भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
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सत्यमेव जयते

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सं: पक्षेविस/प्रचा. / प्रसस-कार्यवृत्त /2016-17/ 13789 दिनांक 22 दिसम्बर DEC 2016

सेवा में,

विषय:- प.क्षे.वि.समिति, मुंबई की प्रचालन एवं समन्वय समिति की 490 वीं बैठक का कार्यवृत्त।

महोदय,

पश्चिम क्षेत्रीय विद्युत समिति, मुंबई की प्रचालन एवं समन्वय समिति की दिनांक 15.12.2016 को DTPS, DAHANU में आयोजित 490 वीं बैठक का कार्यवृत्त आपकी सूचनार्थ संलग्न है ।

धन्यवाद।

भवदीय,

संलग्न : उपरोक्तानुसार

(सत्यनारायण एस)
अधीक्षण अभियंता (प्रचालन)

MINUTES OF 490TH MEETING OF OPERATION & COORDINATION SUB-COMMITTEE OF WRPC HELD ON 15TH DECEMBER 2016 AT DTPS DAHANU

The 490TH meeting of Operation & Co-ordination Sub-Committee of WRPC was held on 15th December 2016 at DTPS Dahanu. The list of participants is enclosed at **Annexure-A.**

Shri Rajendra Nandi, Head DTPS Dahanu welcomed all the delegates of OCC of WRPC on behalf of DTPS Dahanu and wished them a comfortable stay at Dahanu. He thanked WRPC for this great opportunity to host 490th OCCM.

He told that DTPS Dahanu has a total capacity of 500 MW (2x250MW) of which the first unit started commercial operation in 1995. Since then the plant has performed excellently well. He further told that Re-furbishment of DTPS Dahanu is being done in order to enhance its life for another 20 years.

Shri Satyanarayan S, Superintending Engineer(O), WRPC extended warm welcome to all the participants of the 490th OCC meeting at DTPS Dahanu. He told that OCCM is a important forum for all discussion & deliberations to resolve operational issues and operational planning of the grid. This is very important in integrated grid operation. He informed that WRPC PSS tuning team had participated in PSS tuning at Dahanu TPS units. Dahanu also has an important role in Mumbai Islanding Scheme. In addition to technical aspects as pointed out by head, DTPS Dahanu, he appreciated the efforts taken in horticulture and greenery development at DTPS Dahanu.

He further informed about following important events which have taken place since last OCCM:

- He informed that Shri S D Taksande, MS (WRPC) has been promoted in Higher administrative Grade and has been transferred to CEA HQ New Delhi and his place will be taken up by Shri M A K P Singh, new Member Secretary of WRPC. OCC placed on record the immense contribution and hard working of Shri S D Taksande as MS,WRPC.

- He informed that 6th NPC meeting will be held on 19th December, 2016 at

Bangaluru. Also the WRPC meeting is scheduled in January 2017.

He thanked Shri Rajendra Nandi, Head DTPS Dahanu and his team for the excellent arrangement at DTPS Dahanu. Thereafter OCC took up the regular agenda items for discussion.

ITEM No. 1: CONFIRMATION OF THE MINUTES

Minutes of 489th meeting of Operation & Coordination Sub-Committee of WRPC held on 11TH November 2016 at WRPC, Mumbai were forwarded vide letter No. WRPC/OPN/OCC-Minutes/2016-17/12602 dated 21.11.2016.

No comments have been received. The minutes were confirmed.

ITEM NO.2: REVIEW OF SYSTEM OPERATION DURING THE MONTH OF NOVEMBER 2016.

SE(O), WRPC requested WRLDC to brief the Committee on Grid Operation experiences during November 2016.

Asst.GM, WRLDC in the presentation concentrated broadly on the performance of the grid for month of November 2016 (attached in soft copy).

2.1 Frequency Particulars

The average frequency during the month of November, 2016 was 49.99 Hz. The maximum instantaneous frequency was 50.27 Hz at 22:07:00 hrs & 18:02:10 hrs on 17.11.2016 & 27.11.2016 respectively, while minimum instantaneous frequency was 49.54 Hz at 17:43:40 hrs on 30th November 16. The frequency profile during November, 2016 was as under:

01st November 2016 to 31st November 2016	% time
IEGC band (49.9 < f < 50.05 Hz)	71.94
< 49.9 Hz	09.02
> 50.05 Hz	19.04

The frequency particulars is enclosed at Annex-2.1

The Sub-Committee noted.

2.2 Inter-regional Exchanges

There was a net inter-regional export of 5584.00 MUs by WR against net export schedule of 5256.00 MUs.

The Sub-Committee noted.

2.3 Voltage Profile

Voltage profile at some of 765/400 kV sub-stations during the month of November 2016 furnished by WRLDC is enclosed at Annex-2.3.

The Sub-Committee noted as above.

2.4 U/F Relay Operations

As per WRLDC records during November 2016 the system frequency didn't touch 49.2 Hz and no UFR operation has been reported by WRLDC.

The Sub-Committee noted as above.

2.5 Power Cuts / Load Restrictions

Details of Power Cuts and Regulatory measures during November 2016 as furnished by the state utilities are given in Annex. 2.5.

The Sub-Committee noted as above.

2.6 Details of Generating Units under Forced outages

Details of generating units under forced outages during November 2016 are given in Annex-2.6.

The Sub-Committee noted as above.

2.7 Details of Generating Units under Planned outages

The details of generating units under Planned Outages during November 2016 are given in Annex-2.7

The Sub-Committee noted as above.

ITEM NO.3: OPERATIONAL PLANNING

3.1 Proposed Planned maintenance programme of generating units.

The maintenance programme of generating units for the months December 2016 & January 2017 is given in Annex 3.1.

The Sub-Committee discussed and agreed as above.

3.2 OUTAGE PROGRAMME OF TRANSMISSION LINES/ELEMENTS

Maintenance programme for transmission lines during the month of January 2017 is given in Annex 3.2.

The outages planned agreed during the meeting is given in Annex 3.2.

The Sub-Committee agreed/noted for the same.

3.3 ANTICIPATED POWER SUPPLY POSITION FOR THE MONTHS – DECEMBER 2016 & JANUARY – 2017

Details of anticipated restricted & un-restricted demands for the months of DECEMBER 2016 &– JANUARY 2017 are given in Annex 3.3.

The Sub-Committee noted the same.

ITEM NO. 4: OPERATIONAL STATISTICS FOR THE MONTH OF NOVEMBER 2016

The details of actual generation, demand, drawl of power from grid; exchanges etc. are given in the following Annexures:

Annex 4.1 - Actual Generation and Requirement for November 2016.

Annex 4.2 - Peak Demand: Schedule Vs Actual for November 2016.

Annex 4.3 - Integrated Operation of the System and Operation of Inter State Tie lines for November 2016.

Annex 4.7 – Details of level of Major Reservoirs in Western Region for November 2016.

The Sub-Committee noted as above.

ITEM NO. 5: SYSTEM DISTURBANCES IN WESTERN REGION

There was no major grid disturbance in the Western Region during the month of November 2016. However the details of minor incidences during the month received from WRLDC are enclosed at **Annexure-5.**

The Sub-Committee noted as above.

ITEM NO. 6: Healthiness status of SERs/DRs of equipment in the system.

Constituents have furnished the status of healthiness of SER/DRs in their systems on the dates below:

Sl No.	Name of constituents	Date of Receipt
1	PGCIL,WRTS-I	06.12.2016
2	PGCIL,WRTS-II	07.12.2016
3	MPPTCL	11.11.2016
4	NTPC	05.12.2016
5	CSPTCL	03.12.2016
6	GETCO	11.11.2016
7	MSETCL	05.12.2016

The Sub-Committee noted.

ITEM NO. 7: STATUS OF COMPLETION OF ONGOING SCHEMES FOR COMMISSIONING OF REACTORS, TRANSMISSION LINES AND GENERATING UNITS IN WR.

7.1 Status of completion of ongoing Schemes for Commissioning of reactors.

The present status regarding schedule and commissioning of reactors is as below:

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

Sub-Committee noted as above.

7.2 STATUS OF COMPLETION OF 765/400 KV AND ABOVE ONGOING TRANSMISSION SCHEMES BEING EXECUTED/IMPLEMENTED BY TRANSMISSION AGENCIES.

The updated status on various ongoing transmission schemes for the current year 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	Dec -16	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	December -16	
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	Dec -16	
5	400kV Varsana-Halvad	March -17	
MADHYA PRADESH			

MAHARASHTRA(STU)			
1	400 kV Bableshwar-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

The Sub-Committee noted as above.

7.3 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 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	Dec – 2016
KSK	4	600	March – 2017
RKM	3	360	Dec 2016
RKM	4	360	Dec 2016
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

Sub-committee noted as above.

ITEM NO. 8: MISCELLANEOUS OPERATIONAL ITEMS

ITEM NO. 8.1: QUARTERLY REVIEW OF CRISIS MANAGEMENT PLAN

Member Secretary(I/c), WRPC informed that CMP is very important activities & shall be done on quarterly/ six monthly basis. NTPC is nodal agencies for thermal generators including IPP's, NHPC is nodal agencies for Hydro generators & PGCIL is nodal agencies for transmission licensees.

He requested the constituents to submit the CMP report in attached format (annexure 8.1) for the Second quarter (July 2016 to September 2016) for the year 2016-17.

The Sub-Committee noted as above and agreed to furnish the same.

ITEM NO. 8.2: STATUS OF PHYSICAL & CYBER SECURITY IN POWER SECTOR

Member Secretary(I/c), WRPC requested the constituents to submit the Status of physical & cyber security in Power Sector for the Second quarter (July 2016 to September 2016) for the year 2016-17 have not been received from some of the constituents.

Member Secretary(I/c), WRPC suggested to have a table for monitoring the same from next OCCM onwards.

The presentation made by NTPC & PGCIL on cyber security is attached at Annexure 8.2A & 8.2B.

The details of NTPC nodal officer is as follows for any query(as decided in 451st OCCM):

NAME: Shri K S Nirwan

Sr Manager(IT), NTPC HQ-I, Mumbai

Mob no: 09004497023

E-mail: ksnirwan@ntpc.co.in

The Sub-Committee noted as above and agreed to furnish the same.

ITEM NO. 8.3: ENHANCEMENT OF TTC BY INCREASING THE LIMIT ON RAICHUR – SOLAPUR 765 KV 2XS/C & EXHIBIT-III AURANGABAD – SOLAPUR 765 KV D/C line

Agenda:-

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 8.3) 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 gird 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.

MEMBER SECRETARY, WRPC forwarded the same on 22th November, 2011 to WRLDC & NLDC for their observations/comments.

Subsequently 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:-

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.

SE(OPN),WRPC informed that as a comment/observation from OCC point of view, following observations

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.

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.

Sub-Committee noted as above.

ITEM NO. 8.4 RTV COATING OUTAGES ON EQUIPMENT

Agenda:-

DGM, PGCIL, Vadodara, vide Email dated 07.12.2016 informed that flashovers have been observed at various places due to tracking of insulator due to heavy industrial pollution and saline environment vicinity to sea resulting in grid disturbance. Accordingly, POWERGRID has taken up RTV coating of insulators and bushings of

the substation which are located under polluted zone and near to sea coast as a system improvement and to enhance system reliability. Further, after Varsana GETCO incident, WRLDC vide report dated 12.10.16 on Varsana & CGPL disturbance advised to carry out RTV coating of such station which are in vicinity to sea.

Hence, considering one-time activity for system improvement and because of saline/ industrial polluted environment problem, it may please be considered as deemed outages.

OCC Deliberations:

SE(OPN),WRPC queried about constituents view on powergrid's claim for deemed availability.

Representative from SLDC Gujarat suggested following points:

1. The outage timing should be minimise.
2. Generation Shall not be affected.
3. Properly monitoring with detail proposal.

SLDC, Maharashtra agreed with Gujarat.

Though MP representative's could not attend the meeting, they had conveyed their reservations for the same.

General Manager, WRLDC suggested for detailed report summarizing the section/location of maintenance proposals indicating plan and implementation shall be submitted to WRPC.

SE(OPN), WRPC informed that granting of deemed availability to any transmission element is under discretion power of Member Secretary. He will decide depending on case to case basis and as per applicable regulations. The feedback of OCC shall be appraised to MS, WRPC.

Subsequently PGCIL Vadodara submitted detail report which is attached at Annexure 8.4.

Sub-Committee noted as above.

ITEM NO. 8.5 TRIPPING OF 765KV GWALIOR - AGRA CKT.1 DUE TO DENSE FOG WITH HEAVY POLLUTION CONDITIONS:

Agenda:-

DGM, PGCIL, Vadodara vide Email dated 07.12.2016 informed that 765kV Gwalior – Agra Ckt. 1 tripped at 01.09 hrs & 02:00 hrs on 29.11.2016 due to dense fog in and around of Agra area. The trippings caused due to heavy pollution and thick fog near Agra area. The line was designed in year 2005 with disc insulators strings.

Due to heavy pollution, the disc insulator became vulnerable to electrical tracking and during heavy fog condition corona tracking along the insulator strings caused flashover and subsequent tripping of line. The load on each 765kV Gwalior-Agra line is generally approx. 1800 MW and tripping of any one circuit results in destabilisation of power system between Western Grid and Northern Grid.

To meet such eventuality, POWERGRID has been decided to replace all porcelain disc insulator strings with CLR Polymer insulators in both 765KV Agra-Gwalior Ckt.1&2 lines on top priority basis, to ensure stability of Inter-Regional link. Accordingly, shutdown has been availed on 765Kv Gwalior-Agra Ckt.1 from 06.12.16 to 12.12.16 to replace the disc insulators with Polymer in entire line.

He requested that the outage involved for replacement of 1174 nos. disc insulator strings in 302 towers with composite long rod polymer insulators in 765kV Gwalior-Agra 1 line may be granted as Deemed Availability.

SE(OPN), WRPC stated that PGCIL shall submit the plan & details of section/location & period of outages. If the same line is taken outage for replacement of insulators in the same section, then one time availability may not be granted depending on Member Secretary discretion.

He informed that granting of deemed availability to any transmission element is under discretion power of Member Secretary depending on case to case basis and as per regulation/discretion. He requested to PGCIL to accordingly submit the same.

Subsequently PGCIL Vadodara submitted detailed report which is attached at Annexure 8.5.

Sub-Committee noted as above.

ITEM NO. 8.6 REQUIREMENT OF CONTINUOUS OUTAGE OF 400 KV D/C VADAVI – DEHGAM D/C FOR 25 DAYS FROM 15.12.16 FOR HEIGHT RISING WORK UNDER DFCC CROSSING.

EE, SLDC GETCO vide email dated 06.12.2016 informed that GETCO field office has requested continuous outage of 400 KV D/C Vadavi – Dehgam D/C for 25 days from 15.12.16 to 08.01.16 for height rising work under DFCC crossing. The work involves dismantling of two Nos. existing tower, erection of 3 Nos DY + 9 meter extension tower and restringing of conductors. At present, Gujarat system demand and wind generation in Kutch remains lower side. It will remain less up to end of Jan – 17. During the said period, SLDC-Gujarat will not allow outages of 400 KV EHV lines connected to CGPL and 400 KV S/S Vadavi.

Representative from SLDC – Gujarat requested following points.

1. No outage shall be permitted to 400 KV D/C APL – Dehgam line. 400 KV S/C APL – Kansari line, 400 KV APL – Varsana – Kansari line, 400 KV CGPL – Chorania, 400 KV CGPL – Mansar – Chorania, 400 KV D/C Chorania – Vadavi and 400 KV D/C Vadavi – Kansari line as all units of CGPL are on bar. The outage of any one element will be permitted if there will be less generation at CGPL.
2. They have also agreed for regulation of share from CGPL in case of any exigency.
3. SLDC Gujarat will keep close monitoring on activities during outage period. GETCO project department is already informed for squeezing outage period.
4. SLDC will act immediately comply RLDC directive regarding operation of network, scheduling of generators etc. if any in real time.

OCC members agreed for the above proposed outage.
Sub-Committee noted as above.

ITEM NO. 8.7 ENSUING AVAILABILITY OF CHEAPER GAS FOR AT LEAST TWO GAS TURBINE AT KAWAS AND JHANOR PLANT EACH DURING DEC – 16 & JAN – 17.

CE, SLDC - Gujarat requested NTPC for ensuing availability of cheaper gas for at least two machine at Kawas & Jhanor for next two months as GWRDC has availed

shutdown of Ukai Left Bank Canal (ULBMC) for 60 days. Also, Ukai Unit No. 1 to 5 are desynchronized due to acute shortage of water. Also at present, both KAPP units of NPCIL (2 x 220 MW) in South Gujarat are under forced outage from prolonged time. It is utmost necessary to keep at least two units each from Kawas and Jhanor on bar for secure and reliable grid operation. SLDC – Gujarat will ensure technical minimum support for the above said units during Canal outage period all the time.

General Manager, NTPC informed that the arrangement of making gas has been taken up by them.

Sub-Committee noted as above.

ITEM NO. 9: WRLDC ITEMS

1) Compliance to IEGC 5.2 regarding automatic primary response from Generating Stations

Compliance to IEGC 5.2 (f) to (i) provisions is being monitored with the help of SCADA data available at WRLDC and validated with the help of higher resolution data furnished by the Generating Stations.

Vide WRLDC email dated 02.11.2016 sent at 18:53 hrs. All Regional Entities were requested to forward the Frequency Response Characteristics of their Station during the Grid event involving loss of 2300 MW generation in Annapara TPS at 06:02 hrs causing frequency dip of 0.26 Hz.

Till 07th December 2016, data was received from few Regional Entity Generating Stations. The response observed generating stations is given in table-1 in decreasing order of % response.

Data was also submitted by APL and APML which are under the jurisdiction of SLDC-Gujarat and Maharashtra respectively. Response is given in table-2.

Table 1: Frequency Response Characteristics of WR-Generating Stations for grid event on 30.11.2016

S No.	Generating Station	Whether data submitted by Station	Resolution of data received from Station	Ideal Quantum of increase in Generation assuming 5 % droop. [(Delta f/50) x (100/Droop) x (Capacity on Bar)]	Actual Quantum of increase in generation (MW) observed in the data submitted by the Station	Actual response as a percentage of Ideal in %
1	VSTPS-IV (2x500)	Yes	1 sec	96	59	61%
2	Dhariwal (1x300)	Yes	1 sec	30	12	40%
3	Lanco (2x300)	Yes	1 sec	58	22	38%
4	MB Power (2x600)	Yes	1 sec	62	22	35%
5	Mouda (2x500)	Yes	1 sec	100	28	28%
6	VSTPS-V (1x500)	Yes	1 sec	48	13	27%
7	SASAN (6x660)	Yes	1 sec	412	60	15%
8	TRN (1x300)	Yes	1 sec	29	4	14%
9	CGPL (5x830)	Yes	1 sec	332	30	9%
10	SIPAT-I (3x660)	Yes	1 sec	206	16	8%
11	KWPCL (1x600)	Yes	1 sec	60	3	5%
12	NSPCL (2x250)	Yes	2 sec	48	2	4%
13	KSK(2x600)	Yes	2 sec	77	1	1%
14	BALCO (4x300)	Yes	1 sec	120	1	1%
15	SIPAT-II (2x500)	Yes	1 sec	104	0	0%
16	MCPL (1x300)	Yes	1 sec	31	0	0%
17	GMR-Warora (2x300)	Yes	3 sec	62	0	0%
18	DB Power(2x600)	Yes	1 sec	120	-2	-2%
19	VSTPS-III (2x500)	Yes	1 sec	96	-2	-2%
20	VSTPS-II(2x500)	Yes	1 sec	96	-2.0	-2%
21	JP Nigrie (2x660)	Yes	1 sec	154	-4	-3%
22	JPL Stage-I (4x250)	Yes	1 sec	62	-2	-3%
23	JPL Tamnar (Stage II) (3x600)	Yes	1 sec	60	-16	-27%
	Sub Total			2464	245	10%

Table 2: Frequency Response Characteristics of APL and APML for Grid Event on 30.11.2016

S No.	Generating Station	Whether data submitted by Station	Resolution of data received from Station	Ideal Quantum of increase in Generation assuming 5 % droop. [(Delta f/50) x (100/Droop) x (Capacity on Bar)]	Actual Quantum of increase in generation (MW) observed in the data submitted by the Station	Actual response as a percentage of Ideal in %
1	APL (3x330+2x660+3x660)	Yes	1 sec	330	10	3%
2	APML Tiroda (5x660)	Yes	2 sec	275	17	6%

Generating stations whose data was not received till date are given in Table-3.

Table 3: Generating stations whose data was not received as on 7 Dec 16

S.No	Generating Station
1	KSTPS-III (1x500)
2	KSTPS-I (3x200)
3	KSTPS-II (3x500)
4	VSTPS-I (6x210)
5	Essar Mahan(1x600)
6	GMR Raipur (2x685)

OCC members may deliberate on the following issues:

i. Non-submission of data by generating stations given in Table-3
ii. Negative response by DB Power, JP Nigrie, VSTPS-II, VSTPS-III, JPL-I and JPL-Tamnar.
iii. Zero response by Sipat-II, MCPL and GMR-Warora. Below 10 % response by CGPL, KSK, KWPCL, NSPCL and Balco.
iv. All stations to review the load limiter setting so that the unit is not inhibited from picking up load upto 105% of MCR. The droop setting of stations also needs to be in the range of 3 to 6 %.

OCC Deliberation

CM, WRLDC presented the frequency response charactristics of the generators for the event occurred on 30.11.2016 at Anpara Thermal power station in NR causing generation loss of 2300 MW for which frequency dipped by 0.26 Hz. Total response for Western Region was only 10%. Eight(8) generators only VSTPS4,Dhariwal ,Lanco, MB power, Mouda,Vindhyachal V, Sasan and TRN have primary response more than 10%

GM,WRLDC expressed his serious concern about poor response of CGPL, KSK, KWPCL, NSPCL and Balco below 10% ,zero response of Sipat-II, MCPL and negative response of DB power, VSTPS II & III , JP Nigree ,JPL stage II and JPL Tamnar . He told that, this issue is being continuously discussed in every OCC for the last two years and WRLDC is monitoring and analyzing the primary response of regional entities of WRbased on SCADA and 1 sec data receipt from regional entities. Every time it was advised to review the load limiter setting of units so that the unit is not inhibited from picking up load upto 105% of MCR and to keep the

droop setting of stations in the range of 3 to 6 % as per IEGC.But there was no tangible improvement in achieving the good frequency response characteristics in any event which is mandatory as per the compliance to IEGC clause 5.2. He has intimated the forum that if thiswould continue in next event also then WRLDC would be forced to file the petition before CERC.

GCPL informed that DCDS was being observed by their manufacturer and they shall revert accordingly.

OCC observed that other activities of plant generation manuaaly may be interfering with govern operation. This needs to be studied by utilities.

OCC recommended that the case for JP Nigri, JPL Tamnar, DB Power and GMR Warora to present the frequency response characteristics of their generators and their analysis for the Anpara event of generation loss of 2300 MW occurred on 30th Nov,2016 in 491th OCC meeting .

2) Low Frequency Oscillations in the Grid on 21.11.2016, PG tests by VSTPS

On 21.11.2016, at 1337 hrs, low frequency oscillations were observed in frequency and voltage signal received from almost all PMUs of Indian grid. The oscillations started at 13:37:28 and damped out at 13:42:40. The frequency of oscillations was 0.33 Hz with inter area mode of oscillations.

From the behaviour of oscillations it was observed that oscillations were distributed in three coherent groups. One group was of PMUs from North, East, West and North-East, while second was of PMUs from Southern Region Solapur and CGPL were found in middle of these two groups and formed third group. The coherent group formation is shown

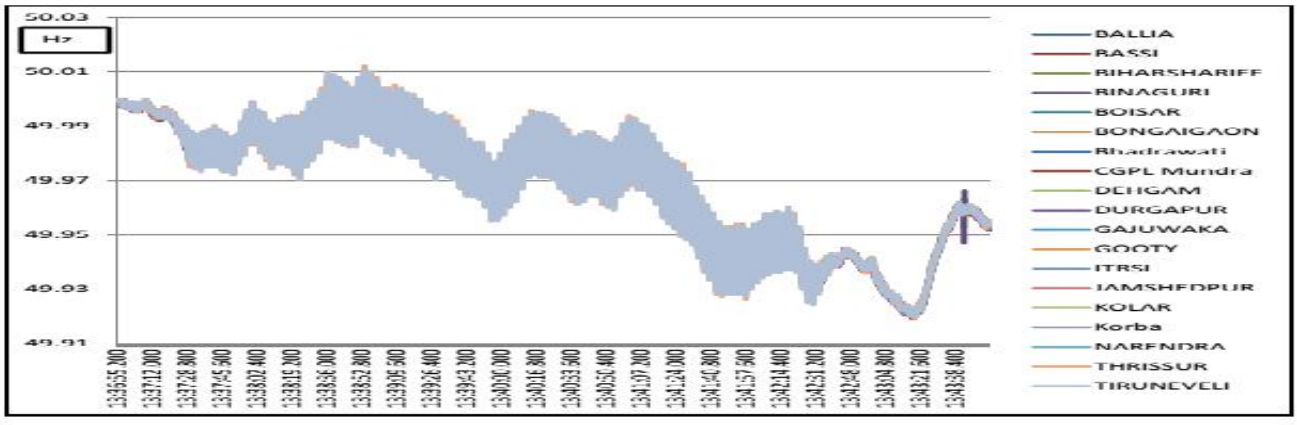
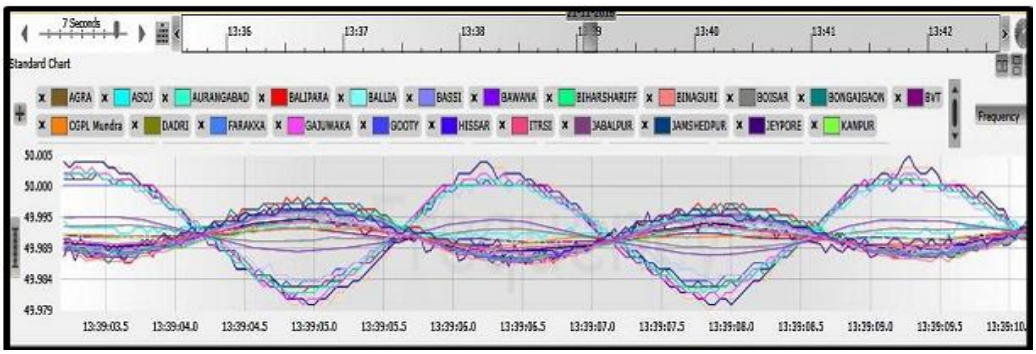


Fig 1: The low frequency oscillations in Frequency



The oscillations were also observed in voltage angle of the stations across the grid. The voltage reference was taken as Thrissur as maximum amplitude of oscillations were observed at that station only. The oscillations in Voltage angle are shown in Fig 3. The PMUs of east and west oscillated most in reference to Thrissur.

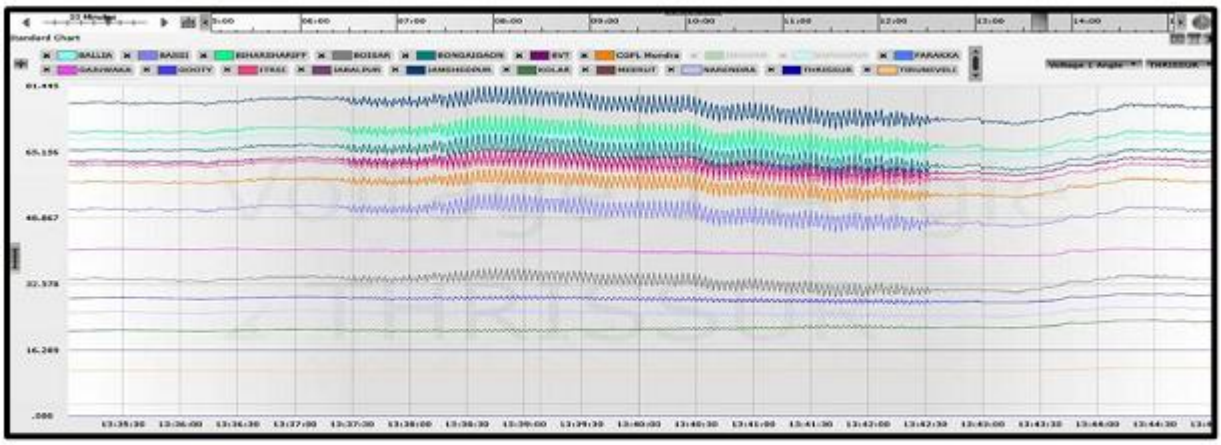
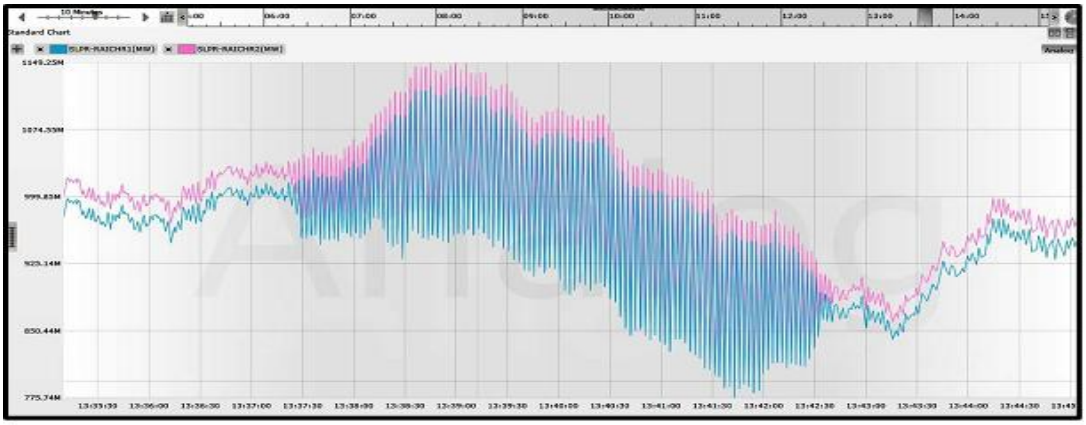


Fig3 : Voltage angle with respect to Thrissur

The same oscillations were observed in the power flow magnitude of 765kV Solapur-Raichur 2xS/c lines and amplitude of oscillations observed was approx.250MW in each circuit. The total power flow reduction during the period was 300MW in steady state value.



The oscillation in power flow of 765 kV Solapur-Raichur 2xS/c

No major switching operation or unit tripping was observed in western Region and no major flutuation was observed in generators in term of MW/ MVAR except the VSTPS-11, VSTPS-12, wherein the Unit-11 was under PG test during the time of oscillation.

OCC members may like to deliberate on the following possible measures for improving the damping in the system and enhance grid security:

1. Hunting / oscillations observed at power station to be reported immediately to WRLDC control room
2. Details of PG tets and large/fast variation in active/reactive power at generating units to be shared with WRLDC in advance and the PG tests to be conducted only after taking operation code so that operators are aware and can immediately get in touch with the station in case of abnormal observations in the grid
3. Tuning of AVR/PSS on all major units in WR
4. Keeping FSC/TCSC in service
5. Compliance to IEGC 5.2 (j) that mandates gradual change in load / generation.
6. Regulate generation/load to avoid overloading of long EHV lines
7. Expedite commissioning of pending shunt reactors to ensure that manual opening of interstate lines for voltage regulation can be avoided.
8. Commence parallel operation of 220 kV interstate lines between Maharashtra / Goa with Karnataka to strengthen interconnection with SR

OCC discussions:

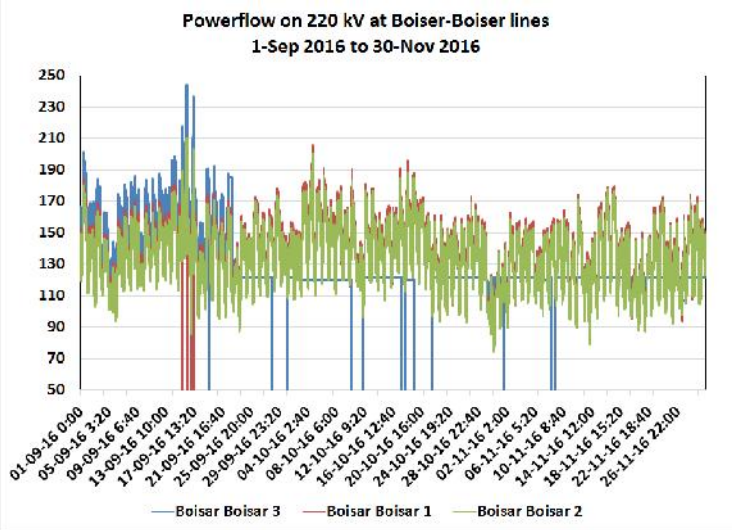
- The issue was discussed in detail. WRLDC explained that Low Frequency Oscillations were observed Pan India on 21st November from 13:37:29-13:42:42 Hrs and the Oscillation Frequency was 0.33 Hz (Inter Area mode). It was a matter of concern that the damping Observed was Zero.Voltage and Angles were also oscillating in the Grid causing variation in Power flow across the Regional tie lines.

  All generators were requested to take the following actions in view of grid security in future:-

- Any Hunting / oscillations observed at power station to be reported immediately to WRLDC control room
- Plan and details of PG tests to be conducted by generators may be intimated to WRLDC control room in advance and operation code may be taken so that operators are aware and can immediately get in touch with the station in case of abnormal observations in the grid.
- All generators in WR to take up tuning of AVR/PSS at their end progressively as per IEGC and CEA regulation.

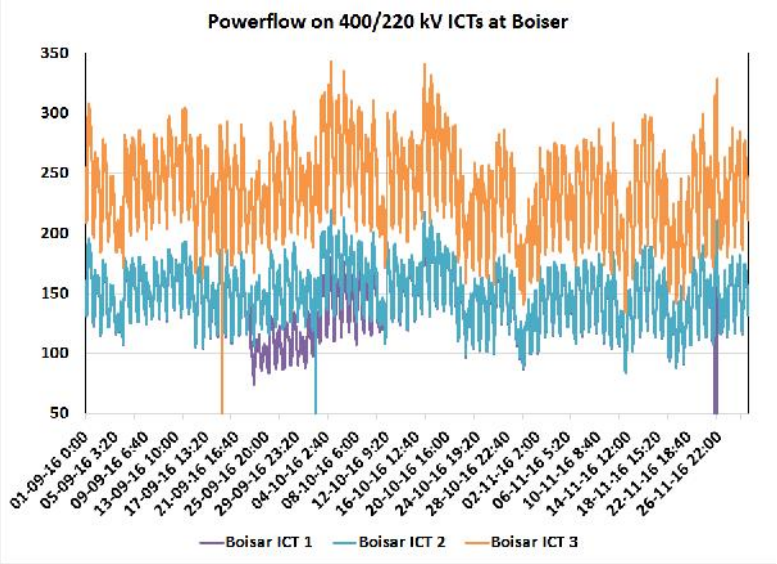
3) Load trimming scheme for Boiser ICTs

400/220 kV Boisar ICTs (2 X 315 MVA ICTs and 500 MVA ICTs) and 220 kV Boisar-Boisar MSEB T/C are heavily loaded. The power flow of the above elements for the period 01st September 2016 to 30th November 2016 are pasted below.



The meeting held on 26.02.2015 with SLDC and STU, MSETCL on import TTC/ATC of Maharashtra, it was recorded that MSETCL would take action to immediately relieve congestion and improve the transfer capability of Maharashtra control area. Further, MSETCL would implement load trimming scheme at Boisar, for which MSLDC has already initiated a plan.

The implementation of load trimming scheme at Boisar, is essential, in order to reduce the risk of cascade failure under N-1 and N-1-1 contingency of above elements.



CE(LD) , MSETCL informed load trimmimg scheme for load shedding at Boisar is already implemented with loading of 220kV Boisar(PG)-Boisar(MS) ckts exceeding 900Amp. This scheme would be extended for over loading of ICTs with coordination with Boisar(PG) s/s for extension of signals.

PGCIL WRTS-II agreed to look into the same.

