM Phase 2 petition by PGCIL, fresh petition with revised scheme is required to be filed after completion of URTDSM Phase 1.

- As per information given by PGCIL in last PRM, all trainings including Control center equipment training was to be completed by June 2015. However, the training on various modules covered under project is yet to commence.

LD&C informed that training on PDC system for Control Centers is planned from Nov.'16 onwards.

- CSPTCL requested PGCIL/GE to provide schedule of FAT of PMU/PDC for equipment under Chhattisgarh portion, training and status of development of Analytics by IIT.

LD&C stated that the above concerns of CSPTCL has been addressed under item 1, 2, 3 b) i and 3 b) iv above.

c) Gujarat Agenda:

The agenda items and present status with respect to GETCO is given hereunder:

- i. Survey reports of GETCO locations is not yet submitted to SLDC.
LD&C informed that the reports are available with the respective RHQ and requested WRTS-II to share the same with GETCO.
- ii. Installation & commissioning schedule shall be informed in advance to SLDC Gujarat for GETCO s/s and role of SLDC in the work shall be informed.
LD&C requested GE T&D to take care of the same in future activities under URTDSM.
- iii. For Varsana & Amreli PMUs MPLS VPN communication will be arranged by SLDC Gujarat and data will be reported to SLDC PDC of Gujrat and output data stream to WRLDC PDC.
LD&C noted the same.
- iv. As agreed in earlier PRM, the 2 Mbps link from Asoj and Vadavi arranged by PGCIL is not useful to GETCO, therefore it is requested to provide link from 220 kV Haldarwa & 220KV Navasari for RTU Communication.
LD&C clarified that in URTDSM Project Phase -1, use of existing communication system is considered. No new communication links are envisaged in Phase-I.
- v. Test PDC is installed at SLDC, no further work is done, future plans may be informed.
LD&C informed that PDS system shall be integrated with Control Centre Hardware.
- vi. Status of FAT/SAT of PMU panel may be discussed with constituent. IIT-B Analytics development may be discussed, installation planned inputs required from SLDC may be decided. SLDC may be involved in testing of analytics as state requirement may vary according to system operation practice.
LD&C stated that the above concerns of GETCO has been addressed under item 1, and 2 above.

Representative from GE T&D informed that delay in URTDSM project commissioning has already been highlighted in the meeting. He brought to the notice of members that short duration 15 to 30 minutes shutdown (SD) of element is required for extending CT/PT to PMU. GM WRLDC informed that there is a SD process in WR and considering the safety and security of grid, these SD requests may be brought out in OCC in a planned manner. Considering the project execution, SD for extending CT/PT for PMU commissioning under URTDSM project has been deliberated. After discussion, it has been agreed that POWERGRID would take up these SD requests in monthly OCC meetings. Cases involving extreme exigencies, availability of erection team and expediting PMU commissioning, PGCIL would submit the request to WRPC for further action. WRLDC shall consider allowing the SD subject to real time condition in coordination with NLDC (if necessary).

The meeting concluded with closing remarks from DGM WRTS-I, PGCIL and vote of thanks to the members.

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

ANNEXURE 33.1(a)

**FREQUENCY PARTICULARS OF WESTERN REGION FOR THE PERIOD
AUGUST 2015 TO DECEMBER 2016**

Sr.No.	PARTICULARS	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
1	MAXIMUM FREQUENCY (Hz)					
1.1	Integrated over an hour	50.14	50.09	50.11	50.09	50.11
1.2	Instantaneous	50.35	50.24	50.25	50.27	50.31
2	MINIMUM FREQUENCY (Hz)					
2.1	Integrated over an hour	49.67	49.85	49.89	49.78	49.82
2.2	Instantaneous	49.65	49.67	49.75	49.54	49.67
3	AVERAGE FREQUENCY (Hz)	50.00	50.00	50.00	49.99	49.99
4	NUMBER OF TIMES FREQUENCY TOUCHED					
4.1	48.6 Hz	0	0	0	0	0
4.2	48.8 Hz	0	0	0	0	0
4.3	51.0 Hz	0	0	0	0	0
5	PERCENTAGE TIME WHEN FREQUENCY WAS					
5.1	Above 50.05 Hz	20.32	19.00	19.80	19.04	19.38
5.2	<i>Between 49.9 Hz & 50.05 Hz</i>	73.73	75.15	74.78	71.94	69.58
5.3	Below 49.9 Hz	5.94	5.85	5.43	9.02	11.04