4) Compliance to DSM regulations by Regional Entity Control Areas in WR

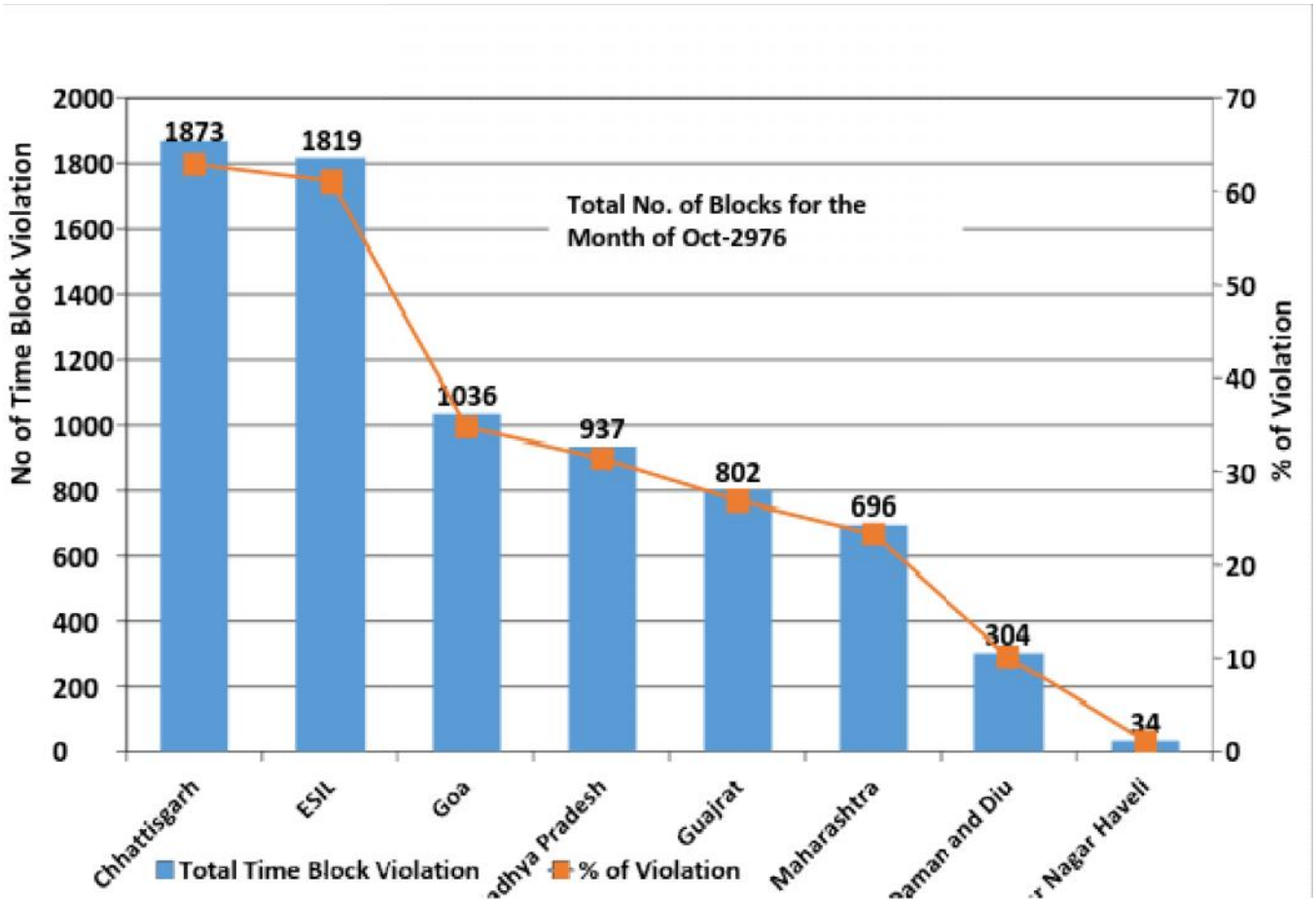
IEGC Regulation 6.4.6 states that "…The Regional entities shall regulate their generation and/or consumers' load so as to maintain their actual drawal from the regional grid close to the above schedule. Maximum inadvertent deviation allowed during a time block shall not exceed the limits specified in the Deviation Settlement Mechanism Regulations clause no.7 "Limits on Deviation volume and consequences of crossing limits."

As per the 1st Amendment DSM regulation 18th December,2014 , clause no 4 Clause (1) of Regulation 7 of the Principal Regulations shall be substituted as under

"The overdrawal / underdrawal of electricity by any buyer during the time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when grid frequency is "49.70 Hz and above and below 50.10 Hz";
Provided that no overdrawal of electricity by any buyer shall be permissible when grid frequency is "below 49.70 Hz" and **no underdrawal of electricity by any buyer shall be permissible when grid frequency is "50.10 Hz and above".**

It was observed that, constituents were under drawing even when frequency was greater than 50.10 Hz and volume of under drawal was more than 500 MW in the month of Oct'16. No. of blocks violated for frequency less than 50.1 Hz(beyond 12%) and the no. of blocks violated when frequency greater than 50.1 Hz by the constituents of Western region for the month of October'16 is as follows. Violation was as per the SEM data.

Violation beyond 12% of Schedule/Vol. limit of Constituents for the Month of Oct'16						
Constituents	Total No of Blocks (31*96)	Violation when freq<50.1Hz&>49.7		Violation when freq>=50.1Hz	Total Time Block Violation	% of Violation
		No of Block O/D exceeds Limit	No of Block U/D exceeds Limit	No of Block U/D (Max MW)		
Chhattisgarh	2976	333	1521	19(197)	1873	63
Guajrat	2976	80	703	19(384)	802	27
Madhya Pradesh	2976	46	873	18(582)	937	31
Maharashtra	2976	249	429	18(770)	696	23
Goa	2976	769	249	18(52)	1036	35
Daman and Diu	2976	242	46	16(32)	304	10
Dadar Nagar Haveli	2976	0	14	20(54)	34	1
ESIL	2976	1023	787	9(176)	1819	61



ZERO CROSSING VIOLATION

Regarding Zero crossing violation, WRLDC explained the details of violation of Generators in 489th OCC meeting and intimated that 100% violation was observed for GMR, Jhabua Power DGEN and KWPCL due to continuous drawal from the grid on NO schedule for so many months. It was suggested that, these generators shall procure power through STOA to meet the auxiliary requirement of the units when there was no schedule for long time. Continuous drawal from the grid after COD of generators is 100 % violation. It was decided that, Generators would intimate the action taken to minimize the zero crossing violation in 490th OCC meeting.

For the month of October also, 100% violation for Zero crossing was observed for GMR, Jhabua Power and DGEN on NO schedule and 94% violation observed for KWPCL.

v. Generators may please intimate the forum regarding their actions the unit is not inhibited from picking up load upto 105% of MCR. The droop setting of stations also needs to be in the range of 3 to 6 %.

AGM, WRLDC explained that, as per the 1st Amendment of DSM regulation dt.18th December,2014 , under drawal is not allowed when frequency is greater than 50.1Hz. But it has been observed that, constituents were under drawing for more than 500 MW for quite some period when frequency was greater than 50.1 Hz. Heavy under drawal was observed in the month of October and percentage violation was more than 60 % for Chhattisgarh and ESIL. Gujarat and Maharashtra have concern that due to more wind power during the off peak time , it is uncontrollable to limit the drawal. It is intimated that, as per third amendment of DSM regulation, deviation volume limit has been increased from 150 MW to 250 MW for Renewable rich state Gujarat and Maharashtra. Grid discipline is to be maintained by controlling their state internal generation and load.

WRLDC advised constituents to do correct load forecasting to avoid large deviation which causes imbalances in the grid leading to deviation in frequency. It is mandatory to forecast 15 minutes block wise demand as per IEGC .

5) Telemetry Issues

Utilities to update the progress for ensuring reliable telemetry from following stations

S No.	Station	Issue	Status reported in last OCC	Status Updated
1	400 kV Kala 400 kV Magarwada	Intermittency due to GPRS connectivity. Error in drawl computation of DNH and DD	connectivity through fibre optic is in progress and it would be completed in next 1-2 month	Fibre connectivity to be completed by Jan'17
2	400 kV Kolhapur GIS		Data through fibre established. Previous lease line disconnected. Redundant link to be established	End of Feb'17
3	400kV Damoh	Data down for significant amount of time during Diwali		Problem resolved
4	400 kV NTPC	Data not	Transducers to	By end of December'2016

S No.	Station	Issue	Status reported in last OCC	Status Updated
	KSTPS	available	be replaced. Non-availability of spares. Alternate arrangement being done. Long pending issue.	
5	JP Nigrie	Highly intermittent. Single channel through GPRS. Redundant channel required		3rd Week of November'2016. modem would be installed for Redundancy
6	GMR Raipur	Highly intermittent		System in place need to check and confirm with SCADA team Not attended.
7	Dhule ICT-1,2,3	Data not available	IEDs being configured and Data would be available in Sep end / Oct first week	March' 2017 end
8	Kolhapur ICT-3	Data not available		Completed
9	Padghe ICT-4	Data not available		March' 2017 end
10	Solapur ICT-2	Data not available		March' 2017 end
11	Koyna Stage-1, 2	Data not available	OPGW work in progress	March' 2017 end
12	220 kV Nashik, Bhugaon, Tillari, Mahalaxmi, Borivali, Boiser-MH, Vasai and Shendra	Data not available	work in progress	Nasik and Navsari done Others by May'2017 end
13	400 kV Nanded,	Data Intermittent	work in progress	Jan'2017 end
14	400 kV Chandrapur-II Switching, Lonikhand-II		connectivity through fiber optic is in advanced stage	March'2017 end
15	Entire Goa			Not attended

6) Mock Black start Exercise

As mandated by IEGC 5.8 (b), the Black start capable units need to conduct mock black start exercises once **in every 6 months**.

The blackstartmockdrill of 125 MW Ghatghar unit was conducted on 18.11.2016. A team of engineers from WRPC, WRLDC, SLDC-Gujarat, SLDC-Madhya

Pradesh, and SubLDC Tata Power witnessed the drill. SLDC Kalwa may share the details of the exercise.

Till date 14 out of 29 Black start Stations have been conducted mock drill this year as follows.

Sl.No	**Generating station**	**Date of Black start mock drill done**
1	Gandhi Sagar, Madhya Pradesh	6th Jan, 2016
2	Ukai, Gujart	14th June 2016
3	Kadana, Gujarat	16th May 2016
4	CLIPL, Gujarat	13th June 2016
5	Kawas, NTPC, Gujarat	27th August 2016
6	Jhanor, NTPC, Gujarat	27th August 2016
7	Bango, Chhattisgarh	25th Sept 2016
8	Bargi, Madhyapradesh	28th Sept,2016
9	Pench, Madhyapradesh	6th Oct,2016
10	Bhira,Maharashtra	6th Oct 2016
11	Khopoli,Maharashtra	6th Oct 2016
12	Indira Sagar, Madhyapradesh	14th Oct 2016
13	Omkareshwar,Madhyapradesh	15th Oct 2016
14	Ghatghar,Maharashtra	18-Nov-16

The tentative schedule furnished in last 488th and 489th OCC as follows

S No	State	Station	Tentative Date	Status
1	Madhya Pradesh	TONS	in Nov'2016	To be conducted
2	Madhya Pradesh	Gandhi Sagar	in Nov'2016	To be conducted
3	Madhya Pradesh	Medikheda	in Nov'2016	To be conducted
4	Gujarat	SSP	in Nov'2016	To be conducted
5	Maharashtra	Koyna	18-Dec'2016	To be conducted
6	Maharashtra	Uran	Date not fixed (DG Problem)	To be conducted

Concerned Stations may update the current status and other may give their tentative plan for conducting the mock drill.

Black start Mockdrill report have not yet been received from any LDCs/stations except from Chhattisgarh for Bango station. All LDCs/stations are requested to send the detailed mock drill report in prescribed format for incorporation in Recovery Procedure of WR to be published by end of December,2016.

AGM WRLDC intimated the forum that, out of total 29 generating stations having black start facility in WR, total black start mock drill have been conducted in 15 stations in the year 2016 till date. But no mock drill report have been received at WRLDC except Bango Chhattisgarh station. WRLDC requested all to submit the Mockdrill report in prescribed format before 20th December for inclusion in RLDC Recovery procedure which to be released on 31st Dec,2016

Gujarat confirmed that, Black start mock drill for Kadana is scheduled on 20th Dec,2016. Ukai Hydro and SSP are scheduled on February,2017. Maharashtra also confirmed to conduct the Koyna exercise on 18th Dec,2016.

Black start mock drill for Kadna hydro power station have been conducted on 20th December,2016 successfully. As informed from Maharashtra, Koyana mock drill would be conducted on 26th Dec,2016.

Visit to Ghatghar Pumped Storage Station on 18.11.2016

Ghatgar Hydro Station visit was suggested in 489th OCCM forum, to observe the Black start Mock drill operation and Pump storage Scheme (2x125 MW) facility. Accordingly the team comprises of WRPC, WRLDC, SLDC Gujarat and GSECL along with the MSETCL visited Ghatgar Hydro Station on 18.11.2016.

Ghatgar Hydro Station situated on Pravarariver in Maharashtra State, have two unit of 125 MW each. The units operate on Francis turbine having high head with modern technology from M/S Fuji Electric, Japan. Turbines are located in tunnel and far from Dam and there is no major vibration on turbine floor during the pump mode operation. It is capable for operation in five different modes:

1. Generator mode
2. Generator condenser mode
3. Pumping mode

4. Pumping condenser mode
5. Line charge mode

The change over from generator mode to pumping mode and vise-versa is smooth. The units are operated simultaneously for six hours on generation mode and seven hours on pump mode daily as per the instruction of Maharashtra SLDC, from Monday to Saturday. Every Sunday the balance water in lower reservoir is pump back to upper reservoir. The units are capable to reach full load (125 x2 = 250 MW) on generation mode within three minutes and in pump mode (150 x 2 = 300 MW) within five minutes. MSLDC is having flexibility of picking generation of 250 MW and providing load of 300 MW within few minutes to the system with the said infrastructure. It is helpful to manage RE generation variation / load variation in the system. No major breakdown reported since commissioned.

There is no financial burden on State GENCO while it's operating in pump mode. No charges are paid to Ghatghar PS for generation and no charges are recovered from Ghatghar PS for pump mode operation. For the entire operation of pump storage plant, only fixed cost has been paid to Maharashtra State Generation Co. ltd.

This visit will helpful to build understanding regarding pumped storage scheme and conveying merits of such projects.

SLDC – Gujarat informed in 488th and 489th OCCM that GSECL team is working for re-establishing pump mode operation of Kadana Hydro units having long term system operation benefits.
SSP and other pumping station may discus and explore for implementation of Pumping mode in their station.

AGM, WRLDC briefed the visit of Ghatghar pump hydro station and its operation. Gujarat informed that GSECL team is working to establish the pump mode operation of Kadna hydro units and GSECL team would discuss the status in next OCC.

The Sub- Committee noted the same.

ANY OTHER ITEMS:

SA - 1. COD OF NTPC MOUDA UNIT-3

General Manager(OS) WRHQ-I, NTPC briefed about the schedule of trial operation of U#3 Stage-2 of Mouda. As per the plan trial run is scheduled from 23rd-25th Dec 2016. Further WRLDC has put restriction on injection of power by Mouda Stage-I & II to 1150 MW in view of transmission constraints. NTPC has requested beneficiaries

to facilitate scheduling of Stag-I so as to ensure adequate injection limits as stipulated by WRLDC. NTPC has suggested to take one unit of Stage-I an RSD if required to facilitate trial run of the Stage-II (Unit III). Beneficiaries agreed on same.

GM WRLDC informed that restriction of 1150 MW injection has been imposed to ensure N-1 contingency in Mouda-WARDHA lines. He suggested for reduction of schedule of U#1 & 2 to accommodate requisite infirm power injection at Unit#3.

The sub-Committee noted as above.

SA - 2. NERC sub group ATC/TTC

Member Secretary(I/c), WRPC informed that the 7th meeting of the NRCE was held on 07th December 2016 New Delhi. He stated that for better assessment of ATC/TTC/TRM Sub group of NERC requires following details:

1. MW, MVAR data at 220kV/132kV Substation level.
2. Current status of FSC
3. ICT tap position details at 400kV and above substation level.

He requested the above data/information from state utilities.

Representative from GETCO informed that SEM are installed at state periphery. Logbook data may available at 220kV & 132 kV sub-station, which can be made available. All other state utilities are also agreed to furnish the data available with them and informed in the next OCC.

The sub-Committee noted as above.

SA - 3. MOUDA STAGE II POWER EVACUATION 400KV MOUDA –BETUL PG LINES READINESS.

General Manager(OS) WRHQ-I, NTPC stated that Mouda Stage II ,Unit-3 test synchronised and COD likely by Dec 2016 and Unit-4 by the end of march 2016. Presently Mouda power evacuation is only by Mouda-Wardha 400KV double ckt lines. Mouda –Beatul DC line is under erection. Early readiness of the lines may please be ensured to facilitate power evacuation.

Representative from Powergrid informed that commissioning of the Mouda –Betul lines is expected by the end of March 2017.

OCC requested Powergrid to expedite the matter.

The sub-Committee noted as above.

SA - 5. UNAVAILABILITY OF 2ND LINK FOR MOUDA - WRLDC DATA.

General Manager(OS) WRHQ-I, NTPC informed that :As per scheme we have two gateway servers for providing data to WRLDC. The data of both stage-1 and stage-2 of NTPC Mouda has been configured and checked at these servers. The reliability of both these systems for availability of data to WRLDC through one link via Mouda-Wardha line-1 has been checked. We are having two modems installed at Mouda for these two gateways.
However, presently due to limitation of extra channel at Wardha end, only one link via Mouda- Wardha line-1 is available for data transmission. Hence reliability of data availability to WRLDC is reduced.

Representative from POWERGID stated that currently the telemetry data of Mouda is available at WRLDC through PLCC between Mouda and Wardha. The fiber optic connection between Mouda and Wardha is in progress and would be completed within 1-2 month.

SE(O), stated that the matter has already been discussed during last OCC & requested Powergrid to expedite the matter.

The sub-Committee noted as above.

ITEM NO. 10: DATE AND VENUE OF NEXT OCC MEETING

490th OCC reviewed the meeting roaster and finalized sheet is enclosed at Annexure-10. As per roster 491th OCC meeting will be hosted by NTPC Mouda in the month of January 2017. Date and venue will be intimated shortly. As agreed, 492nd OCC meeting will be hosted by DB Power in the month of February, 2017.

The Sub- Committee noted as above

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			ANNEXURE - A
LIST OF PARTICIPANTS OF 490 th OCC MEETING OF WRPC HELD AT DTPS, DAHANU ON 15.12.16			
Sl.No.	**Organisation, Name & Designation**	**Mobile No.**	**E-mail Address**
I	**WRPC**		
1	Shri Satayanarayan S., M.S.(I/c)	9223399938	satyaguru@yahoo.com
2	Shri L.K.S. Rathore, D.D.	9833371844	operationwrpc@gmail.com
3	Shri Sachin K. Bhise, D.D.	9819156260	sachinkbhise@gmail.com
4	Shri Ratnesh Kumar Yadav, A.D.	8903929150	rkyadav_ies@nic.in
II	**MSETCL / MSEDCL/MahaGenco/MSPGCL**		
5	Shri Sanjay S. Kulkarni, C.E.	9819363329	cesldc@mahasldc.in
6	Shri D.J. Kolhe, E.E.	9820981115	deepakkolhe@yahoo.co.in
7	Shri Balasaheb B. Halanor, E.E.	7045074001	ceppmsedcl@gmail.com
III	**CSPTCL / CSPGCL**		
8	Shri A.K. Shrivastava, S.E.	9827177466	ashokdivyashrivastava@yahoo.co.in
IV	**GETCo.**		
9	Shri S.D. Patel, E.E.	9925213142	ee.effi@gebmail.com
10	Shri B.M. Shah, D.E.	9425212836	ousldc.getco@gebmail.com
11	Shri K.G. Patel, D.E.	9925210977	det.gsecl@gebmail.com
V	**WRLDC / POWERGRID**		
12	P MUKHOPADHYAY	9869438073	prithwish.pmukh@gmail.com
13	Shri Utpal Sharma, A.G.M.	9436302980	utpals_12@yahoo.com
14	Smt. Pushpa Seshadri, Asst.G.M.	9869404482	pushpa_seshadri@hotmail.com
15	Smt. Sachala Mishra, Asst.G.M.	9869450223	mishrasachala@gmail.com
16	Shri Kuleshwar Sahu, Asst.G.M.	9425294214	kuleshwar@powergridindia.com
17	Shri D. Bruhananda, C,M.	9428504279	bruhanandad@gmail.com
18	Shri Chandan Kumar, Sr.Eng.	9869251460	chandan@posoco.in
18A	Shri Anil Darode, Mgr.	9422307805	anil.darode@powergridindia.com
VI	**NTPC**		
19	Shri P. Sreenivas, G.M.	9004677573	psreenivas@ntpc.co.in
20	Shri S.K. Shrivastava, A.G.M.	9425178069	sksrivastava09@ntpc.co.in
21	Shri Sunil Kumar Srivastava, A.G.M.	9425178134	sksrivastava11@ntpc.co.in
22	Shri B.N. Yadav, D.G.M.	9415245852	bnyadav01@ntpc.co.in
23	Shri Jai Prakash Verma, Sr. Mgr.	9424140787	jaiprakashverma@ntpc.co.in
24	Shri P. Suresh Babu, Sr. Mgr.	8275045151	sureshpentyala@ntpc.co.in
VII	**RELIANCE ADA**		
25	Shri Baliram Jadhav, Addl. V.P.	9325119745	baliram.jadhav@relianceada.com
26	Shri J.N. Jadeja, A.V.P.	9827856545	jaysinh.jadeja@relianceada.com
27	Shri Sameer D. Bhoire, G.M.	9325119795	sameer.bhoire@relianceada.com
28	Shri Ghanashyam Raut, G.M.	9325119787	ghanashyam.raut@relianceada.com
VIII	**APML**		
29	Shri Rakesh Bhalerao	7045953823	rakesh.bhalerao@adani.com
30	Shri Uday Trivedi, A.V.P.	9045015054	uday.trivedi@adani.com
IX	**TATA POWER**		
31	Shri Prakash Gadre, Head Grid Opn.	9223553341	prgadre@tatapower.com
32	Shri Brajesh Singh, Head Operations	9099995744	brijesh.singh@tatapower.com

X	**AVANTHA POWER**		
33	Shri Arabinda Mishra, D.G.M.	7583888711	arabinda.mishra@avanthapower.com
XI	**NPCIL**		
34	Shri Padam Singh Opn. Supdt.	9423982775	psingh@npcil.co.in
XII	**M B POWER**		
35	Shri Gajanan Jagtap, Sr. Mgr.	9644009817	gajanan.jagtap@hpppl.in
XIII	**JPL**		
36	Shri D. Chauhan	7898902683	devendrasinh@jindalpower.com
XIV	**TORRENT POWER**		
37	Shri P.G. Patel, G.M.	9824370005	pramodpatel@torrentpower.com
38	Shri Jaydip Chudasama, A.G.M.	9227410136	jaydipchudasama@torrentpower.com
39	Shri Ronak N. Naik, Mgr.	9227410210	ronaknaik@torrentpower.com
40	Shri Ajit Batia, Mgr	7096042725	ajitbhatia@torrentpower.com
XV	**ESSAR POWER**		
41	Shri S.K. Mehta, V.P.	9879103205	skmehta@essar.com
42	Shri O.J. Saxena, Sr. Mgr.	9879101268	osaxena@essar.com
43	Shri Ashish Kakroo, Mgr.	9687668725	ashish.kakroo@essar.com
XVI	**STERLITE**		
44	Shri Ankit Agrawal, Eng.	8966903752	ankit.a@sterlite.com
XVII	**RKMPPL**		
45	Shri T. Rajesh Kumar, Mgr.	8435000779	trajeshkumar@rkmpowergen.in
XVIII	**GMR GROUP**		
46	Shri Shaikh Ibrahim, A.G.M.	8550991210	ibrahim.shaikh@gmrgroup.in
47	Shri Mahesh Mohapatra, A.G.M.	8550991227	mahesh.mohapatra@gmrgroup.in
XIX	**RATTAN INDIA**		
48	Shri Bhaskar Sable, G.M.	8390981118	bhaskar.sable@rattanindia.com
49	Shri A.K. Mishra, G.M.	9665070111	anil.m@rattanindia.com
XX	**KSK**		
50	Shri Ashish Gupta, A.M.	7869914753	ashish.g@ksk.co.in
XXI	**DHARIWAL**		
51	Shri Satish Dukare, G.M.	9561112003	satish.dukare@rp_sg.in
XXII	**NCA**		
52	Shri Rajesh Sharma, Asst. E.E.	8818885970	hcarajesh@yahoo.co.in

अनुलग्नक **2.1**

माह नवम्बर **2016** में आवृत्ति के आंकड़ों का विवरण

(पश्चिम क्षेत्र भार प्रेषण केन्द्र की आवृत्ति रिपोर्ट के आधार पर)

FREQUENCY PARTICULARS DURING NOVEMBER 2016

(AS PER FREQUENCY REPORT OF WRLDC)

1. INTEGRATED OVER AN-HOUR
एक घंटे में समाकलित

1.1 MAXIMUM FREQUENCY 50.09 Hz. BETWEEN 1300 Hrs & 1400 Hrs Hrs. ON 06.11.2016
अधिकतम आवृत्ति

1.2 MINIMUM FREQUENCY 49.78 Hz. BETWEEN 1700 Hrs & 1800 Hrs Hrs. ON 30.11.2016
न्यूनतम आवृत्ति

1.3 AVERAGE FREQUENCY 49.99 Hz.
औसत आवृत्ति

2. INSTANTANEOUS तात्कालिक

2.1 MAXIMUM FREQUENCY 50.27 Hz. AT 22:07:00 & 18:02:10 Hrs. ON 17.11.2016 & 27.11.2016
अधिकतम आवृत्ति

2.2 MINIMUM FREQUENCY 49.54 Hz. AT 17:43:40 hrs Hrs. ON 30.11.2016
न्यूनतम आवृत्ति

3. %AGE OF TIME WHEN FREQUENCY WAS आवृत्ति का समय प्रतिशत में	NOVEMBER 2016	OCTOBER 2016	SEPTEMBER 2016
3.1 BELOW 48.5 Hz. 48.5 हर्ट्ज के नीचे	0.00	0.00	0.00
3.2 BETWEEN 48.5 Hz. AND 48.8 Hz. 48.5 हर्ट्ज और 48.8 हर्ट्ज के बीच	0.00	0.00	0.00
3.3 BETWEEN 48.8 Hz. AND 49.2 Hz. 48.8 हर्ट्ज और 49.2 हर्ट्ज के बीच	0.00	0.00	0.00
3.4 BETWEEN 49.2 Hz. AND 49.5 Hz. 49.2 हर्ट्ज और 49.5 हर्ट्ज के बीच	0.00	0.00	0.00
3.5 BETWEEN 49.5 Hz. AND 49.7 Hz. 49.5 हर्ट्ज और 49.7 हर्ट्ज के बीच	0.00	0.00	0.10
3.6 BETWEEN 49.7 Hz. AND 49.9 Hz. 49.7 हर्ट्ज और 50.2 हर्ट्ज के बीच	9.02	5.43	5.75
3.7 BETWEEN 49.9 Hz. AND 50.05 Hz. 49.9 हर्ट्ज और 50.05 हर्ट्ज के बीच	71.94	74.78	75.15
3.8 BETWEEN 50.05 Hz. AND 51.5 Hz. 50.05 हर्ट्ज और 51.5 हर्ट्ज के बीच	19.04	19.80	19.00
3.9 ABOVE 51.5 Hz. 51.5 हर्ट्ज के ऊपर	0.00	0.00	0.00
4.1 NO. OF TIMES FREQUENCY TOUCHED 48.80 Hz. आवृत्ति 48.80 हर्ट्ज को छूही	0	0	0
4.2 NO. OF TIMES FREQUENCY TOUCHED 48.60 Hz. आवृत्ति 48.60 हर्ट्ज को छूही	0	0	0
4.3 NO. OF TIMES FREQUENCY TOUCHED 51.00 Hz. आवृत्ति 51.00 हर्ट्ज को छूही	0	0	0

विदयुतदाब रूपरेखा नवम्बर 2016

Voltage Profile during the month of Nov. 2016

संल्ग्नक Annex-2.3

दिनांक	भोपाल		खंडवा		इटारसी		दमोह		नागदा		इंदौर		ग्वालियर		रायपूर		रायगढ़	
Date	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
1	419	404	426	412	416	402	412	412	422	404	423	407	410	399	427	417	423	418
2	417	400	427	407	415	397	412	412	420	401	421	403	407	395	426	414	424	415
3	417	400	426	406	415	398	412	412	419	400	420	402	413	393	424	415	423	415
4	418	397	425	402	414	394	412	412	421	399	420	398	409	393	423	413	423	414
5	413	399	422	403	409	394	418	408	418	399	417	400	412	393	422	412	421	414
6	417	395	421	400	412	391	419	402	421	393	418	396	410	394	422	413	422	415
7	418	395	423	400	413	391	421	406	423	395	420	397	409	391	423	412	422	414
8	418	398	424	402	414	392	423	406	421	393	420	396	409	392	425	411	424	415
9	417	397	425	402	412	392	421	403	422	395	419	396	408	390	424	413	422	414
10	418	399	425	400	413	393	422	404	423	396	419	396	410	391	426	415	424	416
11	418	393	423	396	413	388	422	401	424	395	418	394	410	392	426	413	423	415
12	419	403	421	405	413	397	423	408	422	402	419	402	412	391	426	414	424	415
13	419	403	423	407	414	398	424	409	422	404	419	403	410	395	425	415	424	418
14	420	399	424	404	415	394	424	403	421	400	419	399	414	391	427	414	425	417
15	418	400	424	406	414	395	423	406	422	401	420	399	411	392	425	414	424	417
16	420	402	427	408	416	397	426	408	425	402	422	401	414	392	425	415	423	417
17	419	401	428	406	416	395	426	408	424	399	422	397	415	388	426	413	418	418
18	418	398	423	401	414	393	425	404	424	399	419	398	414	389	425	412	424	415
19	419	399	425	400	414	394	423	405	421	398	419	397	417	387	424	412	423	414
20	417	400	425	401	414	394	423	406	423	396	420	397	416	397	425	414	424	416
21	416	400	423	402	413	394	422	403	423	400	416	398	419	394	424	412	424	414
22	416	397	423	402	413	393	424	405	421	399	417	398	419	393	425	412	424	414
23	418	398	427	400	414	392	424	404	422	396	418	395	415	391	425	412	424	414
24	417	399	424	402	413	393	422	404	422	401	419	398	413	390	424	411	422	413
25	417	402	423	406	413	395	422	405	424	400	418	400	418	398	424	412	423	413
26	417	397	423	402	411	392	418	401	421	399	417	398	416	394	423	410	422	412
27	417	399	424	401	414	393	421	403	424	401	419	398	415	395	425	413	423	415
28	417	403	424	403	413	398	421	405	421	402	418	401	414	390	425	412	424	415
29	416	400	422	401	413	394	419	403	420	400	419	398	413	392	423	412	422	413
30	416	397	421	398	412	390	419	402	421	395	417	396	411	393	423	411	422	413
	420	**393**	**428**	**396**	**416**	**388**	**426**	**401**	**425**	**393**	**423**	**394**	**419**	**387**	**427**	**410**	**425**	**412**

दिनांक	भिलाई		वर्धा		धूले		परली		बोईसर		कलवा		कराड		असोज		देहगाम	
Date	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**
1	423	414	424	411	429	407	424	404	426	415	430	400	432	416	424	409	431	414
2	422	411	426	407	431	404	428	400	426	409	432	400	434	411	423	407	427	412
3	421	411	424	407	429	403	425	400	423	406	430	408	432	413	421	406	425	411
4	419	410	420	405	425	398	422	389	423	410	429	410	430	409	420	405	424	412
5	418	409	422	404	424	401	420	388	421	404	427	405	429	409	417	402	424	409
6	418	410	419	405	425	399	421	391	422	408	428	409	430	412	418	401	426	410
7	419	409	422	402	428	401	420	391	422	405	429	405	430	412	419	402	426	412
8	421	408	421	405	426	398	419	389	422	401	428	400	431	410	419	400	426	409
9	421	409	423	406	426	400	419	390	422	400	428	401	431	408	419	401	427	410
10	423	412	422	408	427	401	421	392	423	406	429	407	431	410	420	399	426	409
11	422	409	424	401	426	396	425	393	422	409	429	400	433	413	420	400	425	410
12	422	410	421	405	425	402	423	390	423	405	429	407	431	409	419	402	425	410
13	422	412	420	409	424	398	420	395	420	407	428	410	431	413	417	404	424	412
14	423	411	421	407	425	400	420	394	424	403	429	404	431	413	418	400	425	408
15	421	411	421	407	424	403	421	393	422	405	427	405	431	413	418	401	425	409
16	423	412	423	408	429	405	418	398	420	402	425	402	430	414	419	401	425	409
17	423	410	423	407	430	400	424	402	419	404	424	405	433	414	419	399	424	408
18	422	409	421	404	429	402	421	389	421	406	427	407	432	413	419	399	426	409
19	421	408	422	405	431	399	422	388	421	405	427	405	432	412	419	401	425	409
20	422	411	421	403	430	398	423	391	421	407	426	409	433	414	421	405	426	415
21	421	409	419	403	426	397	422	392	425	401	432	401	431	411	418	400	426	410
22	422	409	421	404	426	399	423	391	423	402	428	402	433	410	417	401	425	411
23	421	409	421	403	430	400	420	389	423	403	427	402	432	411	417	400	424	409
24	421	408	422	403	426	399	422	390	423	402	429	403	431	410	417	399	424	409
25	421	408	421	406	425	402	421	393	422	409	429	408	432	412	418	400	425	408
26	419	407	420	403	425	402	420	392	424	406	430	401	430	410	419	400	426	409
27	421	410	422	407	428	404	422	397	426	408	400	400	432	414	420	405	426	410
28	422	409	422	406	427	403	422	391	424	404	425	400	431	412	420	402	425	409
29	420	409	418	407	425	400	419	395	422	404	426	402	430	411	418	401	424	411
30	420	407	418	408	425	396	418	388	422	401	426	399	429	409	417	397	425	407
	423	**407**	**426**	**401**	**431**	**396**	**428**	**388**	**426**	**400**	**432**	**399**	**434**	**408**	**424**	**397**	**431**	**407**

दिनांक	कासोर		जेतपूर		अमरेली		वापी		मापूसा		कला		मगरवाड़ा		हज़ीरा	
Date	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
1	422	413	410	399	414	405	427	413	430	401	418	413	425	412	424	407
2	421	412	409	400	415	400	425	405	430	393	416	407	422	406	421	403
3	420	411	409	399	415	405	421	402	429	403	408	405	419	404	422	402
4	420	410	408	399	414	404	422	401	429	402	406	406	422	404	423	404
5	419	408	410	400	417	406	419	402	427	403	406	406	420	404	421	405
6	420	409	410	400	416	404	421	407	430	409	406	406	422	410	424	409
7	421	411	412	399	418	405	421	403	431	404	406	406	422	400	421	405
8	420	407	414	397	419	400	423	396	432	402	406	406	421	398	424	391
9	420	408	413	399	418	402	421	399	431	399	406	406	420	400	424	402
10	421	405	413	401	417	403	420	399	432	400	406	406	420	400	421	398
11	422	408	413	400	420	405	421	401	435	409	406	406	418	400	422	399
12	420	408	412	399	415	404	417	401	431	405	406	406	418	400	421	400
13	418	410	411	400	415	405	417	403	430	405	406	406	415	403	420	404
14	420	407	411	401	415	406	421	400	434	402	406	406	419	399	422	400
15	419	408	411	399	417	403	419	400	431	404	406	406	416	400	423	399
16	420	408	410	400	419	403	419	399	431	407	406	406	417	398	422	400
17	419	408	410	396	417	399	417	398	435	407	406	406	416	399	423	402
18	420	408	412	397	419	402	420	402	433	401	406	406	419	402	423	405
19	419	410	409	394	418	400	419	400	429	401	406	406	419	401	422	404
20	421	413	409	399	415	400	417	403	432	406	406	406	416	404	425	407
21	419	409	409	399	416	406	419	396	434	406	406	406	418	398	422	404
22	419	408	410	400	417	407	418	395	436	405	406	406	418	398	422	404
23	419	407	409	399	417	400	419	397	433	403	406	406	419	400	421	399
24	418	410	412	399	419	407	421	400	433	402	406	406	419	398	420	396
25	419	408	410	399	416	406	421	403	432	400	406	406	418	402	421	400
26	418	415	409	399	416	407	423	402	429	406	406	406	422	399	424	398
27	418	414	410	400	415	405	423	399	431	408	406	406	420	399	422	399
28	419	413	409	399	416	400	423	402	433	405	406	406	422	400	425	400
29	419	412	409	395	413	400	421	401	432	405	406	406	419	400	421	396
30	418	407	412	397	418	404	421	400	430	398	406	406	418	398	423	397
	422	**405**	**414**	**394**	**420**	**399**	**427**	**395**	**436**	**393**	**418**	**405**	**425**	**398**	**425**	**391**

दिनांक	सासन		सतना		तमनार		कोटरा		वडोदरा		दुर्ग		ग्वालियर		सिपत		सियोनि		वर्धा		बीना		इंदौर	
Date	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	न्युनतम	अधिकतम	न्युनतम	अधिकतम	अधिकतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम
	Max	**Min**	**Max**	**Min**	**Max**	**Max**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**
1	776	762	786	766	799	788	797	788	805	777	789	786	793	772	774	763	792	771	799	775	792	770	792	765
2	771	758	779	760	799	783	799	782	803	770	789	780	786	761	772	758	793	761	803	765	786	758	789	756
3	769	756	776	753	796	781	796	781	801	770	789	771	787	759	771	756	792	761	802	765	782	757	787	754
4	770	757	779	759	802	781	802	780	800	766	790	771	792	757	768	755	788	756	801	760	785	756	790	748
5	771	755	777	755	795	780	794	779	791	763	789	771	788	758	767	753	785	754	803	758	782	753	781	749
6	772	757	783	761	795	782	794	781	795	756	789	771	792	762	769	755	786	756	799	763	786	755	790	742
7	772	754	780	754	800	780	800	779	796	759	789	770	790	755	772	753	788	754	802	755	788	750	790	743
8	772	756	782	755	799	782	798	780	795	755	789	771	790	760	774	754	791	752	801	759	790	758	792	747
9	769	752	780	752	798	781	797	779	796	757	788	770	791	751	770	750	791	754	806	763	785	749	790	745
10	771	755	782	755	799	783	798	782	798	755	788	777	792	757	772	754	791	757	802	767	786	755	786	747
11	773	756	783	756	798	781	798	780	798	751	795	768	792	757	769	751	791	746	808	749	787	749	786	737
12	775	758	786	760	798	784	798	783	792	764	795	776	794	756	770	755	790	762	796	763	789	757	786	754
13	774	758	782	756	798	788	797	786	794	769	786	786	794	763	771	760	789	767	798	767	789	761	787	757
14	778	757	788	755	801	784	800	783	795	760	795	776	796	755	774	757	793	759	800	768	792	755	792	749
15	777	757	786	757	797	785	797	785	794	762	786	776	795	758	771	758	789	760	801	763	790	756	791	752
16	774	756	782	756	800	785	800	784	800	779	795	776	794	757	774	757	795	761	807	772	792	757	791	755
17	775	753	781	749	799	783	799	782	799	754	794	776	796	750	774	757	793	759	800	767	790	752	793	750
18	772	754	781	751	797	779	797	779	798	758	785	767	792	752	774	754	792	756	802	763	787	752	787	749
19	772	754	782	752	796	779	796	778	796	762	789	771	794	749	773	755	790	755	802	759	789	751	786	748
20	774	760	785	763	796	780	796	780	799	763	791	771	795	765	773	758	791	756	800	756	790	762	787	748
21	772	755	780	755	796	778	796	778	795	762	785	767	797	759	773	756	789	757	795	761	789	757	788	753
22	772	753	784	751	795	779	796	778	793	759	785	767	797	750	772	754	789	755	795	762	790	749	793	752
23	773	754	782	751	795	777	795	777	793	758	787	767	797	754	772	753	789	752	800	759	789	751	791	743
24	773	757	781	754	798	777	799	776	793	754	788	769	794	752	770	752	789	751	805	758	786	755	784	751
25	775	756	783	756	793	776	793	775	794	761	787	768	796	758	771	753	788	757	798	766	788	757	789	753
26	777	759	783	754	792	774	792	773	794	758	786	768	795	753	770	752	786	751	793	758	787	751	785	749
27	777	758	783	757	796	780	797	779	798	765	786	777	794	756	772	756	789	759	799	762	787	756	795	747
28	774	755	783	757	797	779	797	778	799	766	786	768	791	758	773	755	791	759	800	762	788	760	785	755
29	772	756	780	758	793	777	793	777	795	762	786	768	790	753	769	754	785	754	792	760	783	755	791	753
30	774	758	784	760	793	775	793	775	792	752	786	768	791	758	770	750	786	748	794	749	786	754	791	744
	778	**752**	**788**	**749**	**802**	**774**	**802**	**773**	**805**	**751**	**795**	**767**	**797**	**749**	**774**	**750**	**795**	**746**	**808**	**749**	**792**	**749**	**795**	**737**

ANNEX -2.4

Under Frequency Operation in various Constituent System of Western Region during the month NOVEMBER- 2016
(Compiled from the data received from the constituents)

Sl. No	Date	Gujarat		Chhattisgarh		Madhya Pradesh		Maharashtra	
		No. of Occasions	Max Load Relief at 49.2 Hz	No. of Occasions	Max Load Relief at 49.2 Hz	No. of Occasions	Max Load Relief at 49.2 Hz	No. of Occasions	Max Load Relief at 49.2 Hz
1	01-Nov-16	0	0	0	0	0	0	0	0
2	02-Nov-16	0	0	0	0	0	0	0	0
3	03-Nov-16	0	0	0	0	0	0	0	0
4	04-Nov-16	0	0	0	0	0	0	0	0
5	05-Nov-16	0	0	0	0	0	0	0	0
6	06-Nov-16	0	0	0	0	0	0	0	0
7	07-Nov-16	0	0	0	0	0	0	0	0
8	08-Nov-16	0	0	0	0	0	0	0	0
9	09-Nov-16	0	0	0	0	0	0	0	0
10	10-Nov-16	0	0	0	0	0	0	0	0
11	11-Nov-16	0	0	0	0	0	0	0	0
12	12-Nov-16	0	0	0	0	0	0	0	0
13	13-Nov-16	0	0	0	0	0	0	0	0
14	14-Nov-16	0	0	0	0	0	0	0	0
15	15-Nov-16	0	0	0	0	0	0	0	0
16	16-Nov-16	0	0	0	0	0	0	0	0
17	17-Nov-16	0	0	0	0	0	0	0	0
18	18-Nov-16	0	0	0	0	0	0		0
19	19-Nov-16	NIL		NIL		NIL		NIL	0
20	20-Nov-16	0	0	0	0	0	0	0	0
21	21-Nov-16	0	0	0	0	0	0	0	0
22	22-Nov-16	0	0	0	0	0	0	0	0
23	23-Nov-16	0	0	0	0	0	0	0	0
24	24-Nov-16	0	0	0	0	0	0	0	0
25	25-Nov-16	0	0	0	0	0	0	0	0
26	26-Nov-16	0	0	0	0	0	0	0	0
27	27-Nov-16	0	0	0	0	0	0	0	0
28	28-Nov-16	0	0	0	0	0	0	0	0
29	29-Nov-16	0	0	0	0	0	0	0	0
30	30-Nov-16								
Recommonded Load relief at 49.2 Hz / 49.0/48.8/48.6 Hz			***1025***		***91***		***490***		***851***

ANNEXURE – 2.5

Power Cut/Restrictions in Western Region for the month of November-2016

क : गुजरात Gujarat

1 उद्योगों के लिये विद्युत कटौतियां

1 **Power Cut/ Restriction on Industries**

a) All industries are allowed to run their units on all days of week & if they want to avail staggered holiday, then they will have to staggered on notified day only & cannot avail as per their choice.

b) All industries are required to keep their recess timings staggered.

2 कृषि व ग्रामीण क्षेत्रों को विद्युत आपूर्ति

2. Power supply to Agricultural & Rural Sectors

a) 08 Hrs. power supply in staggered form in rotation of day & night is given to Ag. (However, in MGVCL 14 hrs. power supply to AG in Kheda & Anand district from 13th Apr'16 & 10 Hrs. AG supply in Vadodara district from 27th Apr'16.) Single Phase supply given during rest of 16 Hrs by providing LSTC.

b) Jyotigram Yojana 24 hrs.

3 अन्य जानकारी

3. **Any other information:** NIL.

ख : मध्य प्रदेश Madhya Pradesh

1 उद्योगों के लिये विद्युत कटौतियां / पावंदियां , राज्य में भार नियमन आदि

1 **Power Cut/ Restriction on Industries, Load Shedding in the state etc**

विवरण Details	विद्युत कटौती की मात्रा Quantum of power cut (MW)	पाबन्दी का समय Restriction Timing		प्रति दिन कुल ऊर्जा कटौती Total Energy Cut (MUs /day
		से From	तक To	
(a) Power Restrictions(Evening peak Hour) on non continuous process HT/LT Industries	शून्य Nil	शून्य Nil	शून्य Nil	शून्य Nil
(b) भार नियमन Load Shedding	शून्य Nil	शून्य Nil	शून्य Nil	शून्य Nil
(c) अन्य जानकारी Other information				
1.Weekly Off	शून्य Nil	शून्य Nil	शून्य Nil	शून्य Nil
2.Staggering of power supply	शून्य Nil	शून्य Nil	शून्य Nil	शून्य Nil

2 कृषि क्षेत्र को विद्युत आपूर्ति

2. **Power supply to Agricultural Sector: -**

विवरण Details	से From दिनांक Date	तक To दिनांक Date	प्रति दिन आपूर्ति घंटे Supply Hours per day		
			Max. (Hrs)	Min. (Hrs)	Average (Hrs)
2.1 Three-Phase Supply(DLF)	01.11.2016	30.11.2016	23:37	23:21	23:29
2.1 Three-Phase Supply(Irrigation)	01.11.2016	30.11.2016	09:54	09:48	09:50
2.1 Three-Phase Supply(Mixed)	01.11.2016	30.11.2016	23:30	23:07	23:17

3 अन्य जानकारी

3. **Any other information**

शहरी क्षेत्रों में नियमन विद्युत कटौतियां Scheduled Power cuts in Urban Areas

विवरण Details	से From दिनांक Date	तक To दिनांक Date	ओसत प्रतिदिन आपूर्ति घंटे Average Supply Hours per day		
			Max. (Hrs)	Min. (Hrs)	Average (Hrs)
3.1 Commissionary H. Qtrs.	01.11.2016	30.11.2016	23:56	23:10	23:49
3.2 District Head Qtrs.	01.11.2016	30.11.2016	23:57	23:50	23:54
3.3 Tehsil Head Qtrs.	01.11.2016	30.11.2016	23:50	23:40	23:45

ग : महाराष्ट्र Maharashtra

1 उध्योगों के लिये विद्युत कटौतियां / पाबंदियां , राज्य में भार नियमन आदि

1. **Power Cut/ Restriction on Industries, Load Shedding in the state etc**

विवरण Details	विद्युत कटौती की मात्रा Quantum of power cut (MW)	पाबन्दी का समय Restriction Timing		प्रति दिन कुल ऊर्जा कटौती Total Energy Cut (MUs /day
		From	To	
(a) Power Cuts/Restriction on HT/ LT Industries (b) Load Shedding From 01.11.16 to 30.11.16	शून्य Nil @ 0-386 MW	शून्य Nil 00.00	शून्य Nil 24.00	शून्य Nil @ 0.0143MUs/day
(c) Any other information 1.Weekly Off 2. Staggering of power supply Industrial Staggering LS withdrawn from 03/02/2012	शून्य Nil	शून्य Nil	शून्य Nil	शून्य Nil

2 कृषि क्षेत्र को विद्युत आपूर्ति

2. **Power supply to Agricultural Sector**

विवरण Details	से From दिनांक Date	तक To दिनांक Date	प्रति दिन आपूर्ति घंटे Supply Hours per day		
			Max. (Hrs)	Min. (Hrs)	Average (Hrs)
2.1 Three-Phase Supply	01.11.2016	30.11.2016	12:00	12:00	12:00
2.2 Single-Phase Supply	01.11.2016	30.11.2016	12:00	12:00	12:00

Note:- * w.e.f 08.09.2016 vide letter from MSEDCL ED-I/27651 dt. 07.09.2016

***vide circular ED-I/12hrs AG supply/34638 dt 21.11.2016 , 3 Ph. supply to AG extended upto 05.12.2016 by Mahadiscom**

3 अन्य जानकारी Any other information:

There is no load shedding on industrial feeders in Maharashtra

घ : छत्तीसगढ़ Chhattisgarh:

1 उध्योगों के लिये विद्युत कटौतियां / पाबंदियां , राज्य में भार नियमन आदि

1 **Power Cut/ Restriction on Industries, Load Shedding in the state etc**

विवरण Details	विद्युत कटौती की मात्रा Quantum of power cut (MW)	पाबन्दी का समय Restriction Time		प्रति दिन कुल ऊर्जा कटौती Total Energy Cut (MUs /day)
		से From	तक To	
(A) Scheduled (a) (i) Power Cuts/ Restriction on HT Industries	00.00(Av)	-	-	-
(ii) Power Cuts/Restriction on LT Industries	00.00(Av)	-	-	-
(iii) Power Cuts/Restriction on Rural	00.00 (Av)	-	-	-
(iv) Agriculture pump*	00.00 (Av)	00.00	00.00	0.00
(v)Urban/ Sub-Urban	00.00(Av)	-	-	-
(iv)Town feeders(C-1to C-6)	00.00 (Av)	-	-	-
(B) Un-Scheduled (a) Load Shedding	1.Rural 63.23 MW(Av) For 16.24 Hrs. 2.Town Feeders (C-1to C-6 & X) : 0.00(Av)	-	-	0.034
			-	-
	3. Industries NIL.			0.000
Total Energy Cut/day				0.034
(b) Any other information 1.Weekly Off/staggering of power supply	1day (In a week as per consumer's option) 50MW(Av.)	-	-	-

2 कृषि क्षेत्र को विद्युत आपूर्ति

2. **Power supply to Agricultural Sector**

विवरण Details	से From दिनांक Date	तक To दिनांक Date	प्रति दिन आपूर्ति घंटे Supply Hours per day		
			Max. (Hrs)	Min. (Hrs)	Average (Hrs)
2.1 Three-Phase Supply	01.11.2016 to 30.11.2016		18.00		
2.2 Single-Phase Supply	-	-	-	-	-
2.3 Remarks/Note/	-	-	-	-	-

3 अन्य जानकारी / Any other information: शून्य Nil

संलग्नक Annex-2.6

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड

(पावरग्रिड की एक पूर्ण स्वामित्व वाली कंपनी)

पश्चिम क्षेत्रिय भार प्रेषण केन्द्र,मुम्बई

Power System Operation Corporation Ltd.

(A wholly owned subsidiary company of POWERGRID)

Western Regional Load Despatch Centre,Mumbai

अनिवार्य युनिट आऊटेज का नवम्बर 2016 का विस्तारित ब्यौरा

Details of forced unit outages during the month of Nov. 2016

अनु क्रमाक Sl.No	युनेट Unit	संघटक Constituent/IPP	क्षः □□□ □□□□□ Cap.MW	□ From □□□ दिनाक		□ From □□□ दिनाक		□□□ Reason
				Time	Date	Time	Date	
1.	जोटोपोएस GTPS-2	GSECL	120	01:30	09-04-2016	Still out	Still out	Long restoration period
2.	□□□ Ukai-2	GSECL	120	16:00	09-04-2016	Still out	Still out	Long restoration period
3.	पेपावाव Pipavav 2	GSECL	350	00:30	29-04-2016	Still out	Still out	RSD
4.	□□□ Ukai 1	GSECL	120	03:18	07-05-2016	Still out	Still out	Excitation problem
5.	एसटोपोएस STPS 2	GSECL	120	13:05	24-09-2016	Still out	Still out	Bunker problem
6.	एसटोपोएस STPS 1	GSECL	120	18:00	26-09-2016	Still out	Still out	RSD
7.	□□□□UTRAN STG II 1	GSECL	375	19:28	30-09-2016	16:02	04-12-2016	costly generation
8.	वानकबोरो Wanakbori 2	GSECL	210	21:55	01-10-2016	06:07	07-11-2016	RSD
9.	जोटोपोएस GTPS -4	GSECL	120	09:00	04-10-2016	04:23	21-11-2016	RSD
10.	वानकबोरो Wanakbori 4	GSECL	210	09:04	04-10-2016	12:55	28-11-2016	RSD
11.	□□□ SUGEN 3	GSECL	382	00:24	09-10-2016	06:32	12-11-2016	RSD
12.	□□□□□□ BECL 1	GSECL	250	02:14	21-10-2016	11:34	20-11-2016	Turbine oil impulse leakage
13.	□□□□□□ DGBP 2	GSECL	112	23:55	21-10-2016	07:07	09-11-2016	RSD
14.	□□□□ GPEC 3	GSECL	218	03:30	22-10-2016	17:36	15-11-2016	Available in open cycle
15.	□□□ SUGEN 2	GSECL	382	21:24	25-10-2016	17:04	12-11-2016	RSD
16.	□□□□□ Hazira(Extn)	GSECL	351	11:34	26-10-2016	15:00	09-11-2016	Testing completed, kept out on RSD
17.	वानकबोरो Wanakbori 1	GSECL	210	10:58	27-10-2016	17:52	07-11-2016	RSD
18.	वानकबोरो Wanakbori 6	GSECL	210	20:32	27-10-2016	19:03	06-11-2016	RSD
19.	□□□□ GPEC 1	GSECL	218	18:23	28-10-2016	07:33	18-11-2016	RSD
20.	एसटोपोएस STPS 4	GETCO	250	20:28	28-10-2016	04:51	11-11-2016	RSD
21.	□□□ Ukai 6	GSECL	500	20:38	28-10-2016	04:49	06-11-2016	RSD
22.	पेपावाव Pipavav	GSECL	350	16:40	29-10-2016	16:12	16-11-2016	RSD
23.	□□□□□□□ SLPP 3	GSECL	125	05:10	30-10-2016	04:36	04-11-2016	RSD
24.	टोरेट पावर TORRENT POWER- F	GSECL	120	00:10	31-10-2016	17:45	09-11-2016	Boiler annual survey work
25.	जोटोपोएस GTPS- 3	GETCO	210	23:35	03-11-2016	23:15	06-11-2016	Re heater valve problem

26.	□□□ GPEC 2	GSECL	218	08:37	07-11-2016	17:45	14-11-2016	Costly Generation
27.	वानकबोरी Wanakbori 6	GSECL	210	19:32	07-11-2016	05:08	30-11-2016	RSD
28.	□□□□□□□ SLPP 4	GSECL	125	20:56	07-11-2016	03:42	13-11-2016	BTL
29.	□□□□□□ DGBP 1	GSECL	107	22:00	08-11-2016	06:52	24-11-2016	RSD
30.	वानकबोरी Wanakbori 1	GSECL	210	10:37	10-11-2016	Still out	Still out	RSD
31.	वानकबोरी Wanakbori 5	GSECL	210	11:59	10-11-2016	11:59	05-12-2016	RSD
32.	जीटीपीएस GTPS - 3	GSECL	210	19:18	11-11-2016	03:40	05-12-2016	RSD
33.	वानकबोरी Wanakbori 2	GSECL	21	09:23	12-11-2016	03:59	05-12-2016	RSD
34.	वानकबोरी Wanakbori 3	GSECL	21	16:40	12-11-2016	Still out	Still out	RSD
35.	□□□ SUGEN 2	GSECL	382	18:57	12-11-2016	18:29	15-11-2016	RSD; Earlier taken into service for testing purpose.
36.	□□□ Ukai 4	GSECL	200	11:57	14-11-2016	18:44	19-11-2016	RSD
37.	□□□□ GPEC 2	GSECL	218	18:30	14-11-2016	11:29	18-11-2016	RSD
38.	□□□ SUGEN 3	GSECL		17:06	15-11-2016	Still out	Still out	HP main steam leakage.
39.	वानकबोरी Wanakbori 7	GSECL	210	21:23	15-11-2016	03:49	22-11-2016	RSD
40.	□ □□□□□ OPGS 2	GSECL	150	14:38	18-11-2016	15:08	23-11-2016	Loss of flame
41.	□□□□ GPEC 1	GSECL	218	18:55	18-11-2016	09:00	26-11-2016	RSD
42.	□□□□ GPEC 2	GSECL	218	11:34	19-11-2016	17:26	22-11-2016	RSD
43.	□□□□ GPEC 3	GSECL	218	12:24	19-11-2016	09:50	29-11-2016	RSD
44.	□□□□□□□ SLPP 4	GSECL	125	17:24	21-11-2016	11:40	25-11-2016	BTL
45.	जीटीपीएस GTPS 4	GSECL	120	12:40	22-11-2016	Still out	Still out	RSD
46.	□□□□ GPEC 2	GSECL	218	18:25	22-11-2016	07:47	29-11-2016	RSD
47.	एएलटीपीएस ALTPS 1	GSECL	125	21:50	22-11-2016	03:17	02-12-2016	BTL
48.	□□□□□□□ SLPP 3	GSECL	125	02:09	23-11-2016	21:45	26-11-2016	BTL
49.	वानकबोरी Wanakbori 7	GSECL	210	19:43	23-11-2016	03:22	29-11-2016	RSD
50.	□□□□□□ DGBP 2	GSECL	112	23:56	23-11-2016	11:24	29-11-2016	RSD
51.	एसटीपीएस STPS 3	GSECL	250	08:26	24-11-2016	13:29	27-11-2016	BTL
52.	पिपावाव Pipavav-2	GSECL	350	00:30	29-11-2016	Still out	Still out	RSD
53.	पिपावाव Pipavav-1	GSECL	350	00:55	29-11-2016	Still out	Still out	Generator testing work
54.	□□□□□□ BECL 1	GSECL	250	03:43	29-11-2016	Still out	Still out	BTL
55.	□□□□□□ DGBP 1	GSECL	107	09:17	29-11-2016	08:00	03-12-2016	Electrical problem
56.	□□□□ GPEC 3	GSECL	210	12:13	29-11-2016	09:37	04-12-2016	RSD
57.	□□□□ GPEC 1	GSECL	120	17:32	29-11-2016	08:34	04-12-2016	RSD
58.	□□□□ GPEC 2	GSECL	120	18:24	29-11-2016	09:04	04-12-2016	RSD
59.	चंद्र□□ Chandrapur-1	MAHAGENCO	210	7:15	28-08-2014	Still out	Still out	BTL/ Economic shutdown.
60.	□□□□□ Koradi-6	MAHAGENCO	210	01:02	20-03-2015	Still out	Still out	Economic shutdown
61.	परली Parli-3	MAHAGENCO	210	12:52	14.06.2015	Still out	Still out	Water shortage
62.	परली Parli 4	MAHAGENCO	210	19:47	05-07-2015	Still out	Still out	Water shortage
63.	परली Parli 5	MAHAGENCO	210	14:55	06-07-2015	Still out	Still out	Water shortage.

64.	चद्रपुरChandrapur 2	MAHAGENCO	210	04:42	12-01-2016	Still out	Still out	BTL
65.	ङबल्यूपासाएल WPCL 1	MAHAGENCO	135	17:03	16-02-2016	Still out	Still out	Low Schedule
66.	ङबल्यूपासाएल WPCL 2	MAHAGENCO	135	21:46	29-02-2016	Still out	Still out	Change over against unit-3 as per scheduled dispatch
67.	□□□□□ Bhusawal 2	MAHAGENCO	210	19:35	14-06-2016	Still out	Still out	BTL
68.	□□□ Uran 8	MAHAGENCO	108	07:57	14-08-2016	13:18	07-11-2016	Bearing pressure very high
69.	□□□□□ Koradi 5	MSETCL	200	00:21	05-09-2016	Still out	Still out	ID fan problem
70.	□□□□□□ PIONEER- 1	MAHAGENCO	262	00:16	14-09-2016	07:06	10-11-2016	No Schedule
71.	□□□□□□ PIONEER- GT-1 1	MAHAGENCO	127	00:20	14-09-2016	05:00	16-11-2016	No Schedule
72.	□□□□□ Bhusawal 3	MAHAGENCO	210	00:02	16-09-2016	Still out	Still out	Zero schedule
73.	□□□□ Paras 3	MAHAGENCO	250	08:52	25-10-2016	Still out	Still out	Stator winding E/F
74.	□□□□□ KORADI-2(MSEDCL)	MAHAGENCO	660	23:37	29-10-2016	23:05	07-11-2016	Generator Field oil leakage
75.	नासिक NASIK 4	MAHAGENCO	210	13:00	03-11-2016	10:05	13-11-2016	Low schedule/Change over of unit
76.	परली Parli 6	MAHAGENCO	250	16:43	04-11-2016	15:53	08-11-2016	BFP Problem
77.	□□□□□ KORADI-8	MAHAGENCO	660	00:36	06-11-2016	04:55	10-11-2016	Coal mill problem
78.	नासिक Nasik 4	MAHAGENCO	210	13:00	03-11-2016	10:05	13-11-2016	Low schedule/Change over of unit
79.	□□□□□ Koradi-2	MAHAGENCO	660	11:51	11-11-2016	17:05	16-11-2016	Cold reheat NRV problem
80.	नासिक Nasik 5	MAHAGENCO	210	19:20	12-11-2016	08:00	04-12-2016	Economizer tube leakage
81.	चद्रपुर Chandrapur 5	MAHAGENCO	500	22:13	12-11-2016	01:13	18-11-2016	BTL
82.	□□□□ Jaigad 1	MAHAGENCO	300	14:38	16-11-2016	Still out	Still out	Cooling water tube leakage
83.	□□□□□□ PIONEER 1	MAHAGENCO	262+127	19:31	16-11-2016	05:00	23-11-2016	NO SCHEDULE
84.	परली PARLI 7	MAHAGENCO	250	22:10	17-11-2016	01:52	21-11-2016	Furnace Pressure High
85.	□□□□□ Koradi 7	MAHAGENCO	210	01:09	18-11-2016	Still out	Still out	RSD/Zero Schedule by MSEDCL
86.	□□□□□ Bhusawal 4	MAHAGENCO	500	10:16	18-11-2016	22:44	21-11-2016	BTL
87.	□□□□□□ PIONEER- GT-1	MAHAGENCO	388	19:33	23-11-2016	Still out	Still out	Less schedule
88.	□□□ Uran 5	MAHAGENCO	108	00:25	28-11-2016	Still out	Still out	Boiler leakages
89.	□ □□□□□□□□ RGPPL-1B	RGPPL	320	23:00	31-03-2014	Still out	Still out	Dry preservation/Gas shortage
90.	□ □□□□□□□□ RGPPL-1A	RGPPL	320	13:30	8-07-2014	Still out	Still out	Less requisition
91.	□ □□□□□□□□ RGPPL 3B	RGPPL	230	16:36	05-11-2016	Still out	Still out	As per schedule/unit change over
92.	□ □□□□□□□□ RGPPL 2A	RGPPL	230	22:01	05-11-2016	13:21	06-11-2016	Turbine compartment gas line leakage
93.	□ □□□□□□□□ RGPPL 3A	RGPPL	230	16:14	06-11-2016	Still out	Still out	Maintenance
94.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-5	RATTAN POWER INDIA LTD	270	00:12	24-05-2016	08:19	07-11-2016	No Schedule
95.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-3	RATTAN POWER INDIA LTD	270	03:01	29-06-2016	Still out	Still out	Zero Schedule by DISCOM

96.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-2	RATTAN POWER INDIA LTD	270	00:03	12-09-2016	06:21	07-11-2016	No Schedule
97.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-5	RATTAN POWER INDIA LTD	270	20:00	15-11-2016	Still out	Still out	RSD
98.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-4	RATTAN POWER INDIA LTD	270	21:03	16-11-2016	Still out	Still out	Less schedule
99.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-2	RATTAN POWER INDIA LTD	270	22:36	16-11-2016	Still out	Still out	Less schedule
100.	अमरावती टीपीपी AMRAVATI TPP(INDIABULL)-1	RATTAN POWER INDIA LTD	270	17:23	17-11-2016	Still out	Still out	RSD/Zero Schedule
101.	□□□□ तिरोडा APML Tiroda 1	Adani Power Ltd	660	11:10	06-11-2016	Still out	Still out	Coal shortage.
102.	□□□□ □□□ APL Mundra 5	Adani Power Ltd	660	18:48	06-11-2016	22:53	09-11-2016	Feed water flow low.
103.	□□□□ □□□ APL Mundra 2	Adani Power Ltd	330	17:28	13-11-2016	Still out	Still out	CW line leakage
104.	□□□□ □□□ APL Mundra 3	Adani Power Ltd	330	22:23	13-11-2016	Still out	Still out	Condenser Vacuum problem
105.	□□□ □□□ MB Power 2	MPPGCL	600	20:12	16-05-2016	Still out	Still out	Flame failure.
106.	□□ बिना JP Bina-1	MPPGCL	250	00:26	26-09-2016	09:05	12-11-2016	RSD
107.	□□□□ Satpura III 8	MPPGCL	210	14:40	02-10-2016	Still out	Still out	RSD
108.	□□□□ Satpura III 9	MPPGCL	210	20:48	07-10-2016	Still out	Still out	RSD
109.	एसजीटीपीएस SGTPS 2	MPPGCL	210	11:45	09-10-2016	02:00	06-11-2016	RSD
110.	एसजीटीपीएस SGTPS 3	MPPGCL	210	14:55	10-10-2016	Still out	Still out	RSD
111.	एसजीटीपीएस SGTPS 1	MPPGCL	210	22:02	17-10-2016	06:30	29-11-2016	RSD
112.	एसजीटीपीएस SGTPS 4	MPPGCL	210	00:01	19-10-2016	20:15	06-11-2016	RSD
113.	□□□□ Satpura II 6	MPPGCL	200	22:00	25-10-2016	16:20	21-11-2016	RSD
114.	सिंगाजी Singaji 1	MPPGCL	600	15:45	06-11-2016	04:11	11-11-2016	RSD
115.	□□□□□ Amarkantak 5	MPPGCL	210	22:10	15-11-2016	05:44	21-11-2016	Air preheater tube leakage
116.	एसजीटीपीएस SGTPS 5	MPPGCL	500	10:08	16-11-2016	13:41	20-11-2016	BTL
117.	□□□□ Satpura II 7	MPPGCL	210	04:55	21-11-2016	Still out	Still out	BTL
118.	एसजीटीपीएस SGTPS 5	MPPGCL	500	21:45	21-11-2016	15:35	25-11-2016	BTL
119.	□□□□ Marwa TPS 1	CSPGCL	500	19:42	02-05-2016	Still out	Still out	BTL
120.	□□□□ Marwa TPS 2	CSPGCL	500	08:51	10-11-2016	17:10	17-11-2016	BTL
121.	□□□□□ CGPL 1	CGPL	830	00:01	05-11-2016	14:06	15-11-2016	Due to metal temperature restriction
122.	□□□□□ CGPL 5	CGPL	830	15:44	05-11-2016	02:14	02-12-2016	Condenser problem
123.	□□□□□ CGPL 3	CGPL	830	23:41	05-11-2016	23:28	11-11-2016	Statutory boiler inspection work.

124.	□□□□ □□□□ Jhabua Power 2	AVANTA POWER	600	00:23	27-06-2016	11:19	12-11-2016	No Schedule
125.	□□□□ □□□□ Jhabua Power 1	JHABUAPOWER	600	00:02	19-11-2016	Still out	Still out	low load feed water control valve problem
126.	□□□□VANDANA -1	VANDANA	135	15:00	9-01-2015	Still out	Still out	BTL
127.	□□□□□ JPL Stg-II 3	JPL	600	09:54	17-06-2016	Still out	Still out	Less schedule/RSD
128.	□□□□□ JPL Stg-II 1	JPL	600	14:01	01-09-2016	19:06	30-11-2016	APH internal inspection.
129.	□□□□□ JPL Stg-I 3	JPL	250	07:05	06-10-2016	02:30	04-11-2016	APH-B gear box problem
130.	□□□□□ JPL Stg-I 4	JPL	250	19:34	03-11-2016	00:36	19-11-2016	Ash evacuation problem.
131.	□□□□□ JPL Stg-I 3	JPL	250	00:12	06-11-2016	Still out	Still out	No/Less schedule
132.	□□□□□ JPL Stg-I 2	JPL	600	03:20	19-11-2016	Still out	Still out	APH2-B gear box problem
133.	□□□□□ JPL Stg-II 2	JPL	600	08:25	30-11-2016	Still out	Still out	due to abnormal sound in APH-A
134.	धारीवाल Dhariwal-1	DHARIWAL	300	2:27	28-May-14	Still out	Still out	High vibration problem.
135.	□□□□□□ UNOSUGEN-1	TPGL	382	21:55	04-03-2016	Still out	Still out	RSD
136.	□□□□□□ DGEN-51	TPGL	400	07:41	31-03-2016	10:30	02-12-2016	Combustion chamber pressure high
137.	□□□□□□ DGEN-53	TPGL	400	21:44	31-03-2016	Still out	Still out	Low schedule
138.	□□□□□□ DGEN-52	TPGL	400	23:58	31-03-2016	10:15	25-11-2016	No schedule
139.	□□□□□□ DGEN-52 2	TPGL	400	20:00	25-11-2016	Still out	Still out	No schedule
140.	जीएमआर छत्तीशगड GMR CHHATISGARH 1	GCEL	685	23:56	27-05-2016	Still out	Still out	CW pump failure
141.	जीएमआर छत्तीशगड GMR CHHATISGARH 2	GCEL	685	01:10	02-08-2016	Still out	Still out	No Schedule
142.	कएसक महानदा KSK Mahanadi 1	KMPCL	600	15:45	14-10-2016	01:25	10-11-2016	Coal feeding problem.
143.	कएसक महानदा KSK Mahanadi 2	KMPCL	600	07:15	10-11-2016	Still out	Still out	Ash evacuation problem.
144.	लन्का Lanco 2	LANCO	300	00:34	10-11-2016	23:18	26-11-2016	Hydrogen leakage.
145.	□□□□□□□□ MCCPL 1	ACBIL	300	23:50	08-11-2016	11:32	15-11-2016	BTL
146.	□□□□ EMCO II	EMCO	300	02:31	25-11-2016	15:12	28-11-2016	Due to problem of turbine vibration.
147.	□□□□□□□ DB Power 2	DBPL	600	08:00	22-11-2016	21:52	26-11-2016	BTL
148.	□□□□□□□ DB Power I	DBPL	600	23:49	26-11-2016	05:55	29-11-2016	ETL
149.	□□□□ Sasan 4	SASAN	660	13:37	27-11-2016	22:40	30-11-2016	APH Problem
150.	□□□□□□ EPGL 1	ESSAR	600	07:48	29-11-2016	20:35	02-12-2016	WATER SHORTAGE
151.	कॅप्स KAPS 2	NPCIL	220	14:09	01-07-2015	Still out	Still out	Nuclear reactor side problem
152.	कॅप्स KAPS 1	NPCIL	220	08:52	11-03-2016	Still out	Still out	Reactor side problem
153.	□प्स TAPS 4	NPCIL	540	12:01	19-11-2016	01:05	23-11-2016	Electrical problem
154.	□□□□ Kawas ST 1C	NTPC	106	05:56	06-10-2016	Still out	Still out	Less schedule
155.	□□□□ Kawas GT 1B	NTPC	106	06:02	06-10-2016	17:52	04-12-2016	Less schedule
156.	□□□□ Kawas GT 1A	NTPC	106	06:20	06-10-2016	18:04	04-12-2016	Less schedule

157.	□□□ Mouda 1	NTPC	500	19:00	29-10-2016	12:50	03-11-2016	RSD; Declared on RSD after attending to Turbine leakages problem.
158.	□□□□ Gandhar GT ST 3	NTPC	219	00:00	05-11-2016	17:54	04-12-2016	RSD
159.	वीएसटीपीएस VSTPS 5	NTPC	210	02:05	12-11-2016	14:17	20-11-2016	RSD
160.	□एसटीपीएस VSTPS 6	NTPC	210	23:35	14-11-2016	18:00	19-11-2016	RSD
161.	वीएसटीपीएस VSTPS 13	NTPC	500	19:47	21-11-2016	09:21	24-11-2016	BTL.
162.	□□□ Mouda 1	NTPC	500	20:51	21-11-2016	08:00	28-11-2016	Flame failure
163.	वीएसटीपीएस VSTPS 1	NTPC	210	22:04	25-11-2016	02:33	29-11-2016	RSD

Note: Units out for more than 72 hrs are only included.

संलग्नक **Annex-2.7**

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड

(पावरग्रिड की एक पूर्ण स्वामित्व वाली कंपनी)

पश्चिम क्षेत्रिय भार प्रेषण केन्द्र,मुम्बई

Power System Operation Corporation Ltd.