POWER SUPPLY POSITION IN WR FOR PERIOD FROM AUGUST 2016 TO DECEMBER 2016 (IN EX-BUS MW)																				
Details	Chhattisgarh					Gujarat					Madhya Pradesh					Maharashtra				
	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Availability (MW)	3827	3449	3242	3058	3500	12564	14662	14134	12911	12915	18644	7893	8832	10867	11501	18644	20232	20462	20298	19835
Unrestricted demand (MW)	3848	3453	3247	3087	3502	12564	14662	14134	12915	12952	18657	7910	8832	10894	11512	18657	20240	20499	20305	19899
Deficit(-)/Surplus(+) in MW	-20.99	-3.82	-4.8104	-28.8143	-2	0	0	-0.2103092	-4.65465	-37	-13.37	-17	0.1708257	-27.06025	-11	-13.37	-7.25	-36.66425	-7.28175	-64
Deficit(-)/Surplus(+) in %	-0.55	-0.11	-0.15	-0.93	-0.06	0.00	0.00	0.00	-0.04	-0.29	-0.07	-0.21	0.00	-0.25	-0.10	-0.07	-0.04	-0.18	-0.04	-0.32
POWER SUPPLY POSITION IN WR FOR PERIOD FROM AUGUST 2016 TO DECEMBER 2016 (IN EX-BUS MW)																				
Details	Goa					Daman & Diu					Dadra & Nagar Haveli					Western Region				
	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Availability (MW)	491	468	487	531	411	327	327	327	314	296	759	776	784	761	721	39903	46007	46090	46865	47482
Unrestricted demand (MW)	493	468	487	531	461	327	327	327	314	296	759	776	784	761	721	40122	46107	46123	46898	47856
Deficit(-)/Surplus(+) in MW	-1.72	-0.33	-0.3409	-0.3717	-50	0	0	0	0	0	0	0	0	0	0	-219	-100	-33	-33	-374
Deficit(-)/Surplus(+) in %	-0.35	-0.07	-0.07	-0.07	-10.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.55	-0.22	-0.07	-0.07	-0.78
POWER SUPPLY POSITION IN WR FOR PERIOD FROM AUGUST 2016 TO DECEMBER 2016 (IN MUS) EX-BUS																				
Details	Chhattisgarh					Gujarat					Madhya Pradesh					Maharashtra				
	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Availability (MUs)	2101	2084	1932	1657	1786	7759	9105	8178	7680	8448	5348	4701	5077	6273	6642	11113	11050	11551	11763	12175
Unrestricted Requirement (MUs)	2107	2088	1932	1657	1786	7759	9105	8178	7680	8448	5348	4701	5077	6273	6642	11113	11050	11551	11764	12182
Deficit(-)/Surplus(+) in MUs	-5.27	-4.1601	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.08	-0.028	0	-0.49	-7
Deficit(-)/Surplus(+) in %	-0.25	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06
POWER SUPPLY POSITION IN WR FOR PERIOD FROM AUGUST 2016 TO DECEMBER 2016 (IN MUS) EX-BUS																				
Details	Goa					Daman & Diu					Dadra & Nagar Haveli					Western Region				
	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Availability (MUs)	412	435	320	307	312	203	214	205	187	190	510	530	525	478	478	27446	28120	27788	28345	29983
Unrestricted Requirement (MUs)	412	435	320	307	312	203	214	205	187	190	510	530	525	478	478	27451	28124	27788	28345</	