(A wholly owned subsidiary company of POWERGRID)

Western Regional Load Despatch Centre,Mumbai

नियोजित युनिट आऊटेज का नवम्बर 2016 का विस्तारित ब्यौरा

Details of planned unit outages during the month of Nov. 2016

क्रमांक Sl.No	युनिट Unit	Constituent/IPP	क्षमता Cap.MW	From		To		Reason
				Time	Date	Time	Date	
1.	ट्रोम्बे TROMBAY 6	TPC	500	00:00	06-03-2016	Still out	Still out	AOH
2.	एएलटीपीएस ALTPS 2	GSECL	125	00:00	07-11-2016	17:50	18-11-2016	AOH
3.	टोरेंट पावर TORRENT POWER D	GSECL	120	00:00	11-11-2016	14:10	01-12-2016	AOH
4.	KORBA(W) -3	CSPTCL	210	23:40	15-11-2016	Still out	Still out	AOH
5.	अदानी मुंद्रा APL Mundra 9	Adani Power Ltd	660	01:56	26-11-2016	Still out	Still out	AOH

ANNEXURE 3.1

DETAILS OF MAINTENANCE PROGRAM OF GENERATING UNITS PROPOSED DURING DECEMBER 2016 AND JANUARY 2017

S. No.	Unit	No.	Capacity	Outage as per Annual Maintenance Plan		Reason
			(MW)	From	To	
1	**GUJARAT**					
1.1	WTPS	4	210	7-Nov-16	1-Dec-16	AOH
1.2	WTPS	1	210	1-Dec-16	28-Feb-17	ESP R & M
1.3	Ukai TPS	3	200	8-Dec-16	4-Feb-17	AOH
1.4	Ukai TPS	4	200	7-Dec-16	16-Mar-17	R & M work
1.5	Ukai TPS	5	210	7-Dec-16	6-Mar-17	R & M work
2	**MADHYAPRADESH**					
			NIL			
3	**CHHATTISHGARH**					
3.1	Korba East # 3	**3**	50	18/12/16	01/02/2017	AOH
3.2	Korba East # 6	**6**	120	01/05/2017	28/01/2017	AOH
4	**MAHARASHTRA**					
4.1	TATA	5	500	04.1.2017	02.02.2017	BOILER RECERTIFICATION & PRIMARY WATER ACID CLEANING
5	**Central Sector**					
5.1	SUGEN	10	382.5	23.01.17	17.02.2017	AOH
5.2	JHANOR	GT#2 A	144.3	19.12.16	28.12.16	INSPECTION + WHRB#2 RLA
5.3	KORBA	6	500	01.12.16	28.12.16	AOH
5.4	VINDHYACHAL	13	500	01.12.16	25.12.16	AOH
5.6	SSP RBPH	Unit 3,4 & 5	3x200	27.12.2016 (07.30 hrs)	29.12.2016 (21.00 hrs)	Unit #3,4 and 5 will be taken in outage one by one for DCRM testing of Generator Circuit Breaker. (Any one unit only will be in outage during above mentioned period and all other units will be available).

ANNEXURE 3.2

Outage Planning of Transmission elements during the Duration 01.01.2017 to 31.01.2017												
SN	**KV**	**Element Name (as per Element List)**	**From**		**To**		**Basis**	**Reason**	**System**	**Agency**	**Type**	**Element Type**
			Date	Time	Date	Time						
1	400	Korba - Birsingpur	1-Jan-17	6:00	31-Jan-17	18:00	Daily	Online OPGW work. A/R to be kept in Non auto mode	WRTML	WRTS-I	C	NA
2	400	Parli - Wardha	1-Jan-17	6:00	31-Jan-17	18:00	Daily	Online OPGW work. A/R to be kept in Non auto mode	WRTML	WRTS-I	C	NA
3	765	Seoni-Bina	1-Jan-17	6:00	31-Jan-17	18:00	Daily	Online OPGW work. A/R to be kept in Non auto mode	WRTML	WRTS-I & WRTS - II	C	NA
4	765	765kv Champa 2 Tie bay at Durg PS	1-Jan-17	9:00	15-Jan-17	18:00	Continuous	For construction and connection of 765kV wardha # 3 main bay in same Dia at Durg PS	WRTS-I	WRTS-I	C	Bay
5	400KV	Karad - Kolhapur-1	01-Jan-17	6:00	31-Jan-17	18:00	Daily	OPGW Work	MSETCL	MSETCL		
6	400KV	New Koyna -Karad -1	01-Jan-17	6:00	31-Jan-17	18:00	Daily	OPGW Work	MSETCL	MSETCL		
7	400 KV	400 KV Stage IV - Lonikand	01-Jan-17	09.00	07-Jan-17	18.00	Daily	Replacement of Disc insulators by porclain long rod insulators under L. E. Scheme	MSETCL	MSETCL	400 KV Stage IV - Jejuri Ckt. Will be in service	
8	765	Sasan - Satna Ckt-I	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
9	765	Satna - Gwalior Ckt-I	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
10	400	Vapi - Kala Ckt-I&2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
11	400	Navsari - Magarwada # I,2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
12	400	Kala -Magarwada #1,2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
13	220	Chhegeon – Khandwa # 1,2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
14	220	Barwaha –Chhegeon (MPPTCL) # 1,2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
15	220	Seoni- Seoni (MPPTCL)	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
16	400	Korba-Birsingpur Ckt # 1,2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
17	400	Mundra-Jetpur Ckt 1&2	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
18	220	Vapi- Magarwada	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
19	220	Vapi-Kharadpara	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	

20	400	Bina 765 - Bina (JP)	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
21	765	Jabalpur pooling - Bina-765	01/Jan/17	6:00	31/Jan/16	18:00	Daily	Online replacement of E/W with OPGW. A/R shall be kept in non auto mode	POWERGR	WR-II	C	
22	765	765kV Bus Reactor at sasan	2-Jan-17	8:00	2-Jan-17	18:00	Continuous	Neutral bushing connector replacement	SASAN	RELIANCE		
23	765	765kV WARDHA - AURANGABAD(PG) III	2-Jan-17	8:00	2-Jan-17	18:00	Daily	for erection of 400kV Wardha-A'bad Tower at Aurangabad	WRTS-I	WRTS-I	C	Line
24	400	Bus reactor Bay at Dhule MSETCL SS	2-Jan-17	8:00	4-Jan-17	18:00	Continuous	For overhauling works of breaker	WRTS-I	WRTS-I	R	Bay
25	400	400kV Bus- 1 at BHADRAWATI	2 Jan 17	9:00	2 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	C	Bus
26	765	AT1_MAIN_BAY_712 at Seoni	2-Jan-17	8:00	2-Jan-17	18:00	Daily	For AMP testing work	WRTS-I	WRTS-I	R	Bay
27	400	420- Tie Bay of 400 KV Akola1-1 at Wardha SS	2-Jan-17	9:00	2-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I		Bay
28	766	765kV WARDHA - AURANGABAD(PG) IV	2-Jan-17	8:00	2-Jan-17	18:00	Daily	for erection of 400kV Wardha-A'bad Tower at Aurangabad	WRTS-I	WRTS-I	C	Line
29	400	Tie bay of Mundra-Sami Line-1 & Sami- Dehgam line-1 at Sami Substation	02-Jan-17	8:30	02-Jan-17	18:00	Daily	Annual Maintenance of bays equipment	ATIL	ATIL		
30	400	400 KV BUS no-1	2/Jan/17	8:30	5/Jan/17	18:00	Continuous	For Overhauling of pentagraph isolator of Bay no.6 transfer bus feeder.	CSPTCL	CSPTCL		
31	400	DGEN NAVSARI LINE 2 (BAY 405)	02/01/2017	8:00	02/01/2017	18:00	Daily	Corrective maintenance of 405 89A Isolator. Bus A Isolation required with 405 Bay on Transfer Bus	TPL	TPL	R	
32	400	Kasor - SSP	02-Jan-17	8:00	03-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
33	400	Amreli-Jetpur 2	02-Jan-17	8:00	02-Jan-17	17:00	Daily	Maintenance work	GETCO	GETCO		
34	400	Chorania-Hadala line	02-Jan-17	8:00	02-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
35	400kV	400kV Bus-2 at Tiroda Plant	2-Jan-17	7:00	2-Jan-17	20:00	Daily	Bus Maintenance & its Connected Equipment Maintenance	ATIL	ATIL		
36	400kV	400kV NewKoyna-Dabhol-Ckt-1 @ NewKoyna	02-Jan-17	8:00	02-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
37	400KV	80 MVAR Bus Reactor -II @ Bab	02-Jan-17	9:00	02-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	400kV 80MVAR Reactor I will be in service	
38	400 kV	400 KV Waluj-Bhusawal @ Waluj	02-Jan-17	10:00 Hrs	02-01-17	17:00 Hrs	Daily	Quartely maintenance	MSETCL	MSETCL		
39	765/400kV	3*500 MVA ICT-II bay (406 Bay) & TIE-II (405) Bay @Ektuni	2-Jan-17	10:00	3-Jan-17	18:00	Continuous	Alignment of Isolators (406-89B, 406-89T & 405-89B)	MSETCL	MSETCL		
40	400/220/33K	400/220/33KV 315 MVA ICT-I &	02-Jan-17	8:00 Hrs	06-Jan-17	18:00 Hrs.	for 05 days on continous Basis	1)Replacement of IV (220KV) Bushing & Neutral Bushing due to rising trend of tandelta .2) Oil Filteration work . 3) Routine maintenance work of ICT .	400KV AC	MSETCL	MSETCL	
41	500KV	Pole-2 Z21Z4 AC Filter (80 MVAR)at Chandrapur	02-Jan-17	8:00	10-Jan-17	20:00	Continues	For complete overhauling of 400 KV breaker Pole along with Interrupter of AC filter	filter	MSETCL	Pole -1 will be in service.	
42	400kv	Talandge-Karad Ckt-2 @ Talandge	02-Jan-17	10:00	02-Jan-17	18:00	Daily	Annual Maint.Work	MSETCL	MSETCL		

43	220	220 KV RAJGARH(PG)-RAJGARH I/C - I	2/Jan/17	9:00	3/Jan/17	17:00	daily	MODIFICATION/SHIFTING OF LINE IN BETWEEN LOC NO 28-29. TOWER ERECTION AND STRINGING WORK IS TO BE CARRIED OUT DURING THE SHUT DOWN PERIOD.	MPPTCL	MPPTCL	R	
44	220	220 KV RAJGARH(PG)-RAJGARH I/C - II	2/Jan/17	9:00	3/Jan/17	17:00	daily	MODIFICATION/SHIFTING OF LINE IN BETWEEN LOC NO 28-29. TOWER ERECTION AND STRINGING WORK IS TO BE CARRIED OUT DURING THE SHUT DOWN PERIOD.	MPPTCL	MPPTCL	R	
45	400	Mouda Wardha Line-2	2-Jan-17	9:00	3-Jan-17	18:00	Daily basis	Annual PM	NTPC	NTPC		
46	220	Gandhar 220KV Haldarwa#1	2-Jan-17	8:00	3-Jan-17	18:00	Daily basis	Annual bay maintenance and protection checking	NTPC	NTPC		
47	765	Bay 708, tie bay for 765 KV, BR#I at Indore PS	02/Jan/17	10:00	02/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
48	765	Bus reactor#1 at Bina	02/Jan/17	9:30	02/Jan/17	18:00	Daily	RTV Coating on HV bushing in R phase	PGCIL	WR-II	R	
49	765	Satna-2 & ICT-2 tie bay at Bina	02/Jan/17	9:30	02/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
50	220	220KV Bus 1 along with Bay 207, Feeder will be on TBC	02/Jan/17	9:00	02/Jan/17	18:00	Daily	Cleaning and Greasing of balance BPI and Isolator 89A alignment	POWERGR	WR-II	C	
51	400	DGEN-NAVSARI CKT 1 & 2	02/Jan/17	8:00	03/Jan/17	18:00	continue	Stringing work of 32/0 & 33/0 of 400kV KAPP-Navsari line	TORRENT	Torrent	C	
52	765 KV	765KV ICT#1 Tie Bay (702 Bay) at Satna	02/Jan/17	9:00	03/Jan/17	18:00	Daily	For Commissioning of CSD relay in Tie Bay at Satna SS	POWERGR	WR-II	R	
53	400kv	403 main bay of ICT #1 at Vchal PS	02/Jan/17	9:30	02/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
54	220	BUS-II at Pirana	02/Jan/17	10:00	02/Jan/17	18:00	DAILY	AMP WORK	POWERGR	WR-II	R	
55	400	400KV jabalpur-Jabalpur#2 Main bay(427 Bay) at 400KV S/s Jabalpur	02/Jan/17	10:00	02/Jan/17	14:00	Daily	AMP works.	PGCIL	WR-II	R	
56	400	400KV jabalpur-Jabalpur#2 Tie bay(426 Bay) at 400KV S/s Jabalpur	02/Jan/17	14:30	02/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	R	
57	400	400kV Jhanor - Dehgam Ckt.1	02-Jan-17	8:00	03-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
58	400	400kV Mundra-Limdi line-1	3/Jan/17	8:00	3/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
59	400	400 KV Bhilai - Raita Feeder NO.1at 400 KV S/s Bhilai	3/Jan/17	8:00	3/Jan/17	17:00	Daily Basis	Re alignment of Main Bay isolator & maintenance work.	CSPTCL	CSPTCL		
60	765	AURANGABAD(PG)_765KV-BUS_1	3-Jan-17	8:00	3-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bus
61	400	400KV Bhilai-1 & Raipur-3 Tie bay (414 bay)	3 Jan 17	9:00	3 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
62	400	400 KV MAIN BAY_ICT3_765/400KV_KOTRA PS	3-Jan-17	9:00	3-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
63	400	400 KV RAIGARH-SUNDERGARH CKT-1 MAIN BAY 413 (Raigarh ss)	3-Jan-17	10:00	3-Jan-17	18:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	BAY
64	220	220kv ICT-2 bay (205-52) at Raipur s/s	3-Jan-17	9:30	3-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
65	400	SOLAPUR_400KV_BUS_2	3-Jan-17	9:00	3-Jan-17	20:00	DAILY	ERECTION AND COMMISSIONING WORKS OF 400KV NTPC#3 & 4	WRTS-I	WRTS-I	C	BUS

66	765	ICT1_765/400kv_TAMNAR PS	3-Jan-17	10:00	3-Jan-17	14:00	Daily	For charging of AT Bank # 1 "R" Ph unit	WRTS-I	WRTS-I	R	ICT
67	400	409 Bay (Main Bay of 400KV Talegaon GIS Line # 3)	3-Jan-17	9:00	3-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
68	400	Main bay of Sami-Dehgam line-1 at Sami substation	03-Jan-17	8:30	03-Jan-17	18:00	Daily	Annual Maintenance of bays equipment	ATIL	ATIL		
69	400	DGEN NAVSARI LINE 1 (BAY 406)	03/01/2017	8:00	03/01/2017	18:00	Daily	Corrective maintenance of 406 89A Isolator. Bus A Isolation required with 406 Bay on Transfer Bus	TPL	TPL	R	
70	400	SSNNL-Dhule-1	03-Jan-17	8.00	04-Jan-17	18.00	Daily	Maintenance work	GETCO	GETCO		
71	400	Vadavi - Chorania line No. 1	03-Jan-17	8:00	03-Jan-17	18:00	DAILY	Bay equipment maintenance work	GETCO	GETCO		
72	400	Chorania-Kosamba-1 line	03-Jan-17	8:00	03-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
73	400	400KV Bus-1, Mansar	03-Jan-17	8:00	03-Jan-17	18:00	Daily	Testing and bay equipment maintenance work	GETCO	GETCO		
74	400	400KV Bus Coupler, Mansar	03-Jan-17	8:00	03-Jan-17	18:00	Daily	Testing and bay equipment maintenance work	GETCO	GETCO		
75	400KV	400KV Karad-New Koyana-I @ K	03-Jan-17	10:00	03-Jan-17	17:00	Daily	Quarterly. Maint. work	MSETCL	MSETCL	Load manage on 400 kV N.Koyana 2	
76	765KV	Akola Line-1 reactor at Koradi III Sub Station.	3-Jan-17	7:00	3-Jan-17	20:00	Daily	Erection of HV bushing of R phase reactor	MEGPTCL	MEGPTCL	Reactor is Switchable. Line will be	
77	400KV	80 MVAR Bus Reactor -I @ Babh	03-Jan-17	9:00	03-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	400kV 80MVAR Reactor II will be in service	
78	400	400 kv RAJGARH- SSP CKT I	3/Jan/17	9:00	3/Jan/17	18:00	daily	FOR RECTIFICATION OF DEFECTS OBSERVED DURING ROUTINE PATROLLING TO ATTEND THE DAMPER ,ARCING HORN,F/O &BROKEN DISC REPLACEMENT WORK.	MPPTCL	MPPTCL	R	
79	220	220 KV DAMOH (PG) - SAGAR CKT	3/Jan/17	10:00	3/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
80	400	Korba-Bhilai-1	03/01/2017	08:30 hrs	03/01/2017	17:30 Hrs.	Continuous	Gravel filing after area leveling near newly installed wave trap and shifted Las	NTPC	NTPC		
81	400	Korba TT-3	03/01/2017	08:30 hrs	05/01/2017	17:30 Hrs.	Continuous	Annual PM & relay testing	NTPC	NTPC		
82	400	VINDH BUS COUPLER#3	03/01/2017	9:00	04/01/17	18:00	Continuous	BAY EQUIPMENT MAINTENANCE AND TESTING.	NTPC	NTPC		
83	765	Sipat Bus 1 &3 sectionalizer bay	03/01/17	7:30	04/01/17	19:00	Continous	Annual Preventive maintenance	NTPC	NTPC sipat		
84	400	Rajgarh-2 & future tie bay (420) AMP work at Khandwa ss	03/Jan/17	9:30	03/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	
85	765	Bay 709, main bay for 765 KV,ICT#I at Indore PS	03/Jan/17	10:00	03/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
86	765	3x500 MVA Gwalior ICT # 2 at Gwalior	03/Jan/17	10:00	03/Jan/17	18:00	Daily	AMP work,Neutral connection and insulation sleave coating on tertiary Bus.	POWERG RID	WR-II		
87	765	Bus reactor#1 at Bina	03/Jan/17	9:30	03/Jan/17	18:00	Daily	RTV Coating on HV bushing in Y phase	PGCIL	WR-II	R	
88	765	Jabalpur-1 & Jabalpur-3 tie bay at Bina	03/Jan/17	9:30	03/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
89	220	220KV Bus 2 along with Bay 202, feeder will be on TBC	03/Jan/17	9:00	03/Jan/17	18:00	Daily	Cleaning and Greasing of balance BPI and Isolator 89B alignment	POWERGR	WR-II	R	
90	220	Kawas Haldarwa 1	03/Jan/17	9:00	03/Jan/17	18:00	Daily	AMP work	POWERGR	WR-II	R	

91	400	400kV FSC #1 at Rajgarh Substation	03/Jan/17	10:00	03/Jan/17	17:00	DAILY	Annual Maintenance of FSC and Associated equipments at Rajgarh Substation	POWERGR	WR-II	R	
92	400	Ranchodpura#2 Main Bay (Bay No - 415) at Dehgam	03/Jan/17	9:00	03/Jan/17	18:00	Daily	Bay AMP works	POWERGR	WR-II	R	
93	765	Bus Reactor at Vadodara GIS	03/Jan/17	10:00	03/Jan/17	15:00	Daily	AMP & Changeover with Spare Reactor B phase	POWERGR	WR-II		
94	400KV	Vapi-Kala-1 line	03/Jan/17	9:00	03/Jan/17	18:00	Daily	Line jumper checking and tightness work	POWERGRID			
95	400kv	402 tie bay of 400 kv sasan #1 at Vchal PS	03/Jan/17	9:30	03/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
96	400	400KV Bus-I at 400KV S/s Jabalpur	03/Jan/17	10:00	04/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	R	
97	400	400kV RAIPUR-RAIGARH I	4-Jan-17	9:00	5-Jan-17	17:00	Continuous	For Stringing of Under Construction 400KV, D/C, Quad Lara NTPC-Champa TL	WRTS-I	WRTS-I	C	Line
98	400	400kV RAIPUR-RAIGARH II	4-Jan-17	9:00	5-Jan-17	17:00	Continuous	For Stringing of Under Construction 400KV, D/C, Quad Lara NTPC-Champa TL	WRTS-I	WRTS-I	C	Line
99	765	765kV WARDHA - AURANGABAD(PG) I	4-Jan-17	8:00	4-Jan-17	18:00	Daily	for erection of 400kV Wardha-A'bad Tower at Aurangabad	WRTS-I	WRTS-I	C	Line
100	400	400 KV Parli-1 (419 Main bay)	4 Jan 17	9:00	4 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
101	765	765 KV Champa-Durg Tie Bay-70	4-Jan-17	9:00	5-Jan-17	17:30	Daily	AMP	POWERGRID	POWERGRID	R	Bay
102	400	400KV Tie Bay (Bay No: 408) of Kolhapur-I and Pune (Future) at Kolhapur	4-Jan-17	10:00	4-Jan-17	18:00	Daily	Tie BAY AMP works. (Proposed keeping in mind of the possibility of non-availbility of opportunity shutdown during outage on Kolhapur-I & Mapusa-II ckts outage proposed on 25.11.2016 & 26.11.2016)	WRTML/ WRTS-I	WRTS-I	R	Bay
103	400	400 KV TIE BAY_ICT3_765/400KV_KOTRA PS	4-Jan-17	9:00	4-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
104	400	400 KV RAIGARH-SUNDERGARH CKT-1 & 125 MVAR BUS REACTOR TIE BAY 414 (Raigarh ss)	4-Jan-17	10:00	4-Jan-17	18:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	BAY
105	400	400kV RAIPUR-DURG I	4-Jan-17	9:00	4-Jan-17	18:00	Daily	For attending line defects (enclosed list of defects along with loc. Number)	WRTS-I	WRTS-I	R	LINE
106	400	SOLAPUR_400KV_BUS_1	4-Jan-17	9:00	4-Jan-17	20:00	DAILY	ERECTION AND COMMISSIONING WORKS OF 400KV NTPC#3 & 4	WRTS-I	WRTS-I	C	BUS
107	400	421 Main Bay ICT-1 at Wardha ss	4-Jan-17	9:00	4-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	Bay
108	400	ICT3 400/220kv PUNE	4-Jan-17	9:00	4-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	ICT
109	400	400 KV Korba Vandana	4-Jan-17	9:00	4-Jan-17	18:00	Daily	Line AMP	WRTS-I	WRTS-I	R	Line
110	765	765 KV Wardha-Abad # 2 , Main bay at Wardha end (Bay No 713)	4-Jan-17	9:00	10-Jan-17	18:00	Continuous	Mechanism assembly to be changed in all CB poles by Manufacturer	WRTS-I	WRTS-I	R	Bay
111	400	400kV Mundra-Limdi line-2	4/Jan/17	8:00	4/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
112	400	DGEN GT 52 (BAY 407)	04/01/2017	8:00	04/01/2017	18:00	Daily	Corrective maintenance of 407 89A Isolator. Bus A Isolation required with Bay 407 on transfer bus	TPL	TPL	R	
113	400	***Asoj - SSP***	***04-Jan-17***	***8:00***	***05-Jan-17***	***18:00***	***Conti***	***C.B. isolator replacement work.***	GETCO	GETCO		

114	400	**400 KV Main Bus- 1 Asoj**	04-Jan-17	8:00	04-Jan-17	18:00	Daily	Replacement of B phase pento isolator damage scissor of 400kv Asoj - SSP line	GETCO	GETCO		
115	220	Vapi- TAPS	04-Jan-17	9.00	04-Jan-17	18.00	Daily	Maintenance work	GETCO	GETCO		
116	400	400 KV Bus-2 Mansar S/S	04-Jan-17	8:00	04-Jan-17	18:00	Daily	Maintenance and testing work	GETCO	GETCO		
117	400	Bus Coupler Mansar S/S	04-Jan-17	8:00	04-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
118	400kV	Main bay of TIRORA- WARORA LINE 2 at Tiroda Plant	4-Jan-17	7:00	4-Jan-17	20:00	Daily	Bay Equipment Maintenance	ATIL	ATIL		
119	400/220kV	400/220/33kV, 315 MVA ICT-1 @ Parli	04-Jan-17	9:00	04-Jan-17	18:00	Daily	ICT-1 LV CT Tan Delta Measurement,LV CB DCRM & Aux. Protection Trials	MSETCL	MSETCL		
120	400 kV	400kV Main Bus-II with 765/400kV,3*500MVA ICT-I (410) Bay @Ektuni	4-Jan-17	10:00	4-Jan-17	18:00	Daily	Alignment of Isolators (410-89A)	MSETCL	MSETCL		
121	400KV	400 KV Chandrapur II-Dhariwal Ckt-1(407 Main Bay & 408 Tie Bay)@ Chandrappur II	4-Jan-17	9:00	4-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL	MSETCL	
122	400/220kV	105 MVA Spare ICT with bay 401 at 400 kV Akola	4-Jan-17	10:00	4-Jan-17	17:00	NA	Quarterly Bay Maintenance and Testing Work	MSETCL	MSETCL	This is Spare ICT unit on NO LOAD.	
123	400kV	MAIN Bus 1 at Koradi 2	4-Jan-17	8:00	5-Jan-17	18:00	Continuous	Dropper connection from Bus 1 to dia 2	MSETCL	MSETCL		
124	400	400 kv RAJGARH- SSP CKT II	4/Jan/17	9:00	4/Jan/17	18:00	daily	FOR RECTIFICATION OF DEFECTS OBSERVED DURING ROUTINE PATROLLING TO ATTEND THE DAMPER ,ARCING HORN,F/O &BROKEN DISC REPLACEMENT WORK.	MPPTCL	MPPTCL	R	
125	400	Mouda Wardha Line-1	4-Jan-17	9:00	5-Jan-17	18:00	Daily basis	Annual PM	NTPC	NTPC		
126	220	Gandhar 220KV Haldarwa#2	4-Jan-17	8:00	5-Jan-17	18:00	Daily basis	Annual bay maintenance and protection checking	NTPC	NTPC		
127	400	Shujalpur-RAPP#1 L/R at Shujalpur S/S	04/Jan/17	10:00	05/Jan/17	18:00	Continuous	For commissioning of NGR bypass scheme and F/F system. Line can be charged without Reactor.	POWERGR	WR-II	C	
128	400	Seoni-1 main bay (422) AMP work at Khandwa ss	04/Jan/17	9:30	04/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	
129	765	Bay 710, main bay for 765 KV,Bhopal-Indore line at Indore PS	04/Jan/17	10:00	04/Jan/17	18:00	Daily	For Bay AMP & replacement of auxiliary contacts of CB	POWERGR	WR-II		
130	765	3x500 MVA Gwalior ICT # 1 at Gwalior	04/Jan/17	10:00	04/Jan/17	18:00	Daily	AMP work,Neutral connection and insulation sleave coating on tertiary Bus.	POWERG RID	WR-II		
131	765	Bus reactor#1 at Bina	04/Jan/17	9:30	04/Jan/17	18:00	Daily	RTV Coating on HV bushing in B phase	PGCIL	WR-II	R	
132	765	Jabalpur-3 main bay at Bina	04/Jan/17	9:30	04/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
133	220	220KV 207 Charadoba Line 2 for tan delta testing of Line CTs	04/Jan/17	9:00	04/Jan/17	18:00	Daily	Tan delta testing of line CTs	POWERGR	WR-II	C	
134	220	Kawas Haldarwa 2	04/Jan/17	9:00	04/Jan/17	18:00	Daily	AMP work and Line insulator replacement	POWERGR	WR-II	R	
135	400	400kV FSC #2 at Rajgarh Substation	04/Jan/17	10:00	04/Jan/17	17:00	DAILY	Annual Maintenance of FSC and Associated equipments at Rajgarh Substation	POWERGR	WR-II	R	
136	400	315MVA ICT # 1 at Dehgam	04/Jan/17	8:00	04/Jan/17	18:00	Daily	AMP works	POWERGR	WR-II	R	
137	765 KV	765KV ICT#1 at Satna	04/Jan/17	9:00	04/Jan/17	18:00	Daily	For Commissioning of CSD relay in Tie Bay at Satna SS	POWERGR	WR-II	R	
138	400KV	407 Boisar Main Bay at Vapi	04/Jan/17	9:00	04/Jan/17	17:00	Daily	Bay AMP work	POWERGR	WR-II		

139	400kv	401 main bay of 400 kv sasan#1 at Vchal PS	04/Jan/17	9:30	04/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
140	220	BUS-I at Pirana	04/Jan/17	10:00	04/Jan/17	18:00	DAILY	AMP WORK	POWERGR	WR-II	R	
141	400	400kV Jhanor - Dehgam Ckt.2	04-Jan-17	8:00	05-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
142	765	765kV WARDHA - AURANGABAD(PG) III	5-Jan-17	8:00	5-Jan-17	18:00	Daily	for erection of 400kV Wardha-A'bad Gantry at Aurangabad	WRTS-I	WRTS-I	C	Line
143	400	Dhule-Khandwa # 1 Bay at Dhule MSETCL SS	5-Jan-17	8:00	7-Jan-17	18:00	Continuous	For overhauling works of breaker	WRTS-I	WRTS-I	R	Bay
144	400	400 KV Raipur-3 (413 Main bay) at Bhadrawati	5 Jan 17	9:00	5 Jan 17	18:00	Daily	AMP works.	WRTS-I	WRTS-I	R	Bay
145	400	400kV Bus Reactor Main Bay (407) at Bhatapara S/s.	5-Jan-17	9:00	5-Jan-17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay
146	400	400KV Kolhapur (MSETCL) - Kolhapur GIS #2	5-Jan-17	10:00	5-Jan-17	18:00	Daily	Line bay AMP works.	WRTML/ WRTS-I	WRTS-I	R	Line
147	220	220 kV ICT3 Bay - 209 Bay	5-Jan-17	9:00	5-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
148	400	ICT1 400/220kv RAIGARH	5-Jan-17	10:00	5-Jan-17	16:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	ICT
149	400	400kV RAIPUR-DURG II	5-Jan-17	9:00	5-Jan-17	18:00	Daily	For attending line defects	WRTS-I	WRTS-I	R	LINE
150	765	SOLAPUR_703_MAIN BAY_765KV ICT#1_MAIN BAY	5-Jan-17	9:00	5-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
151	400	423 Tie Bay ICT-2 & Future line at Wardha ss	5-Jan-17	9:00	5-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	Bay
152	400	403 Bay (Main Bay of 400KV Talegaon Padghe Line)	5-Jan-17	9:00	5-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
153	400	400 KV Bus-1 at Sami S/S	05-Jan-17	8:30	05-Jan-17	18:00	Daily	Annual Maintenance of Bus-1 equipment	ATIL	ATIL		
154	400	400kV Mundra-Jetpur line-1	5/Jan/17	8:00	5/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
155	400	DGEN ICT-1 (BAY 408)	05/01/2017	8:00	05/01/2017	18:00	Daily	Corrective maintenance of 408 89A Isolator. Bus A Isolation required.	TPL	TPL	R	
156	400	**Kasor - SSP**	05-Jan-17	8:00	05-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
157	220	Bhilad - TAPS	05-Jan-17	9.00	05-Jan-17	18.00	Daily	Maintenance work	GETCO	GETCO		
158	400	Chorania - Amreli line	05-Jan-17	8:00	05-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
159	400KV	LONIKAND I - LONIKAND II INTE	05-Jan-17	9:00	05-Jan-17	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
160	400kV	400kV Parli PGCIL ckt-2 @ Parli	05-Jan-17	9:00	05-Jan-17	17:00	Daily	Bay maintenance and testing work at 400kV Girwali ss	MSETCL	MSETCL		
161	400kV	400kV NewKoyna-Stage 4-Ckt-2 @ NewKoyna	05-Jan-17	8:00	05-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
162	400 kV	400kV Main Bus-II with 765/400kV,3*500MVA ICT-II (406) Bay @Ektuni	05-Jan-17	10:00	05-Jan-17	18:00	Daily	Alignment of Isolators (406-89A)	MSETCL	MSETCL		
163	400 kV	400 kV Akola- Bhusawal Line	05-Jan-17	12:00	07-Jan-17	18:00	Daily	PID testing of insulator strings by Hot line Uint Akola. A/R shall be kept in non auto mode.	MSETCL	MSETCL	400 kV Koradi-Bhusawal, 400 kV Akola-Nandgaonpeth & 400 kV Koradi-Nandgaonpeth are in service.	
164	400KV	Jejuri-Lonikand 1 @ Jejuri	05-Jan-17	9:30	05-Jan-17	17:30	Daily	Routine Maintenance & Dignostic testing work ,CVT Replacement	MSETCL	MSETCL	Y ph CVT has low sec voltage	
165	400	Korba-Bhilai-1	05/01/2017	08:30 hrs	05/01/2017	17:30 Hrs.	Continuous	Gravel filing after area leveling near newly installed wave trap and shifted Las	NTPC	NTPC		
166	400	Future main bay (419) AMP work at Khandwa ss	05/Jan/17	9:30	05/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	

167	400	Satpura - Itarsi Terminal Equipments at MPPGCL SATPURA END	05/Jan/17	9:00	05/Jan/16	18:00	Daily	AMP works of Bay and Terminal Equipments. Line to be H/T.	POWERGR	WR-II		
168	400	400KV, Pithumpur ckt #I main bay(Bay 401) at Indore PS	05/Jan/17	10:00	07/Jan/17	18:00	conti	For rarresting SF6 gas leakages in 401 bay CB	POWERGR	WR-II		
169	400	315 MVA, Gwalior ICT # 3 at Gwalior	05/Jan/17	10:00	05/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
170	765	Spare reactor bus-1	05/Jan/17	9:30	05/Jan/17	18:00	Daily	RTV Coating on HV bushing	PGCIL	WR-II	R	
171	765	Gwalior-3 Line Reactor Switchable at Bina	05/Jan/17	9:30	14/Jan/17	18:00	contin	For replacement work of Raector CB MB	PGCIL	WR-II	C	
172	400	Bus 1 at Bhachau	05/Jan/17	9:00	05/Jan/17	18:00	Daily	Cleaning and Greasing of balance BPI	POWERGR	WR-II	C	
173	220	Ukai- Mota line Ckt 1 & 2	05/Jan/17	8:00	05/Jan/17	18:00	Daily	Stringing work of 08/0 & 09/0 of 400kV KAPP-Navsari line	GETCO	GETCO	C	
174	400	400kV BUS#1 at Rajgarh Substation	05/Jan/17	10:00	05/Jan/17	17:00	DAILY	Annual Maintenance of Bus clamps & connectors, Isolators and CVT at Rajgarh Substation	POWERGR	WR-II	R	
175	765 KV	765 kV Satna-Gwalior-1 Line Reactor (Switchable) at Satna	05/Jan/17	9:00	06/Jan/17	18:00	Daily	RTV Coating on Trench Make Bushing at Satna. Line will remain in service w/o reactor	POWERGR	WR-II	C	
176	400KV	409 ICT-1 Main Bay at Vapi	05/Jan/17	9:00	05/Jan/17	17:00	Daily	Bay AMP work	POWERGR	WR-II	C	
177	400kv	406 main bay of ICT #2 at Vchal PS	05/Jan/17	9:30	05/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
178	400	400KV Bus-II at 400KV S/s Jabalpur	05/Jan/17	10:00	06/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	R	
179	765	765 KV Bus-II at Pooling station,Jabalpur	05/Jan/17	10:00	07/Jan/17	18:00	Daily	For Gadarwara Bay Extension work at Pooling station,Jabalpur & AMP works	PGCIL	WR-II	C	
180	400KV	Magarwada-Kala Ckt-I	5-Jan-17	9:00	5-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work	POWERGR	WR-II	R	
181	400	400 KV INDORE- NAGDA CkT	6/Jan/17	7:00	6/Jan/17	18:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
182	765	765kV WARDHA - AURANGABAD(PG) III	6-Jan-17	8:00	7-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 53/1 & 54/0 (765KV D/C Wardha - Aurangabad Transmission linetower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
183	765	765kV WARDHA - AURANGABAD(PG) IV	6-Jan-17	8:00	7-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 53/1 & 54/0 (765KV D/C Wardha - Aurangabad Transmission linetower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
184	765	765kV WARDHA - AURANGABAD(PG) I	6-Jan-17	8:00	6-Jan-17	18:00	Daily	for erection of 400kV Wardha-A'bad Gantry at Aurangabad	WRTS-I	WRTS-I	C	Line
185	400	400kV Bus Reactor Tie Bay (408) at Bhatapara S/s.	6-Jan-17	9:00	6-Jan-17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay
186	765	765/400/33KV, 3X500MVA ICT-2	6-Jan-17	9:00	6-Jan-17	17:00	Daily	AMP and CSD Switching	POWERG RID	POWERG RID	C	ICT
187	400	400KV Tie Bay (Bay No: 409) of Pune (Future) at Kolhapur	6-Jan-17	10:00	6-Jan-17	18:00	Daily	Main bay AMP works.	WRTML/ WRTS-I	WRTS-I	R	Bay
188	400	400 KV MAIN BAY_ICT2_765/400KV_KOTRA PS	6-Jan-17	9:00	6-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY

189	765	765KV AT # 1 Main Bay at Pune	6-Jan-17	9:00	6-Jan-17	13:00	Daily	For bay AMP work	WRTS-I	WRTS-I	R	Bay
190	400	ICT2 400/220kv RAIGARH	6-Jan-17	10:00	6-Jan-17	16:00	Daily	AMP 2016-17		WRTS-I	R	ICT
191	765	SOLAPUR_705_TIE BAY 765kVICT#2 TIE BAY	6-Jan-17	9:00	6-Jan-17	18:00	DAILY	AMP OF REACTOR AND LINE TERMINAL EQUIPMENT	WRTS-I	WRTS-I	R	BAY
192	765	701 Bay Main Bay of Wardha Seoni-2 at Wardha	6-Jan-17	9:00	6-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	Bay
193	400	408 Bay (Tie Bay of 400KV Talegaon GIS Line 2 & Talegaon GIS Line 3)	6-Jan-17	9:00	6-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
194	400	400kV Mundra-Bachau line-1	6/Jan/17	8:00	6/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
195	400	DGEN ICT-2 (BAY 409)	06/01/2017	8:00	06/01/2017	18:00	Daily	Corrective maintenance of 409 89A Isolator. Bus A Isolation required.	TPL	TPL	R	
196	400	500 MVA, 400/220 KV ICT No. 1 Asoj	06-Jan-17	8:00	06-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
197	400	Vadavi - Bhachau line No. 1	06-Jan-17	8:00	06-Jan-17	18:00	DAILY	Bay equipment maintenance work	PGCIL	GETCO		
198	400	Chorania-Kosamba line No. 2	06-Jan-17	8:00	06-Jan-17	18:00	Daily	Conditioning monitoring work	GETCO	GETCO		
199	765KV	Tiroda Line-1 reactor at Koradi III Sub Station.	6-Jan-17	7:00	6-Jan-17	20:00	Daily	Erection of HV bushing of R phase reactor	MEGPTCL	MEGPTCL		
200	765KV	MAIN & TIE BAY of BUS REACTOR at Tiroda Plant	6-Jan-17	7:00	6-Jan-17	20:00	Daily	Bus reactor and its Bay Equipment Maintenance	MEGPTCL	MEGPTCL		
201	400kV	400kV Girwali-Chandrapur Ckt-III @ Parli	06-Jan-17	8:00	06-Jan-17	18:00	Daily	400kV Line Reactor Bushing & winding Tan Delta Measurement.	MSETCL	MSETCL		
202	400KV	BBLR-Ektuni-ckt-2 @ Babhaleshv	06-Jan-17	9:00	06-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	400kV BBLR-Ektuni-I will be in service	
203	400 kV	400kV Main Bus-I with 400kV Thapti-Tanda Ckt-I (404) Bay @Ektuni	06-Jan-17	10:00	06-Jan-17	18:00	Daily	Alignment of Isolators (404-89A)	MSETCL	MSETCL		
204	400/220/33k	315MVA ICT-2 @ Padghe	06-Jan-17	8:00	06-Jan-17	18:00	Daily	Routine R&M work and Dignostic Testing work.	MSETCL	MSETC		
205	400KV	Bus Reactor @ Talandge	06-Jan-17	10:00	06-Jan-17	18:00	Daily	Annual Maint.Work	MSETCL	MSETCL		
206	400/220kV	400/220/33 kv ICT with bay402 at 400 kV Akola	06-Jan-17	9:00	06-Jan-17	18:00	NA	Quarterly Bay Maintenance and Testing Work	MSETCL	MSETCL	220 kV Apatapa S/s will be fed from 220 kV Badnera and Paras	
207	400kV	MAIN Bus 2 at Koradi 2	6-Jan-17	8:00	7-Jan-17	18:00	Continuous	Dropper connection from Bus2 to dia 2				
208	220	220 KV MALANPUR - AURAIYA CKT	6/Jan/17	9:00	6/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
209	400	Korba Raipur-3	06/01/2017	08:30 hrs	08/01/2017	17:30 Hrs.	Continuous	Annual PM & relay testing	NTPC	NTPC		
210	400	Shujalpur-RAPP#2 L/R at Shujalpur S/S	06/Jan/17	10:00	07/Jan/17	18:00	Continuous	For commissioning of NGR bypass scheme and F/F system. Line can be charged without Reactor.	POWERGR	WR-II	C	
211	400	Seoni-1 main bay (423) AMP work at Khandwa ss	06/Jan/17	9:30	06/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	
212	400	400KV, Indore-Itarsi Ckt# I	06/Jan/17	10:00	08/Jan/17	18:00	Daily	For replacement of insulators with Polymer in polluted section of line to prevent undersirable line tripping	POWERGR	WR-II		
213	400	406 Bay (400kV ICT-1 Main Bay) at Gwalior	06/Jan/17	10:00	06/Jan/17	18:00	Daily	AMP WORKS	POWERGRID	WR-II		
214	765	Jabalpur#2 Line reactor (Non switchable) at Bina	06/Jan/17	9:30	07/Jan/17	18:00	Daily	RTV Coating on HV bushing in R & Bph Line will be taken back into service within 15 min after taking reactor out.	PGCIL	WR-II	C	
215	765	765 KV/400 KV ICT-1 at Bina	06/Jan/17	9:30	06/Jan/17	18:00	Daily	For Spare Normalization & AMP	PGCIL	WR-II	R	

216	400	Bus 2 at Bhachau	06/Jan/17	9:00	06/Jan/17	18:00	Daily	Cleaning and Greasing of balance BPI	POWERGR	WR-II	C	
217	220	Jhanor Haldarwa 1	06/Jan/17	9:00	08/Jan/17	18:00	Daily	Circuit Breaker 03 Drive overhauling Work	POWERGR	WR-II	R	
218	400	400kV Ngada - Dehgam # 1 Line	06/Jan/17	10:00	06/Jan/17	16:00	Daily	Impleamentation of LR NGR Bypass scheme	POWERGR	WR-II	R	
219	765	ICT#1 at Vadodara GIS	06/Jan/17	10:00	06/Jan/17	13:00	Daily	AMP & Changeover with Spare ICT as R phase	POWERGR	WR-II		
220	400KV	418 Kala-2 Main Bay at Vapi	06/Jan/17	9:00	06/Jan/17	17:00	Daily	Bay AMP work	POWERGR	WR-II	C	
221	400kv	405 tie bay of 400 kv sasan #2 at Vchal PS	06/Jan/17	9:30	06/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
222	400	ICT-2 at Pirana	06/Jan/17	10:00	06/Jan/17	16:00	DAILY	AMP WORK & REPLACEMENT OF 220KV R PH LA	POWERGR	WR-II	R	
223	400KV	Magarwada-Kala Ckt-II	6-Jan-17	9:00	6-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work	POWERGR	WR-II	R	
224	765	AURANGABAD(PG)_765KV-BUS_2	7-Jan-17	8:00	7-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bus
225	400	200kV TBC Bay (201) at Bhatapara S/s.	7-Jan-17	9:00	7-Jan-17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay
226	765	765 KV TIE BAY_ICT2_765/400KV_KOTRA PS	7-Jan-17	9:00	7-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
227	220	220kV Doma bay(208-52) at Raipur SS	7-Jan-17	9:30	7-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
228	765	SOLAPUR_706_MAIN BAY_765KV ICT#2_MAIN BAY	7-Jan-17	9:00	7-Jan-17	18:00	DAILY	AMP OF REACTOR AND LINE TERMINAL EQUIPMENT	WRTS-I	WRTS-I	R	BAY
229	765	703 Bay MainBay of 1500MVA ICT-1 @ wardha	7-Jan-17	9:00	7-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	Bay
230	400	412 Bay (Main Bay of ICT # 2)	7-Jan-17	9:00	7-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
231	765	765 KV S/C Korba (Dharamjaygarh) - Champa	7-Jan-17	9:00	8-Jan-17	18:00	Daily	1. Installation of Missing spacer cum damper in different Location. 2. Installation of Grading ring in Korba Champa Line.	WRTS-I	WRTS-I	C	Line
232	765	765 KV S/C Kotra PS - Champa	7-Jan-17	9:00	8-Jan-17	18:00	Daily	Non Auto mode of Line - for installing grading ring in D/C Portion of Korba-Champa Line.	WRTS-I	WRTS-I	C	NA
233	400	400 KV Bus-2 at Sami S/S	07-Jan-17	8:30	07-Jan-17	18:00	Daily	Annual Maintenance of Bus-2 equipment	ATIL	ATIL		
234	400	500 MVA, 400/220 KV ICT No. 2 Asoj	07-Jan-17	8:00	07-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
235	400KV	BBLR-Padghe-ckt-1 @ Babhales	07-Jan-17	9:00	07-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	400kV BBLR-Padghe-II will be in service	
236	400KV	TBC @ Talandge	07-Jan-17	10:00	07-Jan-17	18:00	Daily	Annual Maint.Work	MSETCL	MSETCL		
237	220	220 KV MEHGAON - AURAIYA CKT	7/Jan/17	9:00	7/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
238	765	765 KV/400 KV ICT-2 at Bina	07/Jan/17	9:30	07/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
239	400kv	404 main bay of 400 kv sasan#2 at Vchal PS	07/Jan/17	9:30	07/Jan/17	17:30	Daily	For insulator cleaning work	POWERGR	WR-II		
240	400	220KV BUS COUPLER BAY-205 at Pirana	07/Jan/17	10:00	07/Jan/17	18:00	DAILY	AMP WORK	POWERGR	WR-II	R	
241	400	400KV Jabalpur-Jabalpur#1	07/Jan/17	10:00	07/Jan/17	14:00	Daily	AMP works.	PGCIL	WR-II	R	
242	400	400KV Jabalpur-Jabalpur#2	07/Jan/17	14:30	07/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	R	
243	400KV	400kv Main Bus-I of Boisar PG	7-Jan-17	9:00	7-Jan-17	18:00	Daily	AMP Work	POWERGR	WR-II	R	
244	400	200kV Bhatapara-bhatapara Bay (203) at Bhatapara S/s.	8-Jan-17	9:00	8-Jan-17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay

245	765	SOLAPUR_713_MAIN BAY_400KV BUS REACTOR	8-Jan-17	9:00	8-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
246	400KV	400 KV Main Bus . I & Bus Coupler. At KALWA	08-Jan-17	9:00	8-Jan-17	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
247	765 KV	765 kV Satna-Gwalior-2 Line Reactor (Switchable) at Satna	08/Jan/17	9:00	10/Jan/17	18:00	Daily	RTV Coating on Trench Make Bushing at Satna. Line will remain in service w/o reactor	POWERGR	WR-II	C	
248	400	AKOLA(MSETCL) I (Main Bay-415)	9-Jan-17	9:00	9-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
249	400	Dhule-Khandwa # 2 Bay at Dhule MSETCL SS	9-Jan-17	8:00	11-Jan-17	18:00	Continuous	For overhauling works of breaker	WRTS-I	WRTS-I	R	Bay
250	765	ICT1_765/400kv_CHAMPA	9-Jan-17	9:00	10-Jan-17	17:00	Daily	CSD Switching	POWERG RID	POWERG RID	C	ICT
251	765	765 KV MAIN BAY_765 KOTRA PS DURG PS II_KOTRA PS	9-Jan-17	9:00	9-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
252	400	400 kV ICT 2 Main Bay - 409 Bay	9-Jan-17	9:00	9-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
253	400	80MVAR Bus Reactor Main bay(410-52)	9-Jan-17	9:30	9-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
254	765	SOLAPUR_714_MAIN BAY_400KV BUS REACTOR	9-Jan-17	9:00	9-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
255	765	765 KV BUS-II at Tamnar PS	9-Jan-17	10:00	9-Jan-17	18:00	Daily	For AMP works of 765 kV Bus II	WRTS-I	WRTS-I	R	BAY
256	765	706 Bay Main Bay of 1500MVA ICT-2 @ wardha	9-Jan-17	9:00	9-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	Bay
257	400	415 Bay (Main Bay of 400KV BUS Reactor)	9-Jan-17	9:00	9-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
258	400	400kV Mundra-Bachau line-2	9/Jan/17	8:00	9/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
259	400	400 KV BUS no-2	9/Jan/17	8:30	12/Jan/17	18:00	Continuous	For Overhauling of pentagraph isolator of Bay no.2	CSPTCL	CSPTCL		
260	400	DGEN GT 53 (BAY 410)	09/01/2017	8:00	09/01/2017	18:00	Daily	Corrective maintenance of 410 89A Isolator. Bus A Isolation required with Bay 410 on transfer bus	TPL	TPL	R	
261	400	500 MVA, 400/220 KV ICT No. 4 Asoj	09-Jan-17	8:00	09-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
262	400	Chorania-Kasor line	09-Jan-17	8:00	09-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
263	400	Mansar - Chorania Line	09-Jan-17	8:00	09-Jan-17	18:00	Daily	Bay equipment maintenance work	PGCIL	GETCO		
264	400KV	400KV Karad-New Koyana-II @	09-Jan-17	10:00	09-Jan-17	17:00	Daily	Quarterly. Maint. work	MSETCL	MSETCL	Load manage on 400 kV N. Koyana 1	
265	400KV	400kV Thapti-Tanda ckt-1 (404) Bay & TIE-II bay (405 Bay)@Ektuni	09-Jan-17	10:00	12-Jan-17	18:00	Continuous	Alignment of Isolators (404-89L, 404-89B & 405-89A)	MSETCL	MSETCL		
266	400KV	400KV DHL- SSNNL line C-I&C-II	09-Jan-17	9:00	10-Jan-17	17:00	daily	PID testing	MSETCL	MSETCL		
267	400/220	315MVA, ICT 2 @ Talandge	09-Jan-17	10:00	10-Jan-17	18:00	Daily	Annual Maint.Work HV Back Up Relay Retrofitting work	MSETCL	MSETCL		
268	400 KV	400 KV Karad - Talandage Ckt I	09-Jan-17	09.00	13-Jan-17	18.00	Daily	Cold washing of Insulators Strings	MSETCL	MSETCL	400 KV Karad - Talandage Ckt II will be in service	
269	220KV	220 kV PGCIL-Badnera line @220kV Badnera subsatation	09-Jan-17	9:00	09-Jan-17	17:00	Daily	1)Routine Maintenance & Dignostic testing work 2) Line signature work	MSETCL	MSETCL		
270	400kV	Chandrapur GCR - Parali Ckt I	09-Jan-17	8:00	14-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
271	220 KV	Talangade-Chikodi	09-Jan-17	9:00	09-Jan-17	17:00	daily	Routine Maintenance	MSETCL	MSETCL		

272	220	220 KV PANDHURNA - KALMESHWAR	9/Jan/17	9:00	9/Jan/17	18:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
273	220	220 KV DAMOH(PG) - TIKAMGARH CKT	9/Jan/17	10:00	9/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
274	220	Kawas-DAS#2	9-Jan-17	8:00	11-Jan-17	18:00	CONTINUO	For CVT replacement & testing.	NTPC	NTPC		
275	400	400 Kv Bus-2 at Khandwa ss	09/Jan/17	9:30	09/Jan/17	17:30	Daily	Bus AMP	POWERGR	WR-II	R	
276	400	Satpura - Koradi Terminal Equipments at MPPGCL SATPURA END	09/Jan/17	9:00	09/Jan/16	18:00	Daily	AMP works of Bay and Terminal Equipments. Line to be H/T.	POWERGR	WR-II		
277	400	400KV, Pithumpur ckt #II main bay(Bay 404) at Indore PS	09/Jan/17	10:00	11/Jan/17	18:00	conti	For rarresting SF6 gas leakages in 401 bay CB	POWERGR	WR-II		
278	400	400kV Side765KV ICT # 2Main Bay (415) at Gwalior	09/Jan/17	10:00	09/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
279	765	Gwalior#3 Line reactor (Switchable) at Bina	09/Jan/17	9:30	10/Jan/17	18:00	Daily	RTV Coating on HV bushings. Line will remain in service w/o reactor	PGCIL	WR-II	C	
280	400	Bay 406 400KV ICT-2 Main Bay at Bhachau SS	09/Jan/17	9:00	09/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERGR	WR-II	C	
281	400	400kV Ngada - Dehgam # 2 Line	09/Jan/17	10:00	09/Jan/17	16:00	Daily	Impleamentation of LR NGR Bypass scheme	POWERGR	WR-II	R	
282	765	Indore-Vadodara Line	09/Jan/17	10:00	09/Jan/17	13:00	Daily	AMP & Changeover with Spare Reactor as R phase	POWERGR	WR-II		
283	400KV	BUS-1 at Vapi	09/Jan/17	9:00	09/Jan/17	17:00	Daily	Replacment of 4 nos. Hivelum Isolator Arms (410-89A) with modified design in Sugen Main Bay	POWERGR	WR-II	C	
284	400kv	407 main bay of 400kv bus reactor at Vchal PS	09/Jan/17	9:30	09/Jan/17	17:30	Daily	For AMP work	POWERGR	WR-II		
285	400	400KV ICT#2 Tie bay (423 bay) at 400KV S/s Jabalpur	09/Jan/17	10:00	09/Jan/17	14:00	Daily	AMP works.	PGCIL	WR-II	R	
286	400	400KV ICT#2 Main bay (424 bay) at 400KV S/s Jabalpur	09/Jan/17	14:30	09/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	R	
287	765	765KV Jabalpur-Bina#1 Line	09/Jan/17	10:00	09/Jan/17	18:00	Daily	For Cleaning of Equipment (Bay+ Terminal Equipment) to prevent the Flashover during Foggy weather & AMP	PGCIL	WR-II	C	
288	400	Itarsi - Khandwa Ckt.1	9-Jan-17	8:00	10-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
289	400KV	Tarapur-Boisar Ckt-I	9-Jan-17	9:00	9-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work.	POWERGR	WR-II	R	
290	400	AKOLA(MSETCL) 2 (Main Bay-418)	10-Jan-17	9:00	10-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
291	400	400kv HVDC-2 and Cpur-1 Tie bay 405 bay at Bhadrawati	10 Jan 17	9:00	10 Jan 17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay
292	765	ICT2 765/400kv BILASPUR	10-Jan-17	9:00	10-Jan-17	17:00	Daily	For 336 kV LA Changing work	WRTS-I	WRTS-I	C	ICT
293	765	765kV BUS # 2 at Durg PS	10-Jan-17	9:00	15-Jan-17	18:00	Daily	For stablity & Extension of Bus#1 for wardha#4 line	WRTS-I	WRTS-I	C	Bus
294	765	765 KV TIE BAY_765 KV KOTRA - CHAMPA PS_KOTRA PS	10-Jan-17	9:00	10-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
295	400	400 kV Kop-1 Main Bay - 412 Bay at mapusa	10-Jan-17	9:00	10-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
296	400	400 KV 125 MVAR BUS REACTOR MAIN BAY 415 (Raigarh ss)	10-Jan-17	10:00	10-Jan-17	18:00	Daily	AMP 2016-17		WRTS-I	R	BAY
297	400	400kV Raigarh-II tie bay (403-52) at Raipur SS	10-Jan-17	9:30	10-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY

298	765	SOLPAUR_716 MAIN BAY_765KV RAICHUR-SOLAPUR#1	10-Jan-17	9:00	10-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
299	765	BR (707) Main Bay at Tamnar PS	10-Jan-17	10:00	10-Jan-17	18:00	Daily	For AMP works of 707 Bay	WRTS-I	WRTS-I	R	BAY
300	765	707 Tie Bay of 765 KV Bus Reactor 1@ wardha	10-Jan-17	9:00	10-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	BAY
301	400	418 Bay -Main Bay of ICT # 3 at Pune Talegaon	10-Jan-17	9:00	10-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
302	400	400kV Mundra-Jetpur line-2	10/Jan/17	8:00	10/Jan/17	19:00		Protection Relay Testing	**PGCIL**	**CGPL**		
303	400	DGEN ICT-3 (BAY 411)	10/01/2017	8:00	10/01/2017	18:00	Daily	Corrective maintenance of 411 89A Isolator. Bus A Isolation required.	TPL	TPL	R	
304	400	400kV SSNL-Dhule-1	10-Jan-17	8:00	10-Jan-17	18:00	Daily	Maintenance work	PGCIL	GETCO		
305	400	315 MVA, 400/220 KV ICT No. 3 Asoj	10-Jan-17	8:00	10-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
306	400	400 KV BUS - A Vadavi S/S	10-Jan-17	8:00	10-Jan-17	18:00	DAILY	Bay equipment maintenance work	GETCO	GETCO		
307	400	Chorania-Asoj-1 line	10-Jan-17	8:00	10-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
308	400	Mansar - CGPL line	10-Jan-17	8:00	10-Jan-17	18:00	Daily	Testing and maintenance work	PGCIL	GETCO		
309	765/400kV	765kV/400kV ICT at Tiroda Plant	10-Jan-17	7:00	10-Jan-17	20:00	Daily	ICT Testing & Maintenance	MEGPTCL	MEGPTCL		
310	400kV	400kV NewKoyna-Stage 4-Ckt-1 @ NewKoyna	10-Jan-17	8:00	10-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
311	400	400 KV NAGDA- RAJGARHCKT-I LINE REACTOR	10/Jan/17	9:00	10/Jan/17	18:00	daily	MAINTENANCE& TESTING WORK	MPPTCL	MPPTCL	R	
312	400	400 kv NAGDA- RAJGARHCKT-I	10/Jan/17	9:00	10/Jan/17	18:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
313	765	Sipat Bus 2 &4 sectionalizer bay	10/01/17	7:30	11/01/17	19:00	Continous	Annual Preventive maintenance	NTPC	NTPC sipat		
314	400	Shujalpur-Nagda#2 L/R at Nagda S/S (Switchable)	10/Jan/17	10:00	19/Jan/17	18:00	Continuous	For replacing 'B' phase bushing(oil leakage observed from tan delta point) and filteration work.	POWERGR	WR-II	C	
315	400	Dehgam#2 Main Bay(401) at Nagda	10/Jan/17	10:00	10/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
316	220	ICT-2 Incomer bay (208) AMP work at Khandwa ss	10/Jan/17	9:30	10/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	
317	765	715LRB (Bina#2 L/R Bay) at Gwalior	10/Jan/17	10:00	10/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
318	400	500 MVA 400/220/330 KV ICT-3 at Damoh	10/Jan/17	9:00	10/Jan/17	18:00	Daily	Final commisssioing of CSD on 415 bay (400 KV Main bay of 500 MVA 400/220/330 KV ICT-3)	POWERGR	WR-II	C	
319	220	Bina MPPTCL bay at Bina	10/Jan/17	9:30	10/Jan/17	18:00	Daily	AMP WORKS and line will be charged through TBC bay	PGCIL	WR-II	R	
320	400	Bay 407 400KV R'Pura-1 Main Bay at Bhachau SS	10/Jan/17	9:00	10/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERGR	WR-II	R	
321	220	Kakrapar-Vav line Ckt 1 & 2	10/Jan/17	8:00	11/Jan/17	18:00	continue	S/D for Stringing work of 400kV D/C Kakrapar-Navsari b/w 6/0 & 7/0	POWERGR	WR-II	c	
322	220	Jhanor Haldarwa 2	10/Jan/17	10:00	10/Jan/17	17:00	Daily	AMP work	POWERGR	WR-II	R	
323	400	315 MVA 400/220kV ICT#2 at Rajgarh Substation	10/Jan/17	10:30	10/Jan/17	14:30	DAILY	Annual Maintenance of ICT and Associated equipments at Rajgarh Substation	POWERGR	WR-II	R	
324	400	ICT1 Main Bay (Bay No - 406) at Dehgam	10/Jan/17	9:00	10/Jan/17	18:00	Daily	Bay AMP works	POWERGR	WR-II	R	
325	220KV	Transfer BUS at Vapi	10/Jan/17	9:00	10/Jan/17	17:00	Daily	AMP of TBC	POWERGR	WR-II	C	

326	400	TPGL-1 MAIN BAY-418 at Pirana	10/Jan/17	10:00	10/Jan/17	18:00	DAILY	AMP WORK	POWERGR	WR-II	R	
327	400	400KV V-J#4 Tie Bay (408 Bay) at 400KV S/s Jabalpur	10/Jan/17	10:00	10/Jan/17	14:00	Daily	AMP works.	PGCIL	WR-II	R	
328	765	765KV Jabalpur-Bina#2	10/Jan/17	10:00	10/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	C	
329	400KV	Tarapur-Boisar Ckt-II	10-Jan-17	9:00	10-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work.	POWERGR	WR-II	R	
330	400	400kV RAIPUR-RAIGARH III	11-Jan-17	9:00	12-Jan-17	17:00	Continuous	For Stringing of Under Construction 400KV, D/C, Quad Lara NTPC-Champa TL	WRTS-I	WRTS-I	C	Line
331	400	400kV RAIPUR-RAIGARH IV	11-Jan-17	9:00	12-Jan-17	17:00	Continuous	For Stringing of Under Construction 400KV, D/C, Quad Lara NTPC-Champa TL	WRTS-I	WRTS-I	C	Line
332	220	TRANSFER BUS COUPLER (Bay-205) at Aurangabad	11-Jan-17	9:00	11-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
333	765	BUS REACTOR_400kV_80MVAR	11-Jan-17	9:00	12-Jan-17	17:30	Daily	CSD Switching	POWERGRID	POWERGRID	C	BR
334	400	Main Bay of GMR # 2, 422 at Durg PS	11-Jan-17	9:00	11-Jan-17	18:00	Daily	Bay AMP	WRTS-I	WRTS-I	R	Bay
335	765	765 KV TIE BAY_765 KV KOTRA - CHAMPA PS_KOTRA PS	11-Jan-17	9:00	11-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
336	400	400 kV Kop-2 Main Bay - 407 Bay at mapusa	11-Jan-17	9:00	11-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
337	400	400 KV RAIGARH-STERLITE CKT-1 MAIN BAY 416 (Raigarh ss)	11-Jan-17	10:00	11-Jan-17	18:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	BAY
338	400	400kVRaigarh-I tie bay (406-52) ar Raipur SS	11-Jan-17	9:30	11-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
339	400	400kV BHILAI-BHATAPARA	11-Jan-17	10:00	11-Jan-17	18:00	Daily	For attending line defects	WRTS-I	WRTS-I	R	LINE
340	765	SOLAPUR_718_MAIN BAY BUS REACTOR	11-Jan-17	9:00	11-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
341	400	418 Main Bay of 400 KV Bus reactor @ Wardha	11-Jan-17	9:00	11-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I		BAY
342	220	201 Bay (220KV Side of ICT# 1)	11-Jan-17	9:00	11-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
343	400	400kV Mundra-Limdi line-1	11/Jan/17	8:00	11/Jan/17	19:00		Line LA Testing	**PGCIL**	**CGPL**		
344	400	DGEN BUS COUPLER BAY (BAY 413)	11/01/2017	8:00	11/01/2017	18:00	Daily	Corrective maintenance of 413 89A Isolator and 4B1-89 Isolator. Bus A isolation required.	TPL	TPL	R	
345	400	Hadala-Amreli line	11-Jan-17	8:00	11-Jan-17	17:00	Daily	Bay equipment testing and maintenance work	GETCO	GETCO		
346	400	SSNL-Dhule line No. 2	11-Jan-17	8:00	13-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
347	765KV	Akola Line-1 reactor at Koradi III Sub Station.	11-Jan-17	7:00	11-Jan-17	20:00	Daily	For taking R phase reactor in place of Spare	MEGPTCL	MEGPTCL	Reactor is Switchable. Line will be	
348	400/220kV	400/220/33kV, 315 MVA ICT-2 @ Parli	11-Jan-17	9:00	11-Jan-17	18:00	Daily	ICT-2 Bushing, Winding Tan Delta Measurement & Aux. Protection Trials	MSETCL	MSETCL		
349	400KV	400kV Thapti-Tanda ckt-2 (401) Bay & TIE-I bay (402 Bay) @Ektuni	11-Jan-17	10:00	12-Jan-17	18:00	Daily	Alignment of Isolators (401-89L, 401-89B & 402-89A)	MSETCL	MSETCL		
350	400KV	Station Transformer-2 Main bay 407 at Koradi-2	11-Jan-2017	10:00	11-Jan-2017	18:00	Daily	Diagnostic Testing of breaker 407-Q52 : DCRM, Timing	MSETCL	MSETCL		
351	400KV	Main Bus-2 at 400 KV KhaperKheda S/S	11-Jan-17	8:00	11-Jan-17	17:00	Daily	Tan delta of CVT & RM work.	MSETCL	MSETCL		
352	400KV	400KV Lamboti-PGCIL line	11-Jan-17	10:00	11-Jan-17	18:00	Daily	Quarterly Maintenance	MSETCL	MSETCL	MSETCL	
353	400KV	Bus Coupler @ Talandge	11-Jan-17	10:00	11-Jan-17	18:00	Daily	Annual Maint.Work	MSETCL	MSETCL		
354	400KV	400 kV 406 Tie Bay of Aurangabad-II at 400 kV Akola	11-Jan-17	10:00	11-Jan-17	17:00	NA	Quarterly Bay Maintenance and Testing Work	MSETCL	MSETCL	A'bad Ckt 02 will be in service through main bay 407 .	

355	400kV	MAIN Bus 2 at Koradi 2	11-Jan-17	8:00	12-Jan-17	18:00	Continuous	Dropper connection from Bus2 to Spare ICT bay by errecting spare ips tube .				
356	400	400 KV NAGDA- RAJGARHCKT-II LINE REACTOR	11/Jan/17	9:00	11/Jan/17	17:00	daily	MAINTENANCE& TESTING WORK	MPPTCL	MPPTCL	R	
357	400	400 kv NAGDA- RAJGARHCKT-II	11/Jan/17	9:00	11/Jan/17	18:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
358	400	Korba-Korba west	11/01/2017	08:30 hrs	11/01/2017	12:30 Hrs.	Continuous	Gravel filing after area leveling near newly installed wave trap and shifted Las	NTPC	NTPC		
359	765	Seoni Line reactor (non switchable) at Bina	11/Jan/17	9:30	11/Jan/17	18:00	Daily	For taking of spare reactor into service first time along with this line	PGCIL	WR-II	C	
360	400	Dehgam#1 Main Bay(406) at Nagda	11/Jan/17	10:00	11/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
361	220	Omkareshwar bay (206) AMP work at Khandwa ss	11/Jan/17	9:30	11/Jan/17	17:30	Daily	Bay AMP	POWERGR	WR-II	R	
362	765	718 Bay (Bina#3 Main bay) at Gwalior	11/Jan/17	10:00	12/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
363	400	DAMOH 500 MVA 400/220/330 KV ICT-3 at Damoh	11/Jan/17	9:00	11/Jan/17	18:00	Daily	Final commisssioing of CSD on 414 bay (400 KV Tie bay of 500 MVA 400/220/330 KV ICT-3)	POWERGR	WR-II	C	
364	220	Bus coupler bay at Bina	11/Jan/17	9:30	11/Jan/17	18:00		AMP WORKS	PGCIL	WR-II	R	
365	400	Bay 414 400KV Varsana-2 & Essar 1 Tie Bay at Bhachau SS	11/Jan/17	9:00	11/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERGR	WR-II	C	
366	220	Bus 1 at Navsari	11/Jan/17	9:00	11/Jan/17	18:00	Daily	AMP work	POWERGR	WR-II	R	
367	400	125 MVAr Bus Reactor at Rajgarh Substation	11/Jan/17	10:30	11/Jan/17	14:30	DAILY	Annual Maintenance of Bus Reactor and Associated equipments at Rajgarh Substation	POWERGR	WR-II	R	
368	220	Bus#1 at Dehgam	11/Jan/17	9:00	11/Jan/17	17:00	Daily	AMP works	POWERGR	WR-II	R	
369	765 KV	765 kV Bus Reactor-2 at Satna	11/Jan/17	9:00	13/Jan/17	18:00	Daily	For AMP work, Taking Spare Reactor in to service, RTV Coating on Trench Make Bushing at Satna	POWERGR	WR-II	R	
370	765	Indore-Vadodara Line	11/Jan/17	10:00	11/Jan/17	13:00	Daily	Changeover with Spare Reactor and R phase	POWERGR	WR-II		
371	220KV	211 Kharadpada-1 Main Bay at Vapi	11/Jan/17	9:00	11/Jan/17	17:00	Daily	Bay AMP work. During Bay s/d element charge through TBC	POWERGR	WR-II	C	
372	400kv	408 tie bay of 400kv bus reactor at Vchal PS	11/Jan/17	9:30	11/Jan/17	17:30	Daily	For AMP work	POWERGR	WR-II		
373	400	TPGL-2 TIE BAY-417 at Pirana	11/Jan/17	10:00	11/Jan/17	14:00	DAILY	AMP WORK	POWERGR	WR-II	R	
374	765	765KV Jabalpur-Bina#3	11/Jan/17	10:00	11/Jan/17	18:00	Daily	AMP works.	STERLITE	WR-II	C	
375	400	Itarsi - Khandwa Ckt.2	11-Jan-17	8:00	12-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
376	220kv	220kv Main Bus-I of Boisar PG	11-Jan-17	9:00	11-Jan-17	18:00	Daily	AMP Work	POWERGR	WR-II	R	
377	400	WARDHA II (Main Bay-410) AT AURANGABAD	12-Jan-17	9:00	12-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
378	HVDC	HVDC CWD DIA 50 Q50 Bay (Ramagundam-2 & HVDC Filter bus-5 DIA bay) at Bhadrawati	12 Jan 17	9:00	12 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	MSETCL	R	Bay

379	765	ICT3_765/400kv_BILASPUR	12-Jan-17	9:00	12-Jan-17	17:00	Daily	For 336 kV LA Changing work	WRTS-I	WRTS-I	R	ICT
380	400	400 kV Bus Reactor main Bay - 415 Bay at mapusa	12-Jan-17	9:00	12-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
381	400	400Kv PUNE(GIS)-PUNE(TALEC	12-Jan-17	9:00	12-Jan-17	17:00	Daily	For bay AMP works	WRTS-I	WRTS-I	R	Line
382	400	400 KV RAIGARH-STERLITE CKT-1 & FUTURE BAY-2 TIE BAY 417 (Raigarh ss)	12-Jan-17	10:00	12-Jan-17	18:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	BAY
383	220	220 kv BUS 1 at Raipur SS	12-Jan-17	9:30	12-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BUS
384	765	SOLAPUR_712 MAIN BAY_765KV PUNE-SOLAPUR	12-Jan-17	9:00	12-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
385	400	JPL# 3 & AT#2 (411) Tie Bay at Tamnar PS	12-Jan-17	8:00	12-Jan-17	20:00	Daily	For AMP works of 411 Main Bay	WRTS-I	WRTS-I	R	BAY
386	400	ICT1 400/220kv WARDHA	12-Jan-17	10:00	12-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	ICT
387	220	202 Bay (Main bay of 220KV Talegaon Line # 1). The 220KV Talegaon Line 1 will remain in service through Transfer Bus	12-Jan-17	9:00	12-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
388	400	400kV Mundra-Bachau line-1	12/Jan/17	8:00	12/Jan/17	19:00		Line LA Testing	**PGCIL**	**CGPL**		
389	400	DGEN BUS TRANSFER BAY (BAY 414)	12/01/2017	8:00	12/01/2017	18:00	Daily	Corrective maintenance of 414 89A Isolator and 4B1-89 Isolator. Bus A isolation required.	TPL	TPL	R	
390	400	Chorania-Asoj line No. 2	12-Jan-17	8:00	12-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
391	400/220kV	315MVA, ICT 1 @ LONIKAND-I	12-Jan-17	9:00	12-Jan-17	17:00	Daily	Maintenance work	MSETCL	MSETCL	NIL	
392	400KV	LONIKAND - KARAD @ LONIKA	12-Jan-17	9:00	12-Jan-16	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
393	765KV	MAIN BAY of ICT at Tiroda Plant	12-Jan-17	7:00	12-Jan-17	20:00	Daily	Bay Equipment Maintenance	MEGPTCL	MEGPTCL		
394	400kV	400kV Girwali-Chandrapur ckt-1@ Parli	12-Jan-17	9:00	12-Jan-17	17:00	Daily	Bay maintenance and testing work at 400kV Girwali ss	MSETCL	MSETCL		
395	400KV	402-Bay (Main Bay of Chandrapur Line-2) at Kumbhargaon Substation	12-Jan-17	11:00	12-Jan-17	17:00	Daily	Quarterly Maintenance of bays equipment	MSETCL	MSETCL		
396	400KV	403-Bay (Tie Bay of Chandrapur-2 and ICT-1) at Kumbhargaon Substation	12-Jan-17	11:00	12-Jan-17	17:00	Daily	Quarterly Maintenance of bays equipment	MSETCL	MSETCL		
397	400KV	400KV Karad-Solapur(PGCIL)@	12-Jan-17	10:00	12-Jan-17	17:00	Daily	Quarterly. Maint. work	MSETCL	MSETCL	Load manage on 400 kV N. Koyana 1	
398	400KV	Station Transformer-2 Tie bay 408 at Koradi-2	12-Jan-2017	10:00	12-Jan-2017	18:00	Daily	Diagnostic Testing of breaker 408 : DCRM, Timing	MSETCL	MSETCL		
399	400 kV	400 kV Akola- Nandgaonpeth Line	12-Jan-17	12:00	14-Jan-17	18:00	Daily	PID testing of insulator strings by Hot line Uint Akola. A/R shall be kept in non auto mode.	MSETCL	MSETCL	400 kV Koradi-Bhusawal, 400 kV Akola-Bhusawal & 400 kV Koradi-Nandgaonpeth are in service.	
400	400 KV	400 kv B Bus & Bus Coupler @ 400 KV **Chakan**	12-Jan-17	9:00	12-Jan-17	18:00	Daily	Maint.& Testing	MSETCL	MSETCL		
401	220	220 KV MALANPUR - GWL(PG) CKT - I	12/Jan/17	9:00	12/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
402	220	Kawas-HAL#1	12-Jan-17	8:00	14-Jan-17	18:00	CONTINUOUS	For CVT replacement & testing.	NTPC	NTPC		
403	400	Dehgam#2 & Shujalpur#2 Tie Bay(402) at Nagda	12/Jan/17	10:00	12/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
404	765	Indore Line reactor (switchable) at Bina	12/Jan/17	9:30	13/Jan/17	18:00	Daily	RTV Coating on HV bushings. Line will remain in service w/o reactor	PGCIL	WR-II	C	