VOLTAGE PROFILE FOR THE PERIOD OF AUGUST 2016 TO DECEMBER 2016

ANNEXURE -33.2

	भोपाल		खंडवा		इटारसी		दमोह		नागदा		इंदौर		ग्वालियर		रायपुर		रायगढ़	
MONTH	Bhopal		Khandwa		Itarsi		Damoh		Nagda		Indorer		Gwalior		Raipur		Raigarh	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV	
	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Aug-16	420	399	432	409	420	398	424	402	427	406	423	401	421	385	428	388	429	412
Sep-16	421	395	432	389	420	395	427	401	426	399	424	397	420	387	426	411	426	413
Oct-16	420	397	431	405	419	394	425	404	427	397	425	395	414	384	427	410	426	407
Nov-16	420	393	428	396	416	388	426	401	425	393	423	394	419	387	427	410	425	412
Dec-16	422	396	427	396	418	389	428	403	425	397	423	393	418	389	427	409	428	412

	भिलाई		वर्धा		धुले		परली		बोईसर		कलवा		कराड		असोज		देहगाम	
MONTH	Bhilai		Wardha		Dhule		Parli		Boisar		Kalwa		Karad		Asoj		Dehgam	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV	
	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Aug-16	424	407	430	401	435	400	438	390	424	396	432	377	435	409	420	399	433	394
Sep-16	421	406	427	400	434	399	436	388	426	399	433	399	436	408	421	399	428	394
Oct-16	423	382	427	402	436	399	435	388	430	395	436	395	436	407	424	398	431	393
Nov-16	423	407	426	401	431	396	428	388	426	400	432	399	434	408	424	397	431	407
Dec-16	425	406	425	402	432	396	426	388	427	400	434	403	434	408	420	399	438	381

	कासोर		जैतपुर		अमरेली		वापी		मापुसा		कला		मगरवाड़ा		हज़ीरा	
MONTH	Kasor		Jetpur		Amreli		Vapi		Mapusa		Kala		Magarwada		Hazira	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV	
	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Aug-16	422	406	420	398	425	400	420	388	435	395	420	400	424	396	422	391
Sep-16	422	406	417	380	423	386	421	393	432	396	419	404	424	397	425	392
Oct-16	423	406	419	393	420	400	431	385	438	395	420	402	423	397	423	394
Nov-16	422	405	414	394	420	399	427	395	436	393	418	405	425	398	425	391
Dec-16	421	406	413	396	419	402	425	394	439	393	418	383	423	395	424	390

	सासन		सतना		तमनार		कोटरा		वडोदरा		दुर्ग		ग्वालियर		सिपत		सियोनि		वर्धा		बीना		इंदौर	
MONTH	Sasan		Satna		Tamnar		Kotra		Vadodara		Durg		Gwalior		Sipat		Seoni		Wardha		Bina		Indore	
	765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv	
	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम	अधिकतम	न्यूनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Aug-16	789	757	798	755	807	775	809	775	801	758	802	759	808	750	776	754	797	757	809	747	800	751	792	750
Sep-16	787	755	799	753	803	779	803	765	804	755	793	762	806	752	777	756	798	757	806	750	801	755	798	743
Oct-16	789	758	798	753	804	776	804	768	806	753	802	762	802	747	775	751	798	750	807	751	799	754	796	746
Nov-16	778	752	788	749	802	774	802	773	805	751	795	767	797	749	774	750	795	746	808	749	792	749	795	737
Dec-16	778	753	793	751	806	775	807	773	800	751	798	762	798	752	779	749	798	745	807	739	797	749	797	743

ANNEXURE -34
ANTICIPATED POWER SCENARIO IN WR FOR PERIOD FROM JANUARY 2017 TO MARCH 2017 (IN MW)(EX-BUS)

Details	CHATTISHGARH			GUJARAT			MADHYA PRADESH			MAHARASHTRA		
	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17
Unrestricted demand (MW)	3555	3595	3720	13905	13700	13490	9990	10095	10920	21220	21115	20910
Availability (MW)	3585	3605	3750	14625	14675	14730	11075	10815	11845	21630	21835	22095
Deficit(-)/Surplus(+)												
(i) MW	30	10	30	720	975	1240	1085	720	925	410	720	1185
(ii) %	0.84	0.29	0.80	4.92	6.64	8.42	9.80	6.66	7.81	1.90	3.30	5.36

Details	GOA			DD			DNH			WESTERN REGION		
	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17
Unrestricted demand (MW)	536	528	550	315	318	320	805	810	815	50470	51760	51050
Availability (MW)	536	525	550	315	318	320	805	810	815	52635	54795	54075
Deficit(-)/Surplus(+)												
(i) MW	0	-3	0	0	0	0	0	0	0	2165	3035	3025
(ii) %	0.00	-0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11	5.54	5.59

ANTICIPATED POWER SCENARIO IN WR FOR PERIOD FROM SEPTEMBER 2016 TO NOVEMBER 2016 (IN MUs)(EX-BUS)

Details	CHATTISHGARH			GUJARAT			MADHYA PRADESH			MAHARASHTRA		
	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17
Unrestricted Requirement (MUs)	2435	2550	2490	9590	9280	8770	6220	6580	6710	13010	13160	12750
Availability (MUs)	2430	2540	2485	9690	9435	9190	6480	6835	7080	13465	13360	13310
Deficit(-)/Surplus(+)												
(i) MUs	-5	-10	-5	100	155	420	260	255	370	455	200	560
(ii) %	-0.21	-0.40	-0.20	1.03	1.64	4.57	4.01	3.73	5.23	3.38	1.50	4.21

Details	GOA			DD			DNH			WESTERN REGION		
	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17	Jan-17	Feb-17	Mar-17
Unrestricted Requirement (MUs)	310	315	305	205	202	195	525	520	515	31110	32640	33510
Availability (MUs)	315	320	310	205	202	195	525	525	520	31720	33250	33660
Deficit(-)/Surplus(+)												
(i) MUs	5	5	5	0	0	0	0	5	5	610	610	150
(ii) %	1.59	1.56	1.61	0.00	-0.02	0.00	0.00	0.97	0.94	1.92	1.83	0.45

A) Status of Progress of ongoing Transmission Schemes undertaken by Transmission Utility as on 11.01.2017- POWERGRID (WESTERN REGION-I)

Sl	Name of Transmission Line	Length in Ckt Km	Total Location	Present Status as on 11.01.2017			Anticipated completion Target	Remark
				Stub Setting completed	Tower Erected	Stringing Completed		
1	LILO of Lonikhand-Kalwa at Navi Mumbai GIS-JSL/LS Cable	16	25	25	25	15.60	Mar'17	Downstream 220kV system at Navi Mumbai not yet finalized by MSETCL. Severe ROW problems at Nevale village, Panvel.
2	400 KV Mauda Betul Line(MH Portion)	220	312	285	278	144.00	Mar'17	Severe RoW problems at Nagpur end
3	765 kV Raipur-Wardha Line-2	714	963	955	941	658.00	Mar'17	Severe RoW problems
4	400 KV Wardha-Aurangabad Line (Upgradable to 1200 kV Voltage Level)	696	956	927	833	445.50	Jun'17	Severe RoW problems
5	765 KV Aurangabad-Padghe Tr. Line	570	773	721	692	394.00	May'17	Severe RoW problems
6	400 kV Padghe-Padghe Tr. Line	33.4	46	46	46	31.40	Mar'17	400kV Kudus (MSETCL) not getting ready. Commissioning matching with 765kV Aurangabad-Padghe line
7	400 KV Solapur(NTPC)-Solapur(PG) Line-2	24	40	29	29	8.76	Mar'17	Severe RoW problems
8	765 KV Wardha-Hyderabad line(MH portion)	236	322	302	296	178.00	Mar'17	
9	400 KV Aurangabad-Boisar Line(WR-I portion)	340	458	458	458	321.80	Feb'17	Severe RoW problems
10	765 kV D/C Jharsuguda-Dharamjaygarh	210	286	210	194	72.24	Sep'17	Forest approval awaited/ RoW problems
11	400 kV D/C LARA-Champa Tr.Line	226	306	240	224	54.00	Jun'17	Severe RoW problems