405	400	Bay 417 400KV Varsana-1 & Essar 2 Tie Bay at Bhachau SS	12/Jan/17	9:00	12/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERGR	WR-II	C	
406	220	kakrapar haldarwa line ckt 1&2	12/Jan/17	8:00	13/Jan/17	18:00	continue	S/D for Stringing work of 400kV D/C Kakrapar-Navsari b/w 2/0 & 2/1	POWERGR	WR-II	C	
407	400	Bay 404 (SSP#1 MAIN Bay) at Raigarh Substation	12/Jan/17	10:00	12/Jan/17	17:00	DAILY	Annual Maintenance of CB and CT at Raigarh Substation	POWERGR	WR-II	R	
408	220	Bus#2 at Dehgam	12/Jan/17	9:00	12/Jan/17	17:00	Daily	AMP works	POWERGR	WR-II	R	
409	765	Vadodara- Dhule Line	12/Jan/17	10:00	12/Jan/17	13:00	Daily	AMP & change over of B Phase reactor with Spare Reactor	STERLITE	WR-II		
410	220KV	212 Kharadpada-2 Main Bay at Vapi	12/Jan/17	9:00	12/Jan/17	17:00	Daily	Bay AMP work. During Bay s/d element charge through TBC	POWERGR	WR-II	C	
411	765	765KV Jabalpur-Bhopal Line at Pooling station,Jabalpur	12/Jan/17	10:00	12/Jan/17	18:00	Daily	AMP works.	STERLITE	WR-II	C	
412	765	765kV WARDHA - AURANGABAD(PG) I	13-Jan-17	8:00	14-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 53/1 & 54/0 (765KV D/C Wardha - Aurangabad Transmission linetower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
413	765	765kV WARDHA - AURANGABAD(PG) II	13-Jan-17	8:00	14-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 53/1 & 54/0 (765KV D/C Wardha - Aurangabad Transmission linetower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
414	HVDC	HVDC CWD DIA 50 Q51 Bay (main bay HVDC Filter bus-5)	13 Jan 17	9:00	13 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
415	765	ICT5_765/400kv_CHAMPA	13-Jan-17	9:00	14-Jan-17	17:30	Daily	CSD Switching	POWERG RID	POWERG RID	C	ICT
416	400	Durg - GMR # 2 Line	13-Jan-17	9:00	13-Jan-17	18:00	Daily	AMP of Line bay equipment at Durg PS	WRTS-I	WRTS-I	R	Line
417	765	765 KV MAIN BAY_765 KOTRA PS DURG PS I_KOTRA PS	13-Jan-17	9:00	13-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
418	400	400 kV Bus Reactor tie Bay - 414 Bay at mapusa	13-Jan-17	9:00	13-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
419	400	400 KV FUTURE BAY-2, MAIN BAY 418-(Raigarh ss)	13-Jan-17	10:00	13-Jan-17	18:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	BAY
420	220	400 kv BUS 2 at Raipur SS	13-Jan-17	9:30	13-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BUS
421	765	SOLAPUR_702 TIE BAY_765KV ICT#1	13-Jan-17		13-Jan-17			AMP WORKS	WRTS-I	WRTS-I	R	BAY
422	400	AT#2 (412) Main Bay at Tamnar PS	13-Jan-17	8:00	13-Jan-17	20:00	Daily	For AMP works of 412 Main Bay	WRTS-I	WRTS-I	R	BAY
423	400	400 KV Bus-1 **at** Wardha	13-Jan-17	9:00	14-Jan-17	18:00	Continuous	Bus Extension work in 400 KV Abad ckt 1 &2.	WRTS-I	WRTS-I	R	BAY
424	220	206 Bay (Bus Coupler Bay) at Pune (Talegoan)	13-Jan-17	9:00	13-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
425	400	400kV Mundra-Bachau line-2	13/Jan/17	8:00	13/Jan/17	19:00		Line LA Testing	**PGCIL**	**CGPL**		
426	400KV	400KV Bus -1 @ Akola-II SS	13-Jan-17	7:00	13-Jan-17	20:00	Daily	Annual Maintenance of 400KV busbar-1 equipments	MEGPTCL	MEGPTCL	Bus- 2 will be in service .	
427	400kV	400kV Bus Coupler @ NewKoyna	13-Jan-17	8:00	13-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
428	400KV	BBLR-Dhule-ckt-2 @ Babhaleshv	13-Jan-17	9:00	13-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	400kV BBLR-Dhule-I will be in service	

429	400KV	400kV Main Bus-I with 400kV Thapti-Tanda Ckt-II (401) Bay @Ektuni	13-Jan-17	10:00	13-Jan-17	18:00	Daily	Alignment of Isolators (401-89A)	MSETCL	MSETCL		
430	400KV	400 KV Warora- IEPL(bay417),Ti	13-Jan-17	8:00	13-Jan-17	17:00	Daily	Rotuine bay maintanince work at 400 KV Warora end &Timeing of Tie CB & main CB at 400 KV S.stn. Warora.	MSETCL	MSETCL		
431	400KV	400 kV 407 Main Bay Aurangabad-II at 400 kV Akola	13-Jan-17	10:00	13-Jan-17	17:00	NA	Quarterly Bay Maintenance and Testing Work	MSETCL	MSETCL	Aurangabad Line-2 will be in service through tie bay 406	
432	400	400 KV NAGDA- ISP CkT	13/Jan/17	9:00	13/Jan/17	18:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
433	400	400 KV SEONII- SARNI CkT	13/Jan/17	9:00	13/Jan/17	18:00	daily	MAINTENANCE WORK	MPPTCL	MPPTCL	R	
434	220	220 KV MALANPUR - GWL(PG) CKT - II	13/Jan/17	9:00	13/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
435	400	Dehgam#1 & Shujalpur#1 Tie Bay(405) at Nagda	13/Jan/17	10:00	13/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
436	765	Bay 714, tie bay for 765 KV, vodara line at Indore PS	13/Jan/17	10:00	13/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
437	765	716 Bay (Main bay of Satna#2 Line) at Gwalior	13/Jan/17	10:00	13/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
438	400	Bay 418 400KV Essar 2 Main Bay at Bhachau SS	13/Jan/17	9:00	13/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERG RID	WR-II	C	
439	400	Transfer Bus at Dehgam	13/Jan/17	9:00	13/Jan/17	18:00	Daily	AMP works	POWERGR	WR-II	R	
440	220KV	Khadoli-Vapi line	13/Jan/17	9:00	13/Jan/17	17:00	Daily	AMP of terminal and Bay and A/R relay testing at Khadoli s/s end	POWERGR	WR-II	C	
441	400kv	415 main bay of 400kv rihand#2 at Vchal PS	13/Jan/17	9:30	13/Jan/17	17:30	Daily	For AMP work	POWERGR	WR-II		
442	765	765KV Jabalpur-DharamjayGarh#1	13/Jan/17	10:00	13/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	C	
443	220KV	220KV Boisar(PG)-Boisar(MSETCL) line-I	13-Jan-17	9:00	13-Jan-17	18:00	Daily	AMP work of line equipments	POWERGR	WR-II	R	
444	400	SOLAPUR_408 _TIE BAY 400KV ICT#2	14-Jan-17	9:00	14-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
445	765	702 Bay Tie Bay of Seoni-2 at wardha.	14-Jan-17	9:00	14-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	BAY
446	400/220kV	315 MVA, ICT-1 @ Babhaleshwar	14-Jan-17	9:00	14-Jan-17	17:00	Daily	Bay Maintenance work. Relay / CB / CT Testing	MSETCL	MSETCL	315 MVA ICT-II and 500 MVA ICT-III will be in service	
447	400 KV	400 KV Karad - Talandage Ckt II	14-Jan-17	09.00	18-Jan-17	18.00	Daily	Cold washing of Insulators Strings	MSETCL	MSETCL	400 KV Karad - Talandage Ckt I	
448	220 KV	Boiser (M) BUS-I	14-Jan-17	9:00	15-Jan-17	17:00	Continuous	Bus isolator maint.	MSETCL	MSETCL		
449	765	Gwalior-2 Line reactor (non switchable) at Bina	14/Jan/17	9:30	14/Jan/17	14:00	Daily	Yph reactor unit normalisation in place of spare reactor	PGCIL	WR-II	R	
450	765 KV	765 kV V'chal-Satna #1 line reactor (non switchable) at Satna	14/Jan/17	9:00	15/Jan/17	18:00	Daily	RTV Coating on Trench Make Bushing at Satna. Line will be taken back into service within 15 min after taking reactor out.	POWERGR	WR-II	C	
451	220kv	220kv Main Bus-II	14-Jan-17	9:00	14-Jan-17	18:00	Daily	AMP Work.	POWERGR	WR-II	R	
452	400KV	400KV Bus-2 @ Akola-II SS	15-Jan-17	7:00	15-Jan-17	20:00	Daily	Annual Maintenance of 400KV busbar-2 equipments	MEGPTCL	MEGPTCL	Bus- 1 will be in service .	
453	400KV	400 KV Main Bus . II & Bus Coupler. At KALWA	15-Jan-17	9:00	15-Jan-17	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
454	765kv	707 LR bay along with line reactor of SATNA#2 at Vchal PS	15/Jan/17	9:30	18/Jan/17	17:30	Daily	For CSD fine tuning & RTV Cloating work	POWERGR	WR-II		
455	765	765 KV Champa Kotra Tie Bay- 7	16-Jan-17	9:00	16-Jan-17	17:30	Daily	AMP	POWERG RID	POWERG RID	R	Bay

456	765	765kV BUS # 1 at Durg PS	16-Jan-17	9:00	20-Jan-17	18:00	Daily	For stablity & Extension of Bus#2 for wardha#4 line	WRTS-I	WRTS-I	C	Bus
457	765	765 KV MAIN BAY_ICT4_765/400_KOTRA PS	16-Jan-17	9:00	16-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
458	400	50MVAR Bus Reactor at mapusa	16-Jan-17	9:00	16-Jan-17	17:00	Daily	AMP	WRTS-1	WRTS-I	R	BR
459	400	ICT2_400/220kv_RAIPUR	16-Jan-17	9:30	19-Jan-17	17:30	Continuous	Bushing replacement at Raipur	WRTS-I	WRTS-I	R	ICT
460	400	BUS_REACTOR1_MAIN_BAY_ 422 at Seoni	16-Jan-17	8:00	16-Jan-17	18:00	Daily	AMP works	WRTS-I	WRTS-I	R	Bay
461	400	SOLAPUR 409 MAIN BAY 400K	16-Jan-17	9:00	16-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
462	765	708 Bay Main Bay of 765 KV Bus Reactor 1 @ wardha	16-Jan-17	9:00	16-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	BAY
463	220	205 Bay (220KV side of ICT# 2)	16-Jan-17	9:00	16-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
464	400	CGPL 402 GT#10 Tie Breaker	16/Jan/17	8:00	16/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		
465	400	SSP - Rajgarh - 1	16-Jan-17	8:00	17-Jan-17	18:00	Daily	Maintenance work	PGCIL	GETCO		
466	400KV	400KV TBC-I Bay at Chandrapur	16-Jan-17	8:00 Hrs	16-Jan-17	18:00 Hrs.	Daily	1)Repalcement Of PG-III & PG-II Isolator Knee Joint . 2) Isolator alingment work .	400KV AC	MSETCL		
467	765KV	Tie bay of ICT-1 at Koradi III Substation	16-Jan-17	7:00	16-Jan-17	20:00	Daily	Annual Maintenance of bays equipment	MEGPTCL	MEGPTCL		
468	400kV	400kV Transfer Bus Coupler @ NewKoyna	16-Jan-17	8:00	16-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
469	400/220kV	315MVA, ICT 2 @ Karad	16-Jan-17	10:00	16-Jan-17	18:00	Daily	Quarterly. Maint. work	MSETCL	MSETCL		
470	400KV	400kV Main Bus-II with TIE-I (402) Bay {of Thapti-Tanda Ckt-II} @Ektuni	16-Jan-17	10:00	16-Jan-17	18:00	Daily	Alignment of Isolators (402-89B)	MSETCL	MSETCL		
471	400KV	400KV DHL- SSNNL line C-I&C-II	16-Jan-17	9:00	17-Jan-17	17:00	daily	PID testing	MSETCL	MSETCL		
472	400kV	Padghe-Nagothane-Ckt-2@ Padghe	16-Jan-17	8:00	16-Jan-17	18:00	Daily	Routine R&M work and Dignostic Testing work.	MSETCL	MSETCL		
473	400/220	315MVA, ICT 1 @ Talandge	16-Jan-17	10:00	17-Jan-17	18:00	Daily	Annual Maint.Work	MSETCL	MSETCL		
474	400 kV	400 kV Koradi- Bhusawal Line	16-Jan-17	12:00	21-Jan-17	18:00	Daily	PID testing of insulator strings by Hot line Uint Akola. A/R shall be kept in non auto mode.	MSETCL	MSETCL	400 kV Akola-Bhusawal, 400 kV Akola-Nandgaonpeth & 400 kV Koradi-Nandgaonpeth are in service.	
475	400kV	Chandrapur II - Nanded line (Ckt II)	16-Jan-17	8:00	17-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
476	400kV	Chandrapur GCR - Parali Ckt III	16-Jan-17	8:00	17-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
477	220 KV	Mudshingi-Chikodi	16-Jan-17	9:00	16-Jan-17	17:00	daily	Routine Maintenance	MSETCL	MSETCL		
478	220	220 KV RAJGARH(PG)- DHAR CKT	16/Jan/17	9:00	16/Jan/17	16:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
479	400	B/R#1(63MVAR) Main Bay(409) at Shujalpur	16/Jan/17	10:00	16/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
480	400	Bus Reactor#3 Main Bay at Itarsi	16/Jan/17	9:00	18/Jan/16	18:00	Continuous	AMP Works & for Retrofitting of existing Easun Reyolle make auxiliary relays with VAA Alstom make auxiliary relays.	POWERGR	WR-II		
481	765	Bay 707, main bay for 765 KV, BR-I at Indore PS	16/Jan/17	10:00	17/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
482	220	Bay 209 (220kV side of ICT-3 Bay) at Gwalior	16/Jan/17	10:00	16/Jan/17	15:00	Daily	AMP WORKS	POWERG RID	WR-II		

483	400	Bachau - Ranchodpura Ckt.1	16/Jan/17	8:00	16/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Ckt.2 to be kept in non auto mode during the period.	POWERGR	WR-II		
484	400	Bay 420 400KV 125MVAr Tie Bay Bhachau SS	16/Jan/17	9:00	16/Jan/17	18:00	Daily	AMP of Bay Equipments	POWERG RID	WR-II	C	
485	400	TBC Bay of Vadodara- Asoj Line at Asoj end	16/Jan/17	10:00	16/Jan/17	16:00	Daily	AMP of CB	POWERGR	WR-II		
486	220KV	Khadoli-Sayali line	16/Jan/17	9:00	16/Jan/17	17:00	Daily	AMP of terminal and Bay and A/R relay testing at Khadoli s/s end	POWERGR	WR-II	C	
487	765	765KV Jabalpur-DharamjayGarh#2	16/Jan/17	10:00	16/Jan/17	18:00	Daily	AMP works.	PGCIL	WR-II	C	
488	400kv	Tarapur-Padghe Ckt-I	16-Jan-17	9:00	16-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work.	POWERGR	WR-II	R	
489	765 KV	765 kV V'chal-Satna #2 line reactor (non switchable) at Satna	16/Jan/17	9:00	17/Jan/17	18:00	Daily	RTV Coating on Trench Make Bushing at Satna. Line will be taken back into service within 15 min after taking reactor out.	POWERGR	WR-II	C	
490	400	AURANGABAD(PG)_400KV-BUS_1	17-Jan-17	9:00	17-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bus
491	HVDC	HVDC CWD DIA 50 Q52 Bay (Main bay Ramagundam-2)	17 Jan 17	9:00	17 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
492	765	765 KV ICT-1 Main Bay- 706	17-Jan-17	9:00	18-Jan-17	17:30	Daily	AMP	POWERG RID	POWERG RID	R	Bay
493	400	ICT-1 at mapusa	17-Jan-17	9:00	17-Jan-17	17:00	Daily	AMP	WRTS-1	WRTS-I	R	ICT
494	400	400kV Pune-Pune(GIS)-4	17-Jan-17	9:00	17-Jan-17	17:00	Daily	For bay AMP works	WRTS-I	WRTS-I	R	Line
495	220	RAIGARH -RAIGARH CSEB CKT-1 LINE BAY- 203L (Raigarh ss)	17-Jan-17	10:00	17-Jan-17	16:00	Daily	AMP 2016-17	WRTS-2	WRTS-I	R	LINE
496	400	SOLAPUR_413 MAIN BAY_400KV PARLI-SOLAPUR#1	17-Jan-17	9:00	17-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
497	400	419 Main Bay of 400 KV Akola Ckt 1 @ Wardha	17-Jan-17	9:00	17-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	BAY
498	220	207 Bay (Main bay of 220KV Talegaon Line # 2). The 220KV Talegaon Line 2 will remain in service through Transfer Bus	17-Jan-17	9:00	17-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
499	400	DGEN REACTOR (BAY 401)	17/01/2017	8:00	17/01/2017	18:00	Daily	Corrective maintenance of 401 89B Isolator. Bus B Isolation required with 401 Bay on Transfer Bus	TPL	TPL	R	
500	400	Kosamba- Asoj line	17-Jan-17	8:00	18-Jan-17	18:00	Daily	Line maintenance work	GETCO	GETCO		
501	220	Vapi - Vapi (PG)	17-Jan-17	9.00	17-Jan-17	18.00	Daily	Line and bay equipment maintenance work	GETCO	GETCO		
502	400	400 KV Bus-1 Chorania	17-Jan-17	8:00	17-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
503	765KV	Main bay of TIRORA-KORADI LINE -2 at Tiroda Plant	17-Jan-17	7:00	17-Jan-17	20:00	Daily	Bay Equipment Maintenance	MEGPTCL	MEGPTCL		
504	765 KV	765KV Busbar-1 @ Akola-II SS	17-Jan-17	7:00	17-Jan-17	20:00	Daily	Annual Maintenance of 765KV busbar-1 equipments	MEGPTCL	MEGPTCL		
505	400kV	400kV Girwali-Lonikand Ckt-II @ Parli	17-Jan-17	9:00	17-Jan-17	18:00	Daily	Testing work	MSETCL	MSETCL		
506	400KV	400 KV Bus Coupler Bay @ Kara	17-Jan-17	8:00	17-Jan-17	20:00	Daily	Replacement of old CTs by new one due to oil leakaes.	MSETCL	MSETCL		
507	400KV	GT#8 Tie Bay 426 at Koradi-2	17-Jan-2017	10:00	17-Jan-2017	18:00	Daily	Diagnostic Testing of breaker 426 : DCRM, Timing	MSETCL	MSETCL		

508	400	50 MVAR BUS REACTOR - I	17/Jan/17	8:00	17/Jan/17	17:00	daily	MAINTENANCE& TESTING WORK	MPPTCL	MPPTCL	R	
509	400	400 KV SEONI- BHILAI CkT	17/Jan/17	9:00	17/Jan/17	18:00	daily	MAINTENANCE WORK	MPPTCL	MPPTCL	R	
510	220	220 KV MAHALGAON(GWL) - GWL(PG) CKT - I	17/Jan/17	9:00	17/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
511	220	220 KV BHANPURA - KOTA CKT	17/Jan/17	9:00	17/Jan/17	18:00	daily	FOR RECTIFICATION OF DEFECTS OBSERVED DURING ROUTINE PATROLLING TO ATTEND THE DAMPER ,ARCING HORN,F/O &BROKEN DISC REPLACEMENT WORK.	MPPTCL	MPPTCL	R	
512	765	Sipat-Bharari-1 Main bay 18	17/01/17	7:30	18/01/17	19:00	Continous	Annual Preventive maintenance	NTPC	NTPC sipat		
513	400	B/R#2(125MVAR) at Shujalpur	17/Jan/17	10:00	17/Jan/17	16:00	Daily	For AMP works	POWERGR	WR-II	C	
514	400	Bus Reactor#1 Main Bay at Itarsi	17/Jan/17	9:00	17/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
515	765	Agra #1 Main bay (707) at Gwalior	17/Jan/17	10:00	17/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
516	765	BUS -1 at Bina	17/Jan/17	9:30	17/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
517	400	Bachau - Ranchodpura Ckt.2	17/Jan/17	8:00	17/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Ckt.1 to be kept in non auto mode during the period.	POWERGR	WR-II		
518	400	63 MVAr Bus Reactor at Bachau	17/Jan/17	9:00	17/Jan/17	18:00	Daily	AMP of Bus Reactor	POWERG RID	WR-II	C	
519	400KV	BUS-2 at Vapi	17/Jan/17	9:00	17/Jan/17	17:00	Daily	Replacment of Isolator Arms and AMP	POWERGR	WR-II	C	
520	400	400KV Damoh-Birsinghpur#1	17/Jan/17	10:00	17/Jan/17	18:00	Daily	AMP works of bay equipment at both ends	PGCIL	WR-II	R	
521	765	765KV Jabalpur-DharamjayGarh#3	17/Jan/17	10:00	17/Jan/17	18:00	Daily	AMP works.	STERLITE	WR-II	C	
522	765	Wardha-Seoni Ckt 1	17-Jan-17	10:00	17-Jan-17	14:00	Daily	Stringing of Earthwire/OPGW of 400 kV D/C Muada-Betul line.	POWERGR	WR-II	C	
523	400KV	400KV Bus reactor-I (Aurangabad line-I reactor) At Boisar	17-Jan-17	9:00	17-Jan-17	18:00	Daily	AMP Work.	POWERGR	WR-II	R	
524	400	AURANGABAD(PG)_400KV-BUS_2	18-Jan-17	9:00	18-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bus
525	HVDC	HVDC CWC filter 33	18 Jan 17	9:00	18 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
526	765	Durg -Wardha #2 L/R at Durg PS	18-Jan-17	9:00	19-Jan-17	18:00	Daily	NGR Bypassing connection	WRTS-I	WRTS-I	C	LR
527	765	765KV BUS REACTOR 02 MAIN BAY(710) AT DHARAMJAYGARH(KORBA) SS	18-Jan-17	9:00	18-Jan-17	18:00	Daily	DCRM and travel measurement of CIRCUIT BREAKER	WRTS-I	WRTS-I	R	BAY
528	400	ICT-2 at mapusa	18-Jan-17	9:00	18-Jan-17	17:00	Daily	AMP	WRTS-1	WRTS-I	R	ICT
529	220	220 KV RAIGARH-RAIGARH CSEB CKT-2 LINE BAY- 202L (Raigarh ss)	18-Jan-17	10:00	18-Jan-17	16:00	Daily	AMP 2016-17	WRTS-I	WRTS-I	R	LINE
530	400	AT3 MAIN BAY 428 at Seoni	18-Jan-17	8:00	19-Jan-17	18:00	Contineuos	AMP testing work	WRTS-I	WRTS-I	R	Bay
531	400	SOLAPUR_428 MAIN BAY 765KV ICT#2	18-Jan-17	9:00	18-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
532	400	400/220 KV ICT-2 at Wardha	18-Jan-17	10:00	18-Jan-17	18:00	Daily	AMP work	WRTS-I	WRTS-I	R	ICT
533	220	220KV Bus # 1	18-Jan-17	9:00	18-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	BUS
534	400	Mundra - Sami Line 2	18-Jan-17	8:30	18-Jan-17	18:00	Daily	Tower modification due to new canal crossing under existing transmission line	ATIL	SSNL (Govt of Guj.)		

535	400	CGPL 403 GT#10 Breaker	18/Jan/17	8:00	18/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		
536	400	DGEN WAGHODIYA LINE 2 (BAY 402)	18/01/2017	8:00	18/01/2017	18:00	Daily	Corrective maintenance of 402 89B Isolator. Bus B Isolation required	TPL	TPL	R	
537	400	SSP - Rajgarh - 2	18-Jan-17	8:00	19-Jan-17	18:00	Daily	Maintenance work	PGCIL	GETCO		
538	400	Chorania-Vadavi line No. 2	18-Jan-17	8:00	18-Jan-17	18:00	Daily	Maintenance work	PGCIL	GETCO		
539	400kV	400kV Girwali-Solapur ckt @ Parli	18-Jan-17	9:00	18-Jan-17	17:00	Daily	Bay maintenance and testing work at 400kV Girwali ss	MSETCL	MSETCL		
540	765KV	Main Bay of ICT-2 at Koradi III Sub Station.	18-Jan-17	7:00	18-Jan-17	20:00	Daily	Annual Maintenance of bays equipment	MEGPTCL	MEGPTCL		
541	400KV	400 KV Chandrapur II-switching Ckt-II(404 Main Bay & 405 Tie Bay)@ Chandrapur II.	18-Jan-17	9:00	18-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
542	400KV	Koradi-III Line Main Bay 409 at Koradi-2	18-Jan-2017	10:00	18-Jan-2017	18:00	Daily	Diagnostic Testing of breaker 409 : DCRM, Timing	MSETCL	MSETCL		
543	400KV	K'kheda-Koradi-2 Line Main Circuit Breaker Bay-414 at KhaperKheda	18-Jan-17	10:00	18-Jan-17	14:00	Daily	Breaker DCRM, timing & RM work.	MSETCL	MSETCL		
544	400KV	400 kV 413 Main Bay Nandgoan peth at 400 kV Akola	18-Jan-17	10:00	18-Jan-17	17:00	NA	Quarterly Maintenance and Testing Work	MSETCL	MSETCL	Nandgaon line will be in service through Tie bay 412.	
545	220	220 KV MAHALGAON(GWL) - GWL(PG) CKT - II	18/Jan/17	9:00	18/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
546	220	220 KV BHANPURA - MODAK CKT	18/Jan/17	9:00	18/Jan/17	18:00	daily	FOR RECTIFICATION OF DEFECTS OBSERVED DURING ROUTINE PATROLLING TO ATTEND THE DAMPER ,ARCING HORN,F/O &BROKEN DISC REPLACEMENT WORK.	MPPTCL	MPPTCL	R	
547	400	Bina#2 L/R (non switchable) at Shujalpur	18/Jan/17	10:00	18/Jan/17	18:00	Daily	For AMP works. Line will be taken back into service within 15 min after taking reactor out.	POWERGR	WR-II	R	
548	400	Bus Reactor#1 Tie Bay at Itarsi	18/Jan/17	9:00	18/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
549	400	63 MVAR Bus reactor #I at Indore PS	18/Jan/17	10:00	18/Jan/17	16:00	Daily	For AMP	POWERGR	WR-II		
550	400	Mundra - Jetpur Ckt.1	18/Jan/17	8:00	18/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Ckt.2 to be kept in non auto mode during the period.	POWERGR	WR-II		
551	400	63 MVAr Eassar 1 Line Reactor at Bachau	18/Jan/17	9:00	18/Jan/17	18:00	Daily	AMP of Line Reactor	POWERG RID	WR-II	C	
552	400	Bay 413 (Kasor#1 MAIN Bay) at Rajgarh Substation	18/Jan/17	10:00	18/Jan/17	17:00	DAILY	Annual Maintenance of CB and CT at Rajgarh Substation	POWERGR	WR-II	R	
553	400	Vadodara-Asoj-1 Main Bay at Asoj end	18/Jan/17	10:00	18/Jan/17	16:00	Daily	AMP of CB	POWERGR	WR-II		
554	400	220KV ICT-1 BAY-201 at Pirana	18/Jan/17	10:00	18/Jan/17	17:00	DAILY	AMP WORK	POWERGR	WR-II	R	
555	400	400KV Damoh-Birsinghpur#2	18/Jan/17	10:00	18/Jan/17	18:00	Daily	AMP works of bay equipment at both ends	PGCIL	WR-II	R	
556	765	765KV Jabalpur-DharamjayGarh#4	18/Jan/17	14:00	18/Jan/17	18:00	Daily	AMP works.	STERLITE	WR-II	C	
557	765	Wardha-Seoni Ckt 1	18-Jan-17	10:00	18-Jan-17	14:00	Daily	Stringing of Earthwire/OPGW of 400 kV D/C Muada-Betul line.	POWERGR	WR-II	C	

558	400	Bina - Shujalpur Ckt.1	18-Jan-17	8:00	19-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
559	400KV	Tarapur-Padghe Ckt-II	18-Jan-17	9:00	18-Jan-17	18:00	Daily	To attend shutdown nature defects & AMP work	POWERGR	WR-II	R	
560	765	AURANGABAD (PG)_ ICT1_765/400kV_1500 MVA	19-Jan-17	8:00	21-Jan-17	18:00	Daily	for RTV coating on HV Bushings	WRTS-I	WRTS-I	C	ICT
561	220	ICT1_315MVA (Bay-201) at Aurangabad	19-Jan-17	9:00	19-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
562	HVDC	HVDC CWC filter 34	19 Jan 17	9:00	19 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
563	400	ICT-3 at mapusa	19-Jan-17	9:00	19-Jan-17	17:00	Daily	AMP	WRTS-1	WRTS-I	R	ICT
564	220	RAIGARH -BUDHIPADAR LINE BAY- 207L (Raigarh ss)	19-Jan-17	10:00	19-Jan-17	16:00	Daily	AMP 2016-17		WRTS-I	R	LINE
565	400	400 KV Bus-2 Wardha	19-Jan-17	9:00	20-Jan-17	18:00	Continuous	Bus Extension work in 400 KV Abad ckt 1 &2.	WRTS-I	WRTS-I	R	BUS
566	220	220KV Bus # 2	19-Jan-17	9:00	19-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	BUS
567	765	765 kV ICT#1 Main Bay (724) at Bilaspur PS.	19-Jan-17	9:00	19-Jan-17	18:00	Daily	CB Grading Capacitor & DCRM & Due Point Measurement	WRTS-I	WRTS-I	R	Bay
568	400	DGEN WAGHODIYA LINE 1 (BAY 403)	19/01/2017	8:00	19/01/2017	18:00	Daily	Corrective maintenance of 403 89A Isolator. Bus B isolation required	TPL	TPL	R	
569	400	Chorania-Amreli line	19-Jan-17	8:00	20-Jan-17	17:00	Daily	Maintenance work	GETCO	GETCO		
570	400	Chorania-Hadala line	19-Jan-17	8:00	19-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
571	400/220kV	315MVA, ICT 2 @ **Chakan**	19-Jan-17	9:00	19-Jan-17	18:00	Daily	Diognostic Testing &Maintenance work	MSETCL	MSETCL		
572	400KV	JEJURI - STAGE IV @ JEJURI	19-Jan-17	9:00	19-Jan-17	17:00	Daily	Routine Maintenance work	MSETCL	MSETCL		
573	765KV	Main bay of TIRORA-KORADI LINE -1 at Tiroda Plant	19-Jan-17	7:00	19-Jan-17	20:00	Daily	Bay Equipment Maintenance	MEGPTCL	MEGPTCL		
574	765 KV	765KV Busbar-2 @ Akola-II SS	19-Jan-17	7:00	19-Jan-17	20:00	Daily	Annual Maintenance of 765KV busbar-2 equipments	MEGPTCL	MEGPTCL		
575	400/220kV	501MVA Vijai ICT 2 @ Kumbhargaon	19-Jan-17	11:00	19-Jan-17	18:00	Daily	Maintenance work	MSETCL	MSETCL		
576	400/220kV	315MVA ICT-1 @ NewKoyna	19-Jan-17	8:00	19-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
577	220	220 KV RAJGARH(PG)-PITHAMPUR CKT-II	19/Jan/17	9:00	19/Jan/17	16:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
578	220	220 KV ANOOPUR - KOTMIKALA CKT - I	19/Jan/17	10:00	19/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
579	765	Sipat-Bharari-2 Main bay 13	19/01/17	7:30	20/01/17	19:00	Continous	Annual Preventive maintenance	NTPC	NTPC sipat		
580	765	765kv S/C Dhule-Vadodara line v	19-Jan-17	9:00	20-Jan-17	18:00	Daily	For AMP Works	BDTCL	Sterlite	R	
581	400	Bus Reactor#2 Main Bay at Itarsi	19/Jan/17	9:00	19/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
582	765	Bay 712, main bay for 765 KV,ICT#I at Indore PS	19/Jan/17	10:00	19/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
583	765	Agra #1 & ICT # 2 Tie bay (708) at Gwalior	19/Jan/17	10:00	19/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
584	765	BUS-2 at Bina	19/Jan/17	9:30	19/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
585	400	Mundra - Mansur	19/Jan/17	8:00	19/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Limbdi line to be kept in non auto mode during the period.	POWERGR	WR-II		
586	400	63 MVAr Eassar 2 Line Reactor at Bachau	19/Jan/17	9:00	19/Jan/17	18:00	Daily	AMP of Line Reactor	POWERG RID	WR-II	C	
587	400	Bay 416 (Kasor#2 MAIN Bay) at Rajgarh Substation	19/Jan/17	10:00	19/Jan/17	17:00	DAILY	Annual Maintenance of CB and CT at Rajgarh Substation	POWERGR	WR-II	R	
588	400KV	ICT-III at Vapi	19/Jan/17	9:00	19/Jan/17	17:00	Daily	oil leakage and AMP	POWERGR	WR-II	C	