SI	TBCB Lines							
	PWTL							
1	765kV D/C Gadawara- Warora line (Part-3)	173.42	237	93	56	0	Nov'17	Forest approval awaited
2	LILO of both Ckts. Of 400 kV Wardha-Parli at Warora	193.734	271	111	70	0	Nov'17	
	PPTL							
1	765kV D/C Warora –Parli line	695.632	919	330	189	0	Jan'18	Forest approval awaited
2	765kV D/C Parli - Solapur line	236.000	311	82	53	0	Jan'18	
3	400kV D/C Parli-Parli line	36.464	52	16	10	0	Jan'18	

B) Completed Transmission projects in year 2016-17 so Far - POWERGRID (WESTERN REGION-I)

S.N	Name of Transmission Line	Length in Ckt Km	Date of Completion/ COD
1	LILO of 400 kV D/C Aurangabad-Pune	44	05.04.2016
2	400 kV D/C Lara STPS-1 to Raigarh (Kotra) line	36	05.05.2016

C) Status of ICTs

SI	ICTs	Expected commissioning
1	765/400kV, 3X500MVA ICT at 765/400KV Raigarh (Tamnar) SS	March, 2017
2	765/400kV, 3X500MVA ICT at 765/400KV Durg PS	March, 2017
3	765/400kV, 7X500MVA ICTs at 765/400KV Padghe GIS SS	June, 2017
4	400/220kV, 2X500MVA ICTS at Parli SS.	July, 2018

D) Status of Reactors

Sl	Reactors	Status
1	765kV, 2x240 MVAR Line reactors at 765/400KV Padghe GIS SS- BTW (IPP-E)	June, 2017
2	765kV, 240 MVAR Bus reactor at 765/400KV Padghe GIS SS (IPP-E)	June, 2017
3	765kV, 2x240 MVAR Line reactors at 765/400KV Durg PS (IPP-F)	Reactors ready for charging.
4	765kV, 2x240 MVAR Line reactors at 765/400KV Wardha SS (IPP-F)	Reactors ready for charging.
5	400kV, 2x80 MVAR Line reactors at Wardha SS (Mundra)	Reactors ready for charging.
6	765kV, 2x240 MVAR Line reactors at 765/400KV Wardha SS (Wardha-Hyderabad 765kV Link)	

Annex-38**Status of Deviation and RRAS Charges Payable/Receivable to WR Deviation Pool
Fund Account**

Last updated on 05/01/17

Name of DSM Pool Member	Total dues	Payments overdue
	Principal	Principal
CSPDCL	70,35,484	
MP Power Management Co. Ltd.	-6,58,74,508	
GETCO LTD.	1,28,85,263	
MSLDC UI Settlement account	67,96,707	
Goa	1,81,01,082	
D&D	3,71,661	
D&NH	-71,57,080	
NTPC	-29,46,69,810	
NR	84,73,39,600	75,30,33,465
SR	20,49,47,160	13,70,11,010
ER	-2,72,82,436	
JINDAL POWER LIMITED	-13,84,49,607	
HVDC Vin.	-3,93,990	
HVDC Bha.	-6,03,135	
LancoAmarkantak Power Ltd	-1,64,26,705	
NSPCL	-4,06,71,807	
ACBIL	-63,73,752	
RGPPL	-4,72,94,807	
BALCO	3,71,08,879	1,62,65,099
CGPL UMPP MUNDRA	-1,73,84,028	
DCPP JSPL	57,18,973	
Essar Power MP Ltd	-1,16,87,818	
SASAN Power Limited	-5,27,39,125	
KSK Mahanadi	8,69,064	29,08,470
VandanaVidyut Ltd	9,47,78,248	9,47,77,818
GMR Warora Energy Ltd.	-1,07,80,794	
KORBA WEST POWER Co. LTD	26,91,798	8,64,286
D. B.Power	-1,97,58,235	
JAYPEE NIGRI TPP	-63,11,230	