589	400kv	405 tie bay of 400 kv sasan #2 at Vchal PS	19/Jan/17	9:30	19/Jan/17	17:30	Daily	For CSD fine tuning	POWERGR	WR-II		
590	400	220KV ICT-2 BAY-203 at Pirana	19/Jan/17	10:00	19/Jan/17	17:00	DAILY	AMP WORK	POWERGR	WR-II	R	
591	400	400KV Korba-Birsinghpur Line	19/Jan/17	10:00	19/Jan/17	18:00	Daily	AMP works of bay equipment at both ends	PGCIL	WR-II	R	
592	400	400kV WARDHA-PARLI I	20-Jan-17	8:00	21-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 49/0 & 50/0 (765KV D/C Wardha - Aurangabad Transmission line tower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
593	400	400kV WARDHA-PARLI II	20-Jan-17	8:00	21-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 49/0 & 50/0 (765KV D/C Wardha - Aurangabad Transmission line tower nos.14 to 15)	WRTS-I	WRTS-I	C	Line
594	220	ICT2_315 MVA (Bay-202) at Aurangabad	20-Jan-17	9:00	20-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	ICT
595	HVDC	HVDC CWC filter 35	20 Jan 17	9:00	20 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
596	400	Main Bay 403 of ICT-1 at Durg PS	20-Jan-17	9:00	20-Jan-17	18:00	Daily	AMP	WRTS-I	WRTS-I	R	Bay
597	220	220 KV RAIGARH-RAIGARH CSEB CKT-3 LINE BAY- 208L (Raigarh ss)	20-Jan-17	10:00	20-Jan-17	16:00	Daily	AMP 2016-17		WRTS-I	R	LINE
598	400	SOLAPUR_412 MAIN BAY_400KV KARAD-SOLAPUR	20-Jan-17	9:00	20-Jan-17	18:00	Continuous	AMP AND SF6 LEKAGAE ARRESTING WORKS	WRTS-I	WRTS-I	R	BAY
599	765	765 KV BUS-1 at Wardha	20-Jan-17	9:00	21-Jan-17	18:00	Continuous	Bus Extension work for 765 KV for Nizamabad Bays	WRTS-I	WRTS-I	R	BUS
600	400	Mundra - Sami Line 1	20-Jan-17	8:30	20-Jan-17	18:00	Daily	Tower modification due to new canal crossing under existing transmission line	ATIL	SSNL (Govt of Guj.)		
601	400	CGPL 408 GT#20 Tie Breaker	20/Jan/17	8:00	20/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		
602	400/220kV	400/220/33kV, 500MVA ICT3 @	20-Jan-17	9:00	20-Jan-17	18:00	Daily	Bay maintenance, cold welding and testing work at 400kV Girwali ss & ICT-3 Bushing, Winding Tan Delta Measurement, LV CT Tan Delta Measurement, HV CB DCRM Testing & Aux. Protection Trials	MSETCL	MSETCL		
603	765KV	Tie Bay of ICT-2 at Koradi III Sub Station.	20-Jan-17	7:00	20-Jan-17	20:00	Daily	Annual Maintenance of bays equipment	MEGPTCL	MEGPTCL		
604	400kV	Station Transformer -2 at Tiroda Plant	20-Jan-17	7:00	21-Jan-17	20:00	Continuous	Staion Transformer Testing & Bay Equipment maintenance	APML	APML		
605	400/220/33 KV	315 MVA ICT-1 through 400 KV T	20-Jan-17	10:00 Hrs	20-Jan-17	15:00 Hrs	Daily	CB testing	MSETCL	MSETCL		
606	400KV	400KV B-bus with B/C @ Kharghar	20-Jan-17	9:00	20-Jan-17	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
607	400KV	400 kV 403 Tie Bay of ICT & Aurangabad-I at 400 kV Akola	20-Jan-17	10:00	20-Jan-17	17:00	NA	Quarterly Maintenance and Testing Work	MSETCL	MSETCL	A'Bad Ckt 01 and ICT 01 will be in service through respective main bays	
608	400kV	Chandrapur II - Nanded line (Ckt II)	20-Jan-17	8:00	21-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		

609	400kV	Chandrapur GCR - Parali Ckt III	20-Jan-17	8:00	21-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
610	220	220 KV DAMOH(PG)- DAMOH I/C - I	20/Jan/17	10:00	20/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
611	400	RAPP#1 Main Bay(413) at Shujapur	20/Jan/17	10:00	20/Jan/17	18:00	Daily	For AMP works	POWERGR	WR-II	C	
612	400	Bus Reactor#2 Tie Bay at Itarsi	20/Jan/17	9:00	20/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
613	765	Bay 714,tie bay for 765 KV .Vadodara line at Indore PS	20/Jan/17	10:00	20/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
614	765	765kV Gwalior-Satna#1 L/R (non switchable) at Gwalior	20/Jan/17	9:00	31/Jan/17	18:00	Continous	Dismantaling of BPI, Construction , commissioning and Testing of Circuit Breaker for making Satna#1 L/R as switchable. Line will be taken back into service within 15 min after taking reactor out.	POWERG RID	WR-II	C	
615	765	765kV ICT # 2 Main bay (709) at Gwalior	20/Jan/17	10:00	21/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
616	220	BUS-I at Damoh	20/Jan/17	9:00	20/Jan/17	18:00	Daily	Jumper Connection & Bus bar Stability test between existing & new system (Extension of 400/220KV Damoh Sub-station Work execution by M/s Techno Electricals)	POWERGR	WR-II	C	
617	400	Essar - Bhachau ckt.1	20/Jan/17	8:00	20/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Ckt.2 to be kept in non auto mode during the period.	POWERGR	WR-II		
618	400	Bay 415 (Bus Reactor MAIN Bay) at Rajgarh Substation	20/Jan/17	10:00	20/Jan/17	17:00	DAILY	Annual Maintenance of CB and CT at Rajgarh Substation	POWERGR	WR-II	R	
619	765KV	765KV Sasan-Satna Line reactor (non switchable) #2	20/Jan/17	9:00	20/Jan/17	18:00	Daily	For taking of spare reactor into service first time along with this line	POWERGR	WR-II	C	
620	400	Vadodara-Asoj-2 Main Bay at Asoj end	20/Jan/17	10:00	20/Jan/17	18:00	Daily	AMP of CB	POWERGR	WR-II		
621	400kv	406 main bay of ICT #2 at Vchal PS	20/Jan/17	9:30	20/Jan/17	17:30	Daily	For CSD fine tuning	POWERGR	WR-II		
622	400	ICT-1 at Pirana	20/Jan/17	10:00	20/Jan/17	14:00	DAILY	AMP WORK	POWERGR	WR-II	R	
623	400	400KV Vandana-Birsinghpur Line	20/Jan/17	10:00	20/Jan/17	18:00	Daily	AMP works of bay equipment at both ends	PGCIL	WR-II	R	
624	400	Bus Reactor (406 bay) at Kala	20/01/2017	10:00	20/01/2017	14:00	Daily	AMP of Bus reactor and associated bay	POWERGR	WR-II	R	
625	400	Bina - Shujalpur Ckt.2	20-Jan-17	8:00	21-Jan-17	18:00	Daily	Replacement of disc insulators with polymer to prevent tripping due to heavy pollution	POWERGR	WR-II	R	
626	220kv	220KV Boisar(PG)-Boisar(MSETCL) line-II	20-Jan-17	9:00	20-Jan-17	18:00	Daily	AMP Work.	POWERGR	WR-II	R	
627	220	BUS COUPLER (Bay-204)	21-Jan-17	9:00	21-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
628	400	400kV BUS#1 at Durg PS	21-Jan-17	9:00	25-Jan-17	18:00	Daily	For stablity & Extension of Bus#1 for 765kV ICT#2	WRTS-I	WRTS-I	C	Bay
629	220	220kv Bhilai Bay(207-52) at Raip	21-Jan-17	9:30	21-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
630	400	ICT_1_315 MVA_400KV at Seoni	21-Jan-17	10:00	21-Jan-17	18:00	Daily	AMP testing work	WRTS-I	WRTS-I	R	ICT

631	400	SOLAPUR_415 MAIN BAY_400KV KOLHAPUR-SOLAPUR#1	21-Jan-17	9:00	21-Jan-17	18:00	Continuous	AMP AND SF6 LEKAGAE ARRESTING WORKS	WRTS-I	WRTS-I	R	BAY
632	400	400 kV ACBIL Main Bay 413 at B	21-Jan-17	9:00	21-Jan-17	18:00	Daily	CB DCRM Testing And Dew point Measurement	WRTS-I	WRTS-I	R	Bay
633	765	703 Main Bay of 765KV ,S/C Dh	21-Jan-17	9:00	21-Jan-17	18:00	Daily	For AMP Works	BDTCL	Sterlite	R	
634	220	Itarsi Bay at Itarsi	21/Jan/17	9:00	21/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
635	220	BUS-II at Damoh	21/Jan/17	9:00	21/Jan/17	18:00	Daily	Jumper Connection & Bus bar Stability test between existing & new system (Extension of 400/220KV Damoh Sub-station Work execution by M/s Techno Electricals)	POWERGR	WR-II	C	
636	220	BUS-1 at Bina	21/Jan/17	9:30	21/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
637	400	Essar - Bhachau ckt.2	21/Jan/17	8:00	21/Jan/17	18:00	Daily	For installation of Bird divertors on earthwire as per the directions of Bird century authorities. A/R of Ckt.1 to be kept in non auto mode during the period.	POWERGR	WR-II		
638	400KV	400KV JP Nigri-Satna Line#1 Main Bay (402bay) at Satna SS	21/Jan/17	9:00	21/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
639	765	765/400 kv ICT#1 at Vchal PS	21/Jan/17	9:30	21/Jan/17	17:30	Daily	For cleaning & AMP work	POWERGR	WR-II		
640	220kv	220kv Trasfer Bus of Boisar PG	21-Jan-17	9:00	21-Jan-17	18:00	Daily	AMP Work.	POWERGR	WR-II	R	
641	400KV	400 KV PGCIL -(Wardha)-Koradi	22-Jan-17	8:00	22-Jan-17	17:00	Daily	Tan delta of line CVT& CRM of CB(bay 413)at PGCIL(Deoli) end.	MSETCL	MSETCL		
642	765	702 Tie Bay of 765KV ,S/C Dhul	22-Jan-17	9:00	22-Jan-17	18:00	Daily	For AMP Works	BDTCL	Sterlite	R	
643	400KV	400KV side Main Bay of 765KV ICT#1 (403bay) at Satna SS	22/Jan/17	9:00	22/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
644	765	AURANGABAD (PG)_ ICT2 765/400kV 1500 MVA	23-Jan-17	8:00	25-Jan-17	18:00	Daily	for RTV coating on HV Bushings	WRTS-I	WRTS-I	C	ICT
645	400	TIE_ICT2_1500MVA - BOISAR 2 (Tie Bay-426)	23-Jan-17	9:00	23-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
646	400	400 KV ICT-1 Tie Bay-420	23-Jan-17	9:00	24-Jan-17	17:30	Daily	AMP	POWERG RID	POWERG RID	R	Bay
647	400	Tie Bay 402 of ICT-1 at Durg PS	23-Jan-17	9:00	23-Jan-17	18:00	Daily	AMP	WRTS-I	WRTS-I	R	Bay
648	400	125 MVAR Bus Reactor at Kolhapur	23-Jan-17	10:00	23-Jan-17	18:00	Daily	Commissioning of buchholz gas Collecting device.	WRTML/ WRTS-I	WRTS-I	R	BR
649	765	765KV BUS REACTOR 02 TIE BAY(711) AT DHARAMJAYGARH(KORBA) SS	23-Jan-17	9:00	23-Jan-17	18:00	Daily	DCRM and travel measurement of CIRCUIT BREAKER	WRTS-I	WRTS-I	R	BAY
650	400	400kV TIE BAY_LARA(NTPC)-KOTRA PS II AT KOTRA PS	23-Jan-17	9:00	23-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
651	400	400 kV Kop-1-ICT-1 tie Bay - 411 Bay at mapusa	23-Jan-17	9:00	23-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
652	220	220KV Bus coupler bay (206-52) at Raipur SS	23-Jan-17	9:30	23-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
653	400	ICT 2 315 MVA 400KV at Seon	23-Jan-17	10:00	23-Jan-17	18:00	Daily	AMP testing work	WRTS-I	WRTS-I	R	ICT
654	400	SOLAPUR_407 MAIN BAY 400KV ICT#2	23-Jan-17	9:00	23-Jan-17	18:00	Continuous	AMP AND SF6 LEKAGAE ARRESTING WORKS	WRTS-I	WRTS-I	R	BAY
655	220	204 BAY(transfer bus coupler) at pune talegaon	23-Jan-17	9:00	23-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
656	400	400 kV MCCPL Main Bay 416 at	23-Jan-17	9:00	23-Jan-17	18:00	Daily	CB DCRM Testing And Dew point Measurement	WRTS-I	WRTS-I	R	Bay
657	400	CGPL 409 GT#20 Breaker	23/Jan/17	8:00	23/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		

658	220	Bhilad - Vapi (PG) line No. 1	23-Jan-17	9:00	23-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
659	400kV	Station Transformer -1 at Tiroda Plant	23-Jan-17	7:00	24-Jan-17	20:00	Continuous	Staion Transformer Testing & Bay Equipment maintenance	APML	APML		
660	400KV	Tie Bay of ICT-2 and bus reactor at Koradi III Sub Station.	23-Jan-17	7:00	23-Jan-17	20:00	Daily	Annual Maintenance of bays equipment	MEGPTCL	MEGPTCL		
661	400/220kV	315MVA ICT-2 @ NewKoyna	23-Jan-17	8:00	23-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work				
662	400KV	400KV DHL- BBLLR line C-I&C-II	23-Jan-17	9:00	24-Jan-17	17:00	daily	PID testing	MSETCL	MSETCL		
663	400kV	Chandrapur II - Nanded line (Ckt II)	23-Jan-17	8:00	24-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
664	400kV	Chandrapur GCR - Parali Ckt III	23-Jan-17	8:00	24-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
665	220	220 KV ANOOPUR - KOTMIKALA CKT - II	23/Jan/17	10:00	23/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
666	400	Gandhar 400KV Hazira #1	23-Jan-17	8:00	24-Jan-17	18:00	ContinuousE	Annual bay maintenance and protection checking	NTPC	NTPC		
667	765	701 Main Bay of 765/400 KV ,ICT	23-Jan-17	9:00	23-Jan-17	18:00	Daily	For AMP Works	BDTCL	Sterlite	R	
668	220	ICT#2 Main Bay(206) at Shujalpur	23/Jan/17	10:00	23/Jan/17	14:00	Daily	For AMP works	POWERGR	WR-II	C	
669	220	ICT#1 Bay at Itarsi	23/Jan/17	9:00	23/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		
670	765	Bay 711, tie bay for 765 KV,Bhopal-Indore line at Indore PS	23/Jan/17	10:00	24/Jan/17	18:00	Daily	For Bay AMP	POWERGR	WR-II		
671	765	712 LRB (Bina#1 L/R Bay) at Gwalior	23/Jan/17	10:00	23/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
672	400KV	400KV JP Nigri-Satna Line#2 Main Bay (404bay) at Satna SS	23/Jan/17	9:00	23/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
673	400	Asoj-Indore Ckt#2	23/Jan/17	10:00	23/Jan/17	18:00	Daily	AMP of Line Reactor	POWERGR	WR-II		
674	400KV	ICT-II at Vapi	23/Jan/17	9:00	23/Jan/17	17:00	Daily	AMP	POWERGR	WR-II	C	
675	765	765/400 kv ICT#2 at Vchal PS	23/Jan/17	9:30	23/Jan/17	17:30	Daily	For cleaning & AMP work	POWERGR	WR-II		
676	400	BOISAR 2 (Main Bay-427) at Aurangabad	24-Jan-17	9:00	24-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
677	HVDC	HVDC CWC filter 36	24 Jan 17	9:00	24 Jan 17	18:00	Daily	AMP work by Bhadrawati SS	WRTS-I	WRTS-I	R	Bay
678	400	400 kV MCCPL Main Bay 417 at	24-Jan-17	9:00	24-Jan-17	18:00	Daily	For AMP Works	WRTS-I	WRTS-I	R	Bay
679	400	400KV Main Bay (Bay No: 403) of Mapusa-I at Kolhapur	24-Jan-17	10:00	24-Jan-17	18:00	Daily	Main bay AMP works.	WRTML/ WRTS-I	WRTS-I	R	Bay
680	765	765KV BILASPUR MAIN BAY(712) AT DHARAMJAYGARH(KORBA) SS	24-Jan-17	9:00	24-Jan-17	18:00	Daily	DCRM and travel measurement of CIRCUIT BREAKER	WRTS-I	WRTS-I	R	BAY
681	400	400kV MAIN BAY_LARA(NTPC)-KOTRA PS I	24-Jan-17	9:00	24-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
682	400	400 kV ICT-1 main Bay - 410 Bay at mapusa	24-Jan-17	9:00	24-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
683	400	400 kv BUS 3 at Raipur SS	24-Jan-17	9:30	24-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BUS
684	220	SEONI1 (MP)_LINE at Seoni	24-Jan-17	8:00	24-Jan-17	18:00	Daily	For AMP work	WRTS-I	WRTS-I	R	Line
685	400	SOLAPUR_315 MVA_400KV ICT#1	24-Jan-17	10:00	24-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	ICT
686	220	209 BAY (220KV side of ICT# 3) at Pune (Talegaon)	24-Jan-17	9:00	24-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
687	220	Bhilad - Vapi (PG) line No. 2	24-Jan-17	9:00	24-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
688	220	220 KV BINA(PG)-SHIVNPURI CKT	24/Jan/17	9:00	25/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
689	220	Bus#1 at Itarsi	24/Jan/17	9:00	24/Jan/17	18:00	Daily	AMP Works	POWERGR	WR-II		

690	400	400kVSide765kV ICT # 1 Main Bay(410) at Gwalior	24/Jan/17	10:00	24/Jan/17	18:00	Daily	AMP WORKS	POWERGRID	WR-II		
691	220	BUS-2 at Bina	24/Jan/17	9:30	24/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
692	400KV	400KVICT#2 Main Bay (406Bay) at Satna SS	24/Jan/17	9:00	24/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
693	765	Vadodara-Dhule Line	24/Jan/17	10:00	24/Jan/17	17:00	Daily	RTV Coating of Bushing of Line reactor	STERLITE	WR-II		
694	400	ICT1_315MVA (Main Bay-401)	25-Jan-17	9:00	25-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
695	400	TIE Bay of GMR # 2, 423 at Durg PS	25-Jan-17	9:00	25-Jan-17	18:00	Daily	Bay AMP	WRTS-I	WRTS-I	R	Bay
696	400	400kV MAIN BAY_LARA(NTPC)-KOTRA PS II at Kotra PS	25-Jan-17	9:00	25-Jan-17	18:00	Daily	AMP 2016 - 2017	WRTS-I	WRTS-I	R	BAY
697	400	400 kV Kop-2-ICT-2 tie Bay - 408 Bay at mapusa	25-Jan-17	9:00	25-Jan-17	17:30	Daily	AMP	WRTS-1	WRTS-I	R	Bay
698	220	SEONI2 LINE at Seoni	25-Jan-17	8:00	25-Jan-17	18:00	Daily	For AMP work	WRTS-I	WRTS-I	R	Line
699	400	400KV KOLHAPUR-SOLAPUR#2	25-Jan-17	9:00	25-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	LINE
700	220	211 BAY (Main bay of 220KV Chakan Line # 2)	25-Jan-17	9:00	25-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	Bay
701	220	Bhilad - Vapi (PG) line No. 3	25-Jan-17	9:00	25-Jan-17	18:00	Daily	Maintenance work	GETCO	GETCO		
702	400kV	400kV Parli PGCIL ckt-1 @ Parli	25-Jan-17	9:00	25-Jan-17	17:00		Bay maintenance and testing work at 400kV Girwali ss	MSETCL	MSETCL		
703	400/220kV	105MVA spare ICT @ NewKoyna	25-Jan-17	8:00	25-Jan-17	18:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
704	400KV	400 KV Transfer Bus Coupler (TBC Bay) @ Karad	25-Jan-17	8:00	25-Jan-17	20:00	Daily	Replacement of old CTs by new one due to life more than 25 Years	MSETCL	MSETCL		
705	400/220kV	3x167 MVA ICT-II @ Lamboti	25-Jan-17	10:00	25-Jan-17	18:00	Daily	Quarterly Maintenance				
706	400KV	400 kV 404 Main Bay Aurangabad-I at 400 kV Akola	25-Jan-17	10:00	25-Jan-17	17:00	NA	Quarterly Maintenance and Testing Work	MSETCL	MSETCL	A'Bad Ckt 01 will be in service through tie bay 403 and ICT 01 will be in service through main bay 402.	
707	220	220 KV RAJGARH(PG)-PITHAMPUR CKT-II	25/Jan/17	9:00	25/Jan/17	16:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
708	220	220 KV DAMOH(PG)- DAMOH I/C - II	25/Jan/17	10:00	25/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
709	220	ICT#1 Main Bay(208) at Shujalpur	25/Jan/17	10:00	25/Jan/17	14:00	Daily	For AMP works	POWERGR	WR-II	C	
710	400	ICT#II main bay(Bay 413) at Indore PS	25/Jan/17	10:00	25/Jan/17	18:00	conti	For bay AMP and attending bay unbalance current	POWERGR	WR-II		
711	400	400kV Side765KV # 1&400KV B/R#3 Tie Bay (411) at Gwalior	25/Jan/17	10:00	25/Jan/17	18:00	Daily	AMP WORKS	POWERGRID	WR-II		
712	400KV	400KV 50MVAR Bus Reactor Main Bay (407bay) at Satna SS	25/Jan/17	9:00	25/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
713	765	Vadodaa-Dhule Line	25/Jan/17	10:00	25/Jan/17	17:00	Daily	RTV Coating of Bushing of Line reactor	STERLITE	WR-II		
714	400KV	ICT-I at Vapi	25/Jan/17	9:00	25/Jan/17	17:00	Daily	AMP	POWERGR	WR-II	C	
715	765kv	BUS-1 at Vchal PS	25/Jan/17	9:30	25/Jan/17	17:30	Daily	For CRM of bus isolator in SASAN DIA	POWERGR	WR-II		
716	400	400kV BUS#2 at Durg PS	26-Jan-17	9:00	30-Jan-17	18:00	Daily	For stablity & Extension of Bus#2 for 765kV ICT#2	WRTS-I	WRTS-I	C	Bay

717	765	765KV ICT#01 MAIN BAY(713) AT DHARAMJAYGARH(KORBA) SS	26-Jan-17	9:00	26-Jan-17	18:00	Daily	DCRM and travel measurement of CIRCUIT BREAKER	WRTS-I	WRTS-I	R	BAY
718	400	400KV ICT # 3 Main Bay (413) at Gwalior	26/Jan/17	10:00	26/Jan/17	18:00	Daily	AMP WORKS	POWERGRID	WR-II		
719	400KV	400KV Satna-Bina Line#2 Tie Bay (411Bay) at Satna SS	26/Jan/17	9:00	26/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
720	765kv	704 LR bay along with line reactor of SATNA#1 at Vchal PS	26/Jan/17	9:30	26/Jan/17	17:30	Daily	For AMP work	POWERGR	WR-II		
721	400	400kV WARDHA-AKOLA I	27-Jan-17	8:00	28-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 61/0 & 62/0 (Wardha-Akola Tr Line tower nos.10 to 11)	WRTS-I	WRTS-I	C	Line
722	400	400kV WARDHA-AKOLA II	27-Jan-17	8:00	28-Jan-17	18:00	Daily	Powerline crossing works of 765kV D/C Hyderabad-Wardha between tower location Nos 61/0 & 62/0 (Wardha-Akola Tr Line tower nos.10 to 11)	WRTS-I	WRTS-I	C	Line
723	765	AURANGABAD (PG)_PADGHE(PG) I SLR 765kV 240 MVAR	27-Jan-17	8:00	29-Jan-17	18:00	Daily	for RTV coating on HV Bushings	WRTS-I	WRTS-I	C	LR
724	220	SEB-1 (Chittegaon-2 Bay-206) at Aurangabad	27-Jan-17	9:00	27-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
725	400	Durg-GMR # 1 Line	27-Jan-17	9:00	27-Jan-17	18:00	Daily	AMP of Line bay equipment at Durg PS	WRTS-I	WRTS-I	R	Line
726	400	400KV Tie Bay (Bay No: 402) of Kudgi-I and Mapusa-II at Kolhapur	27-Jan-17	10:00	27-Jan-17	18:00	Daily	Tie BAY AMP works.	WRTML/ WRTS-I	WRTS-I	R	BAY
727	765	765KV ICT#02 MAIN BAY(716) AT DHARAMJAYGARH(KORBA) SS	27-Jan-17	9:00	27-Jan-17	18:00	Daily	DCRM and travel measurement of CIRCUIT BREAKER	WRTS-I	WRTS-I	R	BAY
728	400	400 kv BUS 4 at Raipur SS	27-Jan-17	9:30	27-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BUS
729	220	CHINDWARA1 LINE at Seoni	27-Jan-17	8:00	27-Jan-17	18:00	Daily	AMP testing work	WRTS-I	WRTS-I	R	Line
730	400	400KV KOLHAPUR-SOLPAUR#1	27-Jan-17	9:00	27-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	LINE
731	400	400 KV BUS-1 at Pune (Talegaon)	27-Jan-17	9:00	27-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	BUS
732	400	Sami - Dehgam Line 2	27-Jan-17	8:30	27-Jan-17	18:00	Daily	Tower modification due to new over bridge construction under existing transmission line	ATIL	Road & Building Dision (Govt of Gui.)		
733	400	CGPL 415 GT #30 Breaker	27/Jan/17	8:00	27/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		
734	400KV	400kv Chakan-Lonikand Line at	27-Jan-17	9:00	27-Jan-17	17:00	Daily	Routine Maintenance & Dignostic testing work	MSETCL	MSETCL		
735	400kV	Babhaleshwar-Padghe-Ckt-1@Padghe	27-Jan-17	8:00	27-Jan-17	18:00	Daily	Routine R&M work and Dignostic Testing work.	MSETCL	MSETC		
736	400 kV	400 kV Koradi- Bhusawal Line	27-Jan-17	10:00	27-Jan-17	17:00	NA	Routine Maintenance Work on Line with Line Braker off from both end	MSETCL	MSETCL	400 kV Akola-Bhusawal, 400 kV Akola-Nandgaonpeth & 400 kV Koradi-Nandgaonpeth are in service.	

737	400kV	Chandrapur II - Nanded line (Ckt II)	27-Jan-17	8:00	28-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
738	400kV	Chandrapur GCR - Parali Ckt III	27-Jan-17	8:00	28-Jan-17	18:00	Daily	PID Work, shifting of Auto reclose swich to non auto mode	MSETCL	MSETCL		
739	220	220 KV ANOOPUR - KOTMIKALA CKT - I	27/Jan/17	10:00	27/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
740	400	Gandhar 400KV Hazira #2	27-Jan-17	8:00	28-Jan-17	18:00	Continuous Basis	Annual bay maintenance and protection checking	NTPC	NTPC		
741	220	220 KV Bus-Coupler Bay(207) at Shujalpur	27/Jan/17	10:00	27/Jan/17	14:00	Daily	For AMP works	POWERGR	WR-II	C	
742	400	ICT#II tie bay(Bay 414) at Indore PS	27/Jan/17	10:00	27/Jan/17	18:00	conti	For bay AMP and attending bay unbalance current	POWERGR	WR-II		
743	400	400kV Side765KV ICT# 2& 400KV ICT#3 Tie Bay (414) at Gwalior	27/Jan/17	10:00	27/Jan/17	18:00	Daily	AMP WORKS	POWERG RID	WR-II		
744	400KV	400KV V'chal Satna Line#2 Main Bay (412Bay) at Satna SS	27/Jan/17	9:00	27/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
745	400KV	Vapi-Kala-2 line	27/Jan/17	9:00	27/Jan/17	17:00	Daily	AMP	POWERGR	WR-II	C	
746	400kv	408 tie bay of ICT#3 at Vchal PS	27/Jan/17	9:30	29/Jan/17	17:30	Daily	stringing & construction work	POWERGR	WR-II		
747	220kv	220KV Boisar(PG)-Boisar(MSETCL) line-III	27-Jan-17	9:00	27-Jan-17	18:00	Daily	AMP work of line equipments	POWERGR	WR-II	R	
748	220	SEB-2 (Chittegaon-1 Bay-207)	28-Jan-17	9:00	28-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
749	765	SOLAPUR_707_MAIN BAY_765KV AURANGABAD-SOLAPUR#1	28-Jan-17	9:00	28-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BAY
750	765KV	ICT-1 at Koradi III Sub Station	28-Jan-17	7:00	28-Jan-17	20:00	Daily	Annual Maintenance of ICT-1	MEGPTCL	MEGPTCL		
751	400kV	Babhaleshwar-Padghe-Ckt-2@Padghe	28-Jan-17	8:00	28-Jan-17	18:00	Daily	Routine R&M work and Dignostic Testing work.	MSETCL	MSETCL		
752	220 KV	Boiser (M) BUS- II	28-Jan-17	9:00	29-Jan-17	17:00	Continuous	Bus isolator maint.	MSETCL	MSETCL		
753	220	220 KV RAJGARH(PG)- DHAR CKT	28/Jan/17	9:00	28/Jan/17	16:00	daily	TIGHTENING OF JUMPER CONE & ARCHING HORN& OTHER MAINTENANCE WORK	MPPTCL	MPPTCL	R	
754	220	220 KV Transfer Bus Coupler Bay(205) at Shujalpur	28/Jan/17	10:00	28/Jan/17	14:00	Daily	For AMP works	POWERGR	WR-II	C	
755	400	Main bay(bay 418) for Indore-Indore(MPPTCL) at Indore PS	28/Jan/17	10:00	28/Jan/17	18:00	conti	For bay AMP and attending bay unbalance current	POWERGR	WR-II		
756	220	BUS-I at Damoh	28/Jan/17	9:00	28/Jan/17	18:00	Daily	Jumper Connection & Bus bar Stability test between existing & new system (Extension of 400/220KV Damoh Sub-station Work execution by M/s Techno Electricals)	POWERGR	WR-II	C	
757	400	BUS-1 at Bina	28/Jan/17	9:30	28/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
758	220	Navsari- Navsari GETCO 2	28/Jan/17	9:00	28/Jan/17	18:00	Daily	02 nos CVT oil leakage arresting /replacement	POWERGR	WR-II	R	
759	400	315MVA ICT # 2 at Dehgam	28/Jan/17	8:00	31/Jan/17	18:00	cont.	Replacement of R Phase Turret CT gasket	POWERGR	WR-II	R	
760	400KV	400KV Satna Bina Line#1 Main Bay (413Bay) at Satna SS	28/Jan/17	9:00	28/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	

761	400	Sami - Dehgam Line 1	29-Jan-17	8:30	29-Jan-17	18:00	Daily	Tower modification due to new over bridge construction under existing transmission line	ATIL	Road & Building Dision (Govt of Guj.)		
762	220	BUS-II at Damoh	29/Jan/17	9:00	29/Jan/17	18:00	Daily	Jumper Connection & Bus bar Stability test between existing & new system (Extension of 400/220KV Damoh Sub-station Work execution by M/s Techno Electricals)	POWERGR	WR-II	C	
763	400KV	400KV Satna Bina Line#1 Tie Bay (414bay) at Satna SS	29/Jan/17	9:00	29/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
764	765	AURANGABAD (PG)_PADGHE(PG) II SLR 765kV 240 MVAR	30-Jan-17	8:00	30-Jan-17	18:00	Daily	for RTV coating on HV Bushings	WRTS-I	WRTS-I	C	LR
765	220	SEB-3 (Shendra-1 Bay-208)	30-Jan-17	9:00	30-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
766	765	400 KV ICT-3 Tie Bay-423 at Cha	30-Jan-17	9:00	31-Jan-17	17:30	Daily	AMP	POWERGRID	POWERGRID	R	Bay
767	400	ICT-2 Main Bay(416-52) at Raipu	30-Jan-17	9:30	30-Jan-17	17:30	Daily	AMP work at Raipur	WRTS-I	WRTS-I	R	BAY
768	400	SOLAPUR_63MVAR 400KV BUS REACTOR	30-Jan-17	9:00	30-Jan-17	18:00	DAILY	AMP WORKS	WRTS-I	WRTS-I	R	BR
769	400	400 KV BUS-1 at Pune (Talegaon)	30-Jan-17	9:00	30-Jan-17	18:00	Daily	For AMP works	WRTS-I	WRTS-I	R	BUS
770	400	CGPL 416 Limdi -1 Breaker	30/Jan/17	8:00	30/Jan/17	19:00		Breaker PM & Testing	**CGPL**	**CGPL**		
771	400KV	400KV DHL- BBLLR line C-I&C-II	30-Jan-17	9:00	31-Jan-17	17:00	daily	PID testing	MSETCL	MSETCL		
772	400	400 kv DAMOH- KATNI CKT I	30/Jan/17	10:00	30/Jan/17	17:00	daily	MAINTENANCE WORK	MPPTCL	MPPTCL	R	
773	765	712 Bay (Main Bay of Bina#1 Line) at Gwalior	30/Jan/17	10:00	30/Jan/17	18:00	Daily	AMP WORKS	POWERGRID	WR-II		
774	400KV	400KV V'chal Satna Line#1 Main Bay (415Bay) at Satna SS	30/Jan/17	9:00	30/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	
775	765kv	708 tie bay of ICT#3 at Vchal PS	30/Jan/17	9:30	30/Jan/17	17:30	Daily	stringing & construction work	POWERGR	WR-II		
776	220	SEB-4 (Shendra-2 Bay-209)	31-Jan-17	9:00	31-Jan-17	18:00	Daily	For AMP Works at Aurangabad	WRTS-I	WRTS-I	R	Bay
777	220	220 KV ANOOPUR - KOTMIKALA CKT - II	31/Jan/17	10:00	31/Jan/17	17:00	daily	LINE MAINTENANCE WORK	MPPTCL	MPPTCL	R	
778	400	400KV, Indore-Indore(MPPTCL) line #II	31/Jan/17	10:00	31/Jan/17	18:00	conti	For replacement of 400KV R-phase CT at MPPTCL END.	POWERGR	WR-II		
779	400	BUS-2 at Bina	31/Jan/17	9:30	31/Jan/17	18:00	Daily	AMP WORKS	PGCIL	WR-II	R	
780	400KV	400KV Satna Bina Line#4 Main Bay (416Bay) at Satna SS	31/Jan/17	9:00	31/Jan/17	18:00	Daily	For AMP work	POWERGR	WR-II	R	

अनुलग्नक 3.3

दिसम्बर 2016 और जनवरी 2017 माह के लिये अपेक्षित मांग एवं ऊर्जा की आवश्यकता

ANTICIPATED DEMAND AND ENERGY REQUIREMENT FOR DECEMBER 2016 AND JANUARY 2017

राज्य	State	मांग DEMAND मेगावाट (MW)		ऊर्जा की आवश्यकता ENERGY REQUIREMENT मिलियन युनिटस (MUs)	
		दिसम्बर 2016 DECEMBER 2016	जनवरी 2017 JANUARY 2017	दिसम्बर 2016 DECEMBER 2016	जनवरी 2017 JANUARY 2017
1 गुजरात	GUJARAT				
सीमित	RESTRICTED	13200	13300	8290	8340
असीमित	UNRESTRICTED	13240	13350	8300	8350
2 मध्य प्रदेश	MADHYA PRADESH				
सीमित	RESTRICTED	9500	9700	5650	5700
असीमित	UNRESTRICTED	9500	9700	5650	5700
3 छत्तीसगढ़	CHHATISGARH				
सीमित	RESTRICTED	3470	3584	1879	2031
असीमित	UNRESTRICTED	3470	3584	1879	2031
4 महाराष्ट्र	MAHARASHTRA				
सीमित	RESTRICTED	21200	21300	14250	14300
असीमित	UNRESTRICTED	21250	21350	14300	14350
5 गोवा	GOA				
सीमित	RESTRICTED	530	540	310	315
असीमित	UNRESTRICTED	535	545	315	320
6 दमन दीव	DD				
सीमित	RESTRICTED	305	310	205	200
असीमित	UNRESTRICTED	310	315	205	200
7 डी एन एच	DNH				
सीमित	RESTRICTED	760	765	480	490
असीमित	UNRESTRICTED	760	765	480	490
8 पश्चिम क्षेत्र	WESTERN REGION				
सीमित	RESTRICTED	50200	50250	3100	31500
असीमित	UNRESTRICTED	50300	50350	31100	31700