Essar Steel India Ltd	6,09,28,981	3,88,97,421
DGEN (Torrent Energy Limited)	15,89,536	
GMR Chhattisgarh Energy Ltd	2,18,98,984	2,06,71,931
Dhariwal Infrastructure Ltd.	-5,19,178	
RKM Powergen Pvt Ltd.	84,63,643	77,13,889
MB Power (Madhya Pradesh) Ltd.	19,22,789	56,88,244
Jhabua Power Ltd	1,12,26,775	1,00,89,712
SKS POWER GENERATION (CHHATTISGARH) LTD	40,67,121	18,20,414
TRN Energy Ltd.	-3,11,594	
BARC (PAO, PREFRE, Tarapur)	-50,11,247	
HVDC CHAMPA	-21,11,455	
Differential amount from capping due to injn. >105%	32,05,50,005	32,06,93,357
Amount araised from additional UI	-1,29,02,64,885	
Amount araised from capping Over Injn.and under drawal	-1,15,76,74,696	

Note:-1. DSM Accounts issued upto 39th week of 2016-17 and Revisionsand RRAS issued till 27.12.16.

2. DSM Payments received and disbursed upto 03.01.17

Status of Reactive Energy Charges Payable to REC Pool Account

Last updated on 05/01/17

(+) Payable / (-) Receivable from Pool

Amount in Rs.

	<i>Total dues</i>	<i>Total overdues</i>
	<i>Principal</i>	<i>Principal</i>
GETCO	-12,75,688	-10,11,033
MPMPCL	-37,35,369	-31,07,174
CSPDCL	4,11,462	-5,96,814
MSEDCL	39,82,413	42,97,440
Goa	-1,84,773	-1,56,539
DD	10,67,183	7,30,275
DNH	-2,67,032	-1,57,959
TOTAL	-1,804	-1,804

*When Receivables are more than payable, total of all receivables made equal to payable.

*When all are receivable and no fund available , all receivables made zero .

Note : This includes :

1. REC Accounts issued upto 39th week of 2016-17 ie. 19.12.2016 to 25.12.2016
2. REC Payments received up to 30.12.16 and disbursed

Status of Congestion Charges Payable/Receivable

Last updated on 05/01/17

(+) Payable / (-) Receivable from Pool

Amount in Rs.

	<i>Total dues</i>	<i>Payments overdue</i>
	<i>Principal</i>	<i>Principal</i>
GETCO	0	
MPPTC	0	
CSPDCL	0	
MSEDCL	0	
Goa	0	
D&D	0	
D&NH	0	
NTPC	0	
JINDAL POWER	0	
HVDC Vin.	2,190	2,190
HVDC Bha.	1,391	1,391
Lanco power ltd	10,56,808	10,56,808
NSPCL	0	
ACBIL	72,188	72,188
RGPPL	0	
BALCO	0	
CGPL UMPP MUNDRA	0	
DCPP JSPL	0	
Essar Power MP Ltd	25,744	25,744
SASAN Power limited	0	0
KSK Mahanadi	6,08,524	6,08,524
VandanaVidyut Ltd	-1,348	-1,348
EMCO Energy Ltd.	6,649	6,649
KORBA WEST POWER Corp. LTD	1,30,940	1,30,940
D. B.Power	1,85,621	1,85,621
JAYPEE NIGRI TPP	2,13,268	2,13,268
Essar Steel India Ltd	-3,90,033	-3,90,033
DGEN (Torrent Energy Limited)	0	
GMR Chhattisgarh Energy Ltd	0	
Dhariwal Infrastructure Ltd.	41,492	41,492
RKM Powergen Pvt Ltd.	0	
MB Power (Madhya Pradesh) Ltd.	1,62,784	1,62,784
Jhabua Power Ltd	0	
SKS POWER GENERATION (CHHATTISGARH) LTD	0	
TRN ENERGY	0	
BARC	0	
Net Total in Congestion A/c	21,16,218	21,16,218

XXXXXXX