अनुलग्नक 4.1

माह नवम्बर 2016 की योजनाबध्द बनाम वास्तविक उत्पादन एवं उपलब्धता

ACTUAL GENERATION & AVALABILITY FOR NOVEMBER 2016

कमांक Sr. No.	स्टेशन का नाम Station Name	Schedule योजना ऊर्जा Energy (Gwh)	Schedule योजना चरम Peak (Mw)	Actual वास्तविक ऊर्जा Energy (Gwh)	Actual वास्तविक चरम Peak (Mw)	Auxillary Consumption (Gwh)
क (A)	**गुजरात GUJARAT**					
	जलीय HYDRO					
1.	उकई Ukai - 1			16.37	75	
	उकई Ukai - 2			15.34	75	
	उकई Ukai - 3			16.04	75	
	उकई Ukai - 4			11.79	75	
	उकई Ukai (Total)	**42**	**150**	**59.54**	**150**	**0.000**
2.	उकई एल बी सी एच Ukai LBCH - 1			0.79	3	
	उकई एल बी सी एच Ukai LBCH - 2			1.00	3	
	उकई एल बी सी एच Ukai LBCH (Total)	**2**	**3**	**1.79**	**4**	**0.023**
3.	कडाना Kadana - 1			2.78	62	0.000
	कडाना Kadana - 2			4.77	75	0.000
	कडाना Kadana - 3			1.39	57	
	कडाना Kadana - 4			3.58	62	0.015
	कडाना Kadana (Total)	**16**	**120**	**4.93**	**60**	**0.015**
4.	पनम PANAM & Madhuban Dam 1 & 2	0	0	3.46	9	0.027
6.	**कुल जलीय TOTAL(H)**	**60**	**273**	**69.72**	**225**	**0.463**
	तापीय THERMAL					
1	टोरेन्ट पावर लिमिटेड युनिट सी	42	60	0.00	0	0.060
2	टोरेन्ट पावर लिमिटेड युनिट डी	85	120	24.96	124	2.829
3	टोरेन्ट पावर लिमिटेड युनिट ई	0	0	80.94	124	6.438
4	टोरेन्ट पावर लिमिटेड युनिट एफ	74	121	52.21	124	4.991
5	टोरेन्ट पावर लिमिटेड युनिट जी टी 1			0.00	0	
6	टोरेन्ट पावर लिमिटेड युनिट जी टी 2	0	0	0.00	0	
7	टोरेन्ट पावर लिमिटेड युनिट एस टी जी			0.00	0	
8	धुवरन तापीय Dhuvaran - 5	0	0	0.00	0	0.000
9	धुवरन तापीय Dhuvaran - 6	0	0	0.00	0	0.000
10	धुवरन तापीय Dhuvaran - GT 1			0.00	0	1.073
11	धुवरन तापीय Dhuvaran - GT 2	0	0	0.00	0	1.333
12	धुवरन तापीय Dhuvaran - STG			29.22	98	
13	उकाई युनिट 1 Ukai -1	70	100	0.00	0	0.405
14	उकाई युनिट 2 Ukai -2	70	100	0.00	0	0.057
15	उकाई युनिट 3 Ukai -3	36	200	117.99	202	10.835
16	उकाई युनिट 4 Ukai -4	140	200	70.92	203	7.471
17	उकाई युनिट 5 Ukai -5	19	50	101.23	212	9.080
18	उकाई युनिट 6 Ukai -6			244.46	510	13.996
19	गांधीनगर 1 Gandhinagar - 1	70	100	0.00	0	0.060
20	गांधीनगर 2 Gandhinagar - 2	70	100	0.00	0	0.055
21	गांधीनगर 3 Gandhinagar - 3	136	210	24.81	212	3.350
22	गांधीनगर 4 Gandhinagar - 4	145	210	4.86	160	1.342
23	गांधीनगर 5 Gandhinagar - 5	37	210	128.56	218	12.579
24	वणकबोरी 1 Wanakbori - 1	0	0	10.33	204	0.000
25	वाणकबौरी 2 Wanakbori - 2	145	210	20.13	210	
26	वाणकबौरी 3 Wanakbori - 3	145	210	23.69	210	
27	वाणकबौरी 4 Wanakbori - 4	89	150	7.71	206	
28	वाणकबौरी 5 Wanakbori - 5	145	210	9.31	212	
29	वाणकबौरी 6 Wanakbori - 6	145	210	6.82	211	
30	वाणकबौरी 7 Wanakbori - 7	145	210	59.21	213	
31	उत्तरन Utran GT 1	0	0	0.00	0	0.000
32	उत्तरन Utran GT 2	0	0	0.00	0	0.000
33	उत्तरन UTRAN - GT- 3	0	0	0.00	0	0.000
34	उत्तरन UTRAN - GT-4	0	0	0.00	0	0.369
35	उत्तरन UTRAN - STG-I	0	0	0.00	0	0.574
36	उत्तरन UTRAN - STG-II	0	0	0.00	0	0.000

कमांक Sr. No.	स्टेशन का नाम Station Name	Schedule योजना ऊर्जा Energy (Gwh)	Schedule योजना चरम Peak (Mw)	Actual वास्तविक ऊर्जा Energy (Gwh)	Actual वास्तविक चरम Peak (Mw)	Auxillary Consumption (Gwh)
37	सिक्का Sikka - 1	70	110	0.00	0	0.250
38	सिक्का Sikka - 2	70	110	225.52	540	21.808
39	कच्छ लिग्नाईट Kutch Lignite - 1	45	70	28.03	71	8.274
40	कच्छ लिग्नाईट Kutch Lignite - 2	45	70	21.12	67	
41	कच्छ लिग्नाईट Kutch Lignite - 3	47	75	62.00	22	
42	कच्छ लिग्नाईट Kutch Lignite - 4	0	0	42.51	75	7.866
43	सूरत लिग्नाईट Surat Lignite - 1	173	240	81.12	129	8.241
44	सूरत लिग्नाईट Surat Lignite - 2			66.93	131	7.008

45	सूरत लिग्नाईट Surat Lignite - 3			50.20	128	4.865
46	सूरत लिग्नाईट Surat Lignite - 4			57.13	128	6.365
47	एक्रीमोटा लिग्नाईट Akrimota Lignite - 1	60	100	52.76	108	8.274
48	एक्रीमोटा लिग्नाईट Akrimota Lignite - 2			40.91	110	
49	जी आई पी सी एल GIPCL GT - 1			19.39	32	0.000
50	जी आई पी सी एल GIPCL GT - 2	95	140	18.52	32	
51	जी आई पी सी एल GIPCL GT - 3			2.96	34	
52	जी आई पी सी एल GIPCL ST - 1			21.52	33	
53	जी आई पी सी एल GIPCL GT - 4	95	140	0.00	0	0.000
54	जी आई पी सी एल GIPCL ST - 2			0.00	0	
55	ई एस एस ए आर ESSAR GT - 1			0.00	0	0.000
56	ई एस एस ए आर ESSAR GT - 2	350	480	0.00	0	
57	ई एस एस ए आर ESSAR GT - 3			0.00	0	
58	ई एस एस ए आर ESSAR STG			0.00	0	
59	जी पी ई सी GPEC GT - 1			4.81	156	0.246
60	जी पी ई सी GPEC GT - 2	430	600	6.04	152	0.075
61	जी पी ई सी GPEC GT - 3			5.45	151	0.168
62	जी पी ई सी GPEC STG			4.29	155	
63	जी एस ई जी GSEG GT - 1			0.00	0	0.000
64	जी एस ई जी GSEG GT - 2	90	150	0.00	0	
65	जी एस ई जी GSEG STG			50.45	348	
66	Sugen (GT 1 + GT 2)	0	0	214.11	359	8.632
67	सीपीपी से आयात Imp from CPP+MUNDRA	50	100	2926.12	4064	
	कुल तापीय Total (T)	5277	7992	**5155.11**	**11285**	386.001
	कुल जलीय+तापीय Total (H+T)	6130	9359	**5224.83**	**13905**	386.464
	विंड इनर्जी Wind Energy			**408.48**		
	कुल जलीय+तापीय+हवा Total (H+T+Wind)			**5633.31**	**14533**	
	विनिमय Exchanges		(+)	**2433.75**		
	सीमित ऊर्जा मांग Restricted Energy Req.	8290		**8067.06**		
ख (B)	**MADHYA PRADESH मध्य प्रदेश**					
	जलीय HYDRO					
1	चम्बल परि Chambal Pr.(50%share)	50	114	70.24	187	
1.1	गांधी सागर Gandhi Sagar			16.85	102	0.070
1.2	राणा प्रताप सगर R.P.Sagar			76.58	172	0.040
1.3	जवाहर सगर Jawahar Sagar			47.05	99	0.030
2	पेन्च Pench	40	75	36.15	162	0.050
3	बारगी Bargi	50	90	45.35	96	0.070
4	बारगी Bargi (LBCH)			0.01	0	
5	बनसागर टोन्स Bansagar-1 (Tons)	130	315	134.82	323	0.380
6	बनसागर Bansagar-2 (Deolondh)	0	0	0.00	0	
7	बनसागर Bansagar-3 (Silpara)	30	60	14.02	32	0.030
8	बनसागर Bansagar-4 (Zinaha)	0	0	14.86	22	0.050
9	मेडीखेडा Medikheda	30	60	10.24	63	
10	बिरसिंघपुर Birsingpur	15	20	0.67	20	0.020
11	टावा Tawa	0	0	0.00	0	
12	राजघाट Rajghat	20	30	4.45	13	0.070
13	Omkareshwar	210	360	96.38	441	0.399
14	इंदिरा सागर Indira Sagar	610	990	234.06	1022	0.804
	कुल जलीय TOTAL(H) MPPGCL	1185	2114	625.09	2444	1.279

कमांक Sr. No.	स्टेशन का नाम Station Name	Schedule योजना ऊर्जा Energy (Gwh)	Schedule योजना चरम Peak (Mw)	Actual वास्तविक ऊर्जा Energy (Gwh)	Actual वास्तविक चरम Peak (Mw)	Auxillary Consumption (Gwh)
	तापीय THERMAL					
1	अमरकंटक II AMK II Unit -1	61	82	0.00	0	11.850
2	अमरकंटक II AMK II Unit -2			0.00	0	
3	अमरकंटक III AMK III Unit -5	0	0	124.09	223	0
4	सतपुरा I Satpura-I(60%Share)	50	67	0.00	0	0.000
5	सतपुरा II Satpura-II Unit 6	128	163	35.30	194	10.920
6	सतपुरा II Satpura-II Unit 7			74.33	190	
7	सतपुरा II Satpura-II Unit 8	122	163	0.00	0	1.020
8	सतपुरा II Satpura-II Unit 9			0.00	0	
9	सतपुरा III Satpura-III Unit 10			159.71	258	29.430
10	सतपुरा III Satpura-III Unit 11			6.20	186	8.890
11	एसजीटीपीएस 1 SGTPS Unit - 1	142	191	6.20	186	8.890
12	एसजीटीपीएस 2 SGTPS Unit - 2			76.93	211	
13	एसजीटीपीएस 3 SGTPS Unit - 3	144	194	0.00	0	11.130
14	एसजीटीपीएस 4 SGTPS Unit - 4			97.14	214	
15	एसजीटीपीएस 5 SGTPS Unit - 5	291	390	249.48	509	
16	SSTPS			527.53	1232	31.060
	कुल तापीय Total (T)	1057	1409	1705.13	2501	121.500
	कुल जलीय+तापीय Total (H+T)	2572	4036	2330.22	5193	122.779
	Injection from WIND			263.81	0	

	कुल जलीय+तापीय + विंड Total (H+T+WIND)				2594.03	5193	
	विनिमय Exchanges			(+)	2691.86		
	सीमित ऊर्जा मांग Rest. En. Req.		5650		5285.89		
ग (C)		**CHHATTISGARH छत्तीसगढ़**					
	जलीय HYDRO						
1	हसदेव बांगो Hasdeo Bango		55	120	2.46	120	0.060
2	Gangrel		6	19	0.29	10	0.010
3	Mini Micro KWB				0.86	7	
	कुल जलीय TOTAL(H) CSEB		61	139	3.61	137	0.070
	तापीय THERMAL						
1	कोरबा (पू) Korba (E) Unit-1		30	50	27.64	42	12.370
2	कोरबा (पू) Korba (E) Unit-2		30	50	27.64	44	
3	कोरबा (पू) Korba (E) Unit-3		30	50	27.64	42	
4	कोरबा (पू) Korba (E) Unit-4		30	50	27.84	44	
5	कोरबा (पू) Korba (E) Unit -5		71	120	36.85	120	13.690
6	कोरबा (पू) Korba (E) Unit -6		71	120	66.82	120	
7	कोरबा (प) Korba (W) Unit -1		125	210	116.93	210	0.000
8	कोरबा (प) Korba (W) Unit -2		125	210	116.93	210	
9	कोरबा (प) Korba (W) Unit -3		125	210	116.93	210	26.000
10	कोरबा (प) Korba (W) Unit -4		125	210	116.93	210	
11	KORBA(EB) Extn - 1 (DSPM 1)		0	250	177.66	246	26.930
12	KORBA(EB) Extn - 2 (DSPM 2		149	250	177.69	248	0.000
	कुल तापीय Total (T)				1536.38	1993	128.520
13	बालको से आयात BALCO Import				0.00	0	
14	जिन्दल से आयात JINDAL Import				0.00	0	
	कुल तापीय Total (T+IPP)		911	1780	1536.38	2308	
	कुल जलीय+तापीय Total (H+T)		966	1900	1539.99	2445	128.590
	विनिमय Exchanges			(+)	355.78	0	
	सीमित ऊर्जा मांग Rest. En. Req.		1879		1895.77	2445	
घ (D)		**MAHARASHTRA महाराष्ट्र**					
		जलीय HYDRO					
1	कोयना 1और 2 Koyna 1 & 2		74	300	137.90	570	3.493
2	कोयना III Koyna III		49	150	65.21	240	
3	कोयना IV Koyna IV		165	600	167.56	1011	
4	कोयना डीपीएच Koyna DPH		10	20	16.22	38	
5	टाटा जलीय TATA Hydro		120	444	119.53	459	2.868
6	वैतरणा Vaitarna		3	60	3.04	60	
7	एलदारी Eldari		5	10	0.00	0	
8	भटगर और वीर Bhatgar & Vir		3	5	0.00	4	
9	पैठान Paithan		0	0	1.98	56	
10	तिलारी Tillari		0	0	11.19	63	
11	भीरा टेल रेस Bhira Tail Race		9	80	5.84	80	
12	घटघर Ghatghar		37	250	32.69	328	
13	अन्य छोटे जलीय Small Hydro (others)		32	47	11.14	0	
	कुल जलीय TOTAL(H)		506	1966	592.88	459	6.361

कमांक Sr. No.	स्टेशन का नाम Station Name	Schedule योजना ऊर्जा Energy (Gwh)	Schedule योजना चरम Peak (Mw)	Actual वास्तविक ऊर्जा Energy (Gwh)	Actual वास्तविक चरम Peak (Mw)	Auxillary Consumption (Gwh)
	तापीय THERMAL					
3	नासिक 3 Nasik Unit -3	105	140	125.04	205	
4	नासिक 4 Nasik Unit -4	85	115	80.75	208	
5	नासिक 5 Nasik Unit -5	133	180	40.10	206	
6	ट्राम्बे 4 Trombay Unit -4	0	0	0.00	0	
7	ट्राम्बे 5 Trombay Unit -5	250	500	266.21	497	
8	ट्राम्बे 6 Trombay Unit -6	130	500	0.00	0	
9	ट्राम्बे 8 Trombay Unit -8	0	0	158.81	252	
10	ट्राम्बे 7अ गैस Trombay -7A (Gas)	0	0	79.05	122	3.406
11	ट्राम्बे 7ब Trombay -7B (WHR)			46.21	69	
12	कोराड़ी 5 Koradi Unit -5	65	85	0.00	0	
13	कोराड़ी 6 Koradi Unit -6	75	100	0.00	0	
14	कोराड़ी 7 Koradi Unit -7	75	100	359.73	837	
15	भुसावल 2 Bhusawal Unit -2	110	150	0.00	0	
16	भुसावल 3 Bhusawal Unit -3	100	135	0.00	0	
17	भुसावल 4 Bhusawal Unit -4	250	335	276.79	520	
18	भुसावल 4 Bhusawal Unit -5	0	0	305.68	510	
19	पारली 3 Parli Unit -3	0	0	0.00	0	
20	पारली 4 Parli Unit -4	0	0	0.00	0	
21	पारली 5 Parli Unit -5	0	0	0.00	0	
22	पारली 6 Parli Unit -6	155	210	114.14	246	
23	पारली 7 Parli Unit -7	40	55	126.43	234	
24	खापरखेड़ा 1 Khaperkheda Unit -1	80	110	114.12	200	
25	खापरखेड़ा 2 Khaperkheda Unit -2	100	135	124.30	200	
26	खापरखेड़ा 3 Khaperkheda Unit -3	350	470	120.44	207	

27	खापरखेड़ा 4 Khaperkheda Unit -4			109.30	200	
28	खापरखेड़ा 5 Khaperkheda Unit -5	135	180	310.58	505	
30	पारस Paras-3	135	180	0.00	0	
31	पारस Paras-4	200	430	150.20	251	
32	उरन Uran (Gas)	200	430	303.16	487	
33	उरन Uran (WHR)	100	220	0.00	0	5.592
34	चंद्रपुर 1 Chandrapur Unit -1	100	135	0.00	0	
35	चंद्रपुर 2 Chandrapur Unit -2	100	135	0.00	210	
36	चंद्रपुर 3 Chandrapur Unit -3	90	120	133.35	200	
37	चंद्रपुर 4 Chandrapur Unit - 4	70	95	132.37	470	
38	चंद्रपुर 5 Chandrapur Unit -5	80	110	234.30	470	
39	चंद्रपुर 6 Chandrapur Unit -6	190	255	293.15	943	
40	चंद्रपुर 7 Chandrapur Unit -7	150	200	563.14	0	
41	डहाणू 1 Dahanu Unit-1	372	500	150.23	250	14.606
42	डहाणू 2 Dahanu Unit-2			154.85	250	14.606
43	CPP	0.00	0.00	3106.21	4314.18	
44	RGPPL Share	200	300	0.00	0	
	कुल तापीय Total (T)	6290	9090	7978.65	10585	340.734
	MAH. Wind + Solar Generation			200.82	0	
	कुल जलीय +तापीय Total (H+T+Wind)	6966	9960	8772.35	11379	385.305
TOT.	विनिमय Exchanges		(+)	3409.74		
	सीमित ऊर्जा मांग Rest. En. Req.	14250		12182.08		
च (E)	**गोवा GOA**					
	आई पी पी रिलायंस IPP Reliance			16.45	28	
	विनिमय Exchanges			289.29		
	सीमित ऊर्जा मांग Rest. En. Req.	310	530	309.53	531	
छ (F)	**दमन और दीव DAMAN & DIU**			195.28	325	
ज (G)	**दादरा नगर हवेली DNH**			485.84	772	
	कुल DD &DNH (T)	133	242	681.12	1096	

कमांक Sr. No.	स्टेशन का नाम Station Name	Schedule योजना ऊर्जा Energy (Gwh)	Schedule योजना चरम Peak (Mw)	Actual वास्तविक ऊर्जा Energy (Gwh)	Actual वास्तविक चरम Peak (Mw)	Auxillary Consumption (Gwh)
(H)	**केंद्रीय क्षेत्र Central Sector**					
	1. एन पी सी N.P.C.					
1.1	तारापुर 1 TAPS Unit -1	80	160	113.34	160	18.319
1.2	तारापुर 2 TAPS Unit -2	80	160	115.65	160	
1.3	तारापुर 3 TAPS Unit -3	300	480	386.94	540	68.850
1.4	तारापुर 4 TAPS Unit -4	300	480	302.69	535	
1.5	काकरापर 1 KAPS Unit -1	125	200	0.00	540	2.944
1.6	काकरापर 2 KAPS Unit -2	125	200	0.00	535	
	कुल एन पी सी NPC Total	1010	1680	918.62	2470	
	2. एन टी पी सी N.T.P.C.					
2.1	कोरबा एसटीपीएस 1 KSTPS Unit-1			125.98	210	
2.2	कोरबा एसटीपीएस 2 KSTPS Unit-2			124.57	209	
2.3	कोरबा एसटीपीएस 3 KSTPS Unit-3			98.35	208	
2.4	कोरबा एसटीपीएस 4 KSTPS Unit-4			333.84	503	
2.5	कोरबा एसटीपीएस 5 KSTPS Unit-5			316.74	504	
2.6	कोरबा एसटीपीएस 6 KSTPS Unit-6			325.89	505	
2.7	कोरबा एसटीपीएस 7 KSTPS Unit-7			332.70	504	
	कुल कोरबा KSTPS Total	1510	2600	1658.08	2643	116.916
2.7	विन्ध एसटीपीएस 1 VSTPS Unit-1			116.80	211	
2.8	विन्ध एसटीपीएस 2 VSTPS Unit-2			129.48	208	
2.9	विन्ध एसटीपीएस 3 VSTPS Unit-3			120.26	204	
2.10	विन्ध एसटीपीएस 4 VSTPS Unit-4			133.54	206	
2.11	विन्ध एसटीपीएस 5 VSTPS Unit-5			78.43	204	
2.12	विन्ध एसटीपीएस 6 VSTPS Unit-6			103.80	207	
2.13	विन्ध एसटीपीएस 7 VSTPS Unit-7			330.52	503	
2.14	विन्ध एसटीपीएस 8 VSTPS Unit-8			327.45	504	
2.15	विन्ध एसटीपीएस 9 VSTPS Unit-9			304.80	504	
2.16	विन्ध एसटीपीएस 10 VSTPS Unit-10			283.76	503	
2.17	विन्ध एसटीपीएस 11 VSTPS Unit-11			288.03	501	
	कुल विन्धयाचल VSTPS Total	2294	4260	2810.45	#REF!	183.14
3.1	सीपत -1 -SIPAT-1			458.61	661.00	
3.2	सीपत -2 -SIPAT-2			366.47	660.00	
3.3	सीपत -3 -SIPAT-3			451.66	662.00	
3.4	सीपत -4 -SIPAT-4			342.71	504.00	
3.5	सीपत -5 SIPAT-5			320.98	503.00	
	कुल सीपत -SIPAT TOTAL			1940.43	2990.00	103.73
4.1	कवास गैस 1ए Kawas GT-1A			0.00	0	
4.2	कवास गैस 1बी Kawas GT-1B			0.00	0	
4.3	कवास एसटी 1सी Kawas ST-1C			0.00	0	
4.4	कवास गैस 2ए Kawas GT-2A			66.91	101	
4.5	कवास गैस 2बी Kawas GT-2B			66.66	103	
4.6	कवास एसटी 2सी Kawas ST-2C			75.45	112	

	कुल कवास KGPS Total	193	630	209.01	316	4.277
5.1	गंधार गैस 1 Gandhar GT-1			84.79	144	
5.2	गंधार गैस 2 Gandhar GT-2			84.07	144	
5.3	गंधार गैस 3 Gandhar GT-3			0.00	0	
5.4	गंधार एसटी 4 Gandhar ST-4			87.84	140	
	कुल गंधार GGPS Total	80	630	256.70	428	6.166
6.1	मौदा 1 Mauda -1			196.48	506	0.000
6.2	मौदा 2 Mauda -2			85.65	507	0.000
	कुल मौदा MAUDA Total	186	500	282.13	1013	19.603
6.1	RGPPL Block I			0.00	0	
6.2	RGPPL Block II			342.65	633	
6.3	RGPPL Block III			36.73	425	
	RGPPL TOTAL	540	750	379.38	525	10.623
7.1	एस एस पी SSP RBPH - 1			7.07	191	
7.2	एस एस पी SSP RBPH - 2			10.09	191	
7.3	एस एस पी SSP RBPH - 3			17.21	192	
7.4	एस एस पी SSP RBPH - 4			8.30	191	
7.5	एस एस पी SSP RBPH - 5			10.32	192	
7.6	एस एस पी SSP RBPH - 6			3.31	192	
7.7	एस एस पी SSP CHPH - 1			7.98	37	
7.8	एस एस पी SSP CHPH - 2			16.00	39	
7.9	एस एस पी SSP CHPH - 3			23.75	40	
7.10	एस एस पी SSP CHPH - 4			18.81	39	
7.11	एस एस पी SSP CHPH - 5			15.88	40	
	कुल एस एस पी SSP Total	580	900	138.73	1344	1.387
8.1	कुल पेंच Pench Total	40	75	36.15	162	0.050
8.2	Jindal Injection			0.00	0	
8.3	Amarkantak Lanco			0.00	0	
	(I) पश्चिमी क्षेत्र WESTERN REGION					
	गोस उत्पादन Gross generation			26825.38		
	(J) उपलब्धता Availability			#REF!		
	नेट विनिमय Net Exchanges		(+)	-6112.73		
	उपलब्ध ऊर्जा Energy Availability	3100		#REF!		

माह नवम्बर 2016 के दौरान चरम मांग - योजनाबध्द बनाम वास्तविक

अनुलग्नक 4.2

PEAK DEMAND - SCHEDULE VS ACTUAL FOR NOVEMBER 2016

ANNEX-4.2

राज्य	State	Anticipated अपेक्षित (MW)	वास्तविक Actual (MW) आपूर्ति Catered	UNSCH LS	FC	SCH LS	कुल Total	दिनांक Date	समय Time	आवृत्ति Frequency
गुजरात	***GUJARAT***									
पंजीकृत	Registered		13299	-	-	-	13299	28.11.2016	11:00	49.99
सीमित	Restricted	13200								
असीमित	Unrestricted	13240	13299	0	4.65	0	13304	28.11.2016	11:00	49.99
न्यूनतम पंजीकृत मांग	Min. Registered Demand		7520				7520	01.11.2016	0500	49.99
मध्य प्रदेश	***MADHYA PRADESH***									
पंजीकृत	Registered		11045	-	-	-	11045	28.11.2016	09:00	49.93
सीमित	Restricted	9500								
असीमित	Unrestricted	9500	11045	0	27.06	0	11072	28.11.2016	09:00	49.93
न्यूनतम पंजीकृत मांग	Min. Registered Demand		7068				7068	01.11.16	0300	
छत्तीसगढ़	***CHHATTISGARH***									
पंजीकृत	Registered		3251				3251	03.11.2016	1800	49.95
सीमित	Restricted	3470								
असीमित	Unrestricted	3470	3146	119.5	14.31	0	3280	07.11.2016	1800	49.87
न्यूनतम पंजीकृत मांग	Min. Registered Demand		1973				1973	22.11.2016	1400	50.01
महाराष्ट्र	***MAHARASHTRA***									
पंजीकृत	Registered		20805	-	-	-	20805	10.11.2016	19:00:00	49.99
सीमित	Restricted	19600								
असीमित	Unrestricted	19650	20805	0	7.28	0	20812	10.11.2016	19:00:00	49.99
न्यूनतम पंजीकृत मांग	Min. Registered Demand		13185				13185	01.11.2016	0400	49.95
गोवा	****GOA***									
पंजीकृत	Registered	530	531		-	-	531	15.11.2016	19:00	49.98
असीमित	Unrestricted	530	531	0	0.37	-	531.37	15.11.2016	19:00	49.98
न्यूनतम पंजीकृत मांग	Min. Registered Demand									
एस्सार	***ESSAR(ESIL)***									
पंजीकृत	Registered		800		-	-	800	26.11.2016	22:00	50.02
असीमित	Unrestricted		800	0	0	-	800	26.11.2016	20:00	50.02
न्यूनतम पंजीकृत मांग	Min. Registered Demand									
दमन एवं दीव	***DD***									
पंजीकृत	Registered		310		-	-	310	08.11.2016	17:00	49.97
असीमित	Unrestricted		310	0	0	-	310	08.11.2016	17:00	49.97
न्यूनतम पंजीकृत मांग	Min. Registered Demand									
दादरा व न हवेली	***DNH***									
पंजीकृत	Registered		758		-	-	758	07.11.2016	19:00	50.01
असीमित	Unrestricted		758	0	0	-	758	07.11.2016	19:00	50.01
न्यूनतम पंजीकृत मांग	Min. Registered Demand									
पश्चिम क्षेत्र	***WESTERN REGION***									
पंजीकृत	Registered		48447	-	-	-	48447	28.11.2016	11:00	49.98
सीमित	Restricted	50200								
असीमित	Unrestricted	50300	48447	0	33	0	48480	28.11.2016	11:00	49.98
न्यूनतम पंजीकृत मांग	Min. Registered Demand		31952				31952	01.11.2016	0400	

NOTE: LS = Load Shedding
PC/RM = Power Cuts/Regulatory Measures
FC = Frequency Correction
Registered = Actual Demand Met
Restricted = Registered + LS + FC
Unrestricted = Registered + LS + FC + PC + Holiday Staggering + Recess Staggering.

ANNEXURE 4.3

माह नवम्बर 2016

Nov-16

अनु.क्र.	[illegible]	PARALLEL / RADIAL OPERATION	TOTAL OPERATING HOURS
1	एचवीडीसी बॅक टू बॅक लिंक	HVDC back-to back link(WR-NR)-Pole 1	708:52:00
2	एचवीडीसी बॅक टू बॅक लिंक	HVDC back-to back link(WR-NR)-Pole 2	689:15:00
3	एचवीडीसी बॅक टू बॅक लिंक	HVDC back-to back link(WR-SR)	719:42:00
	[illegible]	TIE LINE	
1	765 केवी सिवनी से वर्धा-I	765kV Seoni to Wardha-I	720:00:00
2	765 केवी सिवनी से वर्धा-II	765kV Seoni to Wardha-II	720:00:00
3	765 केवी सिवनी से बिलासपुर-I	765kV Seoni to Bilaspur-I	720:00:00
4	765 केवी सिवनी से बिलासपुर-II	765kV Seoni to Bilaspur-II	720:00:00
5	765 केवी दुर्ग से वर्धा -I	765kV Durg to Wardha I	720:00:00
6	765 केवी दुर्ग से वर्धा -II	765kV Durg to Wardha II	720:00:00
7	400 केवी भिलाई से कोराडी	400kV Bhilai to Koradi	676:00:00
8	400 केवी भिलाई से भद्रावती	400kV Bhilai to Bhadravati	720:00:00
9	400 केवी रायपुर से भद्रावती -I	400kV Raipur to Bhadravati-I	720:00:00
10	400 केवी रायपुर से भद्रावती -II	400kV Raipur to Bhadravati-II	720:00:00
11	400 केवी रायपुर से भद्रावती -III	400kV Raipur to Bhadravati-III	720:00:00
12	400 [illegible]	400kV Satpura to Koradi	712:11:00
13	400 [illegible]-I	400kV Khandwa-Dhule-I	720:00:00
14	400 [illegible]-II	400kV Khandwa-Dhule-II	720:00:00
15	400 [illegible]-I	400kV Indore to Asoj-I	712:28:00
16	400 [illegible]-II	400kV Indore to Asoj-II	720:00:00
17	400 [illegible]-III	400kV Indore to Asoj-III	720:00:00
18	400 केवी कोल्हापुर से मापुसा-I(GIS)	400kV Kolhapur-Mapusa-I(GIS)	546:27:00
19	400 केवी कोल्हापुर से मापुसा-	400kV Kolhapur-Mapusa-II(GIS)	536:22:00
20	400 [illegible]	400kV Vapi-Boisar	709:04:00
21	400 [illegible]	400kV Raigarh to IBEUL	720:00:00
22	400 केवी रायगढ़ से स्टरलाइट	400kV Raigarh to Sterlight	720:00:00
23	400 केवी स्टरलाइट से राऊरकेला	400kV Sterlight to Rouerkela	720:00:00
24	400 [illegible]	400kV Raigarh to Jharsuguda	720:00:00
25	400 [illegible]-I	400kV Nagda to Dehgam	651:30:00
26	400 [illegible]-II	400kV Nagda to Dehgam	675:47:00
27	400 केवी रायपुर से वर्धा-I	400kV Raipur to Wardha-I	720:00:00
28	400 केवी रायपुर से वर्धा-II	400kV Raipur to Wardha-II	720:00:00
29	400 केवी वर्धा से मौदा-I	400kV Wardha to Mouda-II	720:00:00
30	400 केवी वर्धा से मौदा-II	400kV Wardha to Mouda-II	720:00:00
31	220 केवी कोरबा पूर्व से बुद्धिपादर-	220kV K(E) to Budhipadar-III	718:30:00

अनुलग्नक **4.7**

Annex-4.7

माह नवम्बर 2016 के अंत में पश्चिम क्षेत्र के मुख्य जलाशयों के स्तर

LEVEL OF MAJOR RESERVOIRS IN WESTERN REGION AT THE END OF MONTH OF NOVEMBER 2016

कमांक Sl. No.	विवरण Particulars	गु उ वि नि लि GUVNL	मप्रविउकं लि MPPGCL	एन एच डी सी NHDC	मराविउकं लि MSEGCL
		उकाई Ukai	गांधीसागर Gandhisagar	इंदिरा सागर Indira Sagar	कोयना Koyna
1	Levels in Mtrs. स्तर मीटर में				
1.1	माह के अंत में At the end of the month	102.92	399.50	260.76	655.38
1.2	पिछले वर्ष इस माह के अनुरूप आंकड़ें Corresponding Figure of the month Last Year	99.77	398.43	258.71	648.61

ANNEXURE -5

Grid Disturbance Report

Details of Grid Disturbance (GD) during the Month of (November 2016), in _Western_Region

Sl No.	Category of Grid Disturbance (GD-I to GD-V)	Affected Area	Time and Date of occurrence of Grid Disturbance	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Disturbance (MW)	Brief details of the event (pre fault and post fault system conditions)
1	GI-2	Pune	03-11-16, 10:29:00	03-11-16, 11:59:00	1:30	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 400kV s/w L/R of Pune-Pune GIS-IV at Pune(Talegaon) 2. 400kV Pune(Talegaon)-Pune GIS-IV 3. 400 KV Pune(Talegaon) Bus-I Heavy sparking in Isolator of L/R and Bus Bar protection operated
2	GI-2	Korba West	07-11-16, 04:09:00	07-11-16, 06:59:00	2:50	Load Loss: NIL, Generation Loss: ~400 MW	Tripping of 1. 400kV Korba(W)-Raita-I 2. 400 kV Bus-II 3. 210 MW U#3 4. 210 MW U#4 Due to Bus Bar protection operated.
2	GD-1	Kharadpara	09-11-16, 10:41:00	09-11-16, 12:00:00	1:19	Load Loss: ~430 MW, Generation Loss: NIL	Tripping of 1. 220 KV Vapi- Kharadpara- I 2. 220 KV Vapi- Kharadpara- II 3. 220 KV Kala-New Kharadpara- I 4. 220 KV Kala- New Kharadpara- II 5. 220 KV Kharadpara- New Kharadpara- I 6. 220 KV Kharadpara- New Kharadpara- II 7. 220/66 KV ICT- I, II, III & IV at Kharadpara Bus bar- I protection operated at Kharadpara
3	GI-1	Gandhar	10-11-16, 11:00:00	10-11-16, 11:46:00	0:46	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 400 kV Gandhar-Sugen-I 2. 400 kV Bus-II at Gandhar due to Bus Bar Protection
4	GI-2	Pophali	12-11-16, 17:05:00	12-11-16, 17:30:00	0:25	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 220 kV Pophali Pedambe II 2. 220 kV Pophali - New Koyna 3. 220 kV Bus Section II @ Pophali 4. 220 kV Pophali Nerale Bus Fault occurred-on 220 kV Pophali Bus section 2
5	GI-2	Sagar	18-11-16, 06:18:00	18-11-16, 06:30:00	0:12	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 220 kV Sagar-Damoh(PG) 2. 220 kV Sagar-Bina-2 3. 220/132 kV ICT-2 4. 132 kV Sagar-Traction Bus Bar protection operation at 220 kV Sagar
6	GI-2	Omkareshwar	19-11-16, 01:20:00	19-11-16, 02:20:00	1:00	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 220 kV Omkershwar-Burwha 2. 220 kV Omkershwar-Julwania 3. 220 kV Omkershwar-Khandwa Bus Bar protection operation at 220 kV Omkershwar
7	GD-1	Shujalpur	22-11-16, 12:13:00	22-11-16, 12:34:00	0:21	Load Loss: 278 MW, Generation Loss: NIL	Tripping of 1. 220 kV Shujalpur-Shujalpur(PG) 2. 220/132 kV ICT-1, 2 & 3 Bus-1 t ripped on LBB while charging 220KV Sujalpur-Bhopal (MP) line
8	GI-2	Talegoan	24-11-16, 18:52:00	24-11-16, 19:57:00	1:05	Load Loss: NIL, Generation Loss: NIL	Tripping of 1. 220 kV Talegoan-Pune (PG)-I 2. 220 kV Talegoan-Pune (PG)-II 3. 220 kV Talegoan-Urse-I 4. 220 kV Talegoan-Urse-II Bus Bar protection operation at 220 kV Talegoan

ANNEXURE-8.1

REPORT ON MOCK DRILL FOR CRISIS MANAGEMENT PLAN IN POWER SECTOR

for the quarter ending ……..

1. **Name of Power Utility / Generating Station :**

2. **Date / Time of Mock-drill :**

3. **Location site of Mock-drill :**

4. **Observers :**
   (Indicate names of Team designated Leader / Members to handle crisis situation)

5. **Scenario of mock emergent situation :**

6. **Objective :**

7. **Chronological order of events logged :**

Time	Events	Response Time

8. **Observations on effectiveness of Mock Drill :**

9. **Recommendations / Suggestions on the observations (S. No. 8) :**

Signature of Designated
(Safety / Security Officer)

Dated……

Signature of
(Head O & M of Plant)

Dated……

Cybersecurity in Electric Power Sector

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GURGAON, HARYANA.
anand@powergridindia.com
16.01.2014

Contents

- Critical Information Infrastructure
- Evolutions of Industrial Control System
- Cybersecurity in ICS : A Generic View
- Typical Pitfalls
- Challenges in ICS cybersecurity
- Governance Initiatives
- Approaches for Security in Operations
- Best Practices for ICS Cybersecurity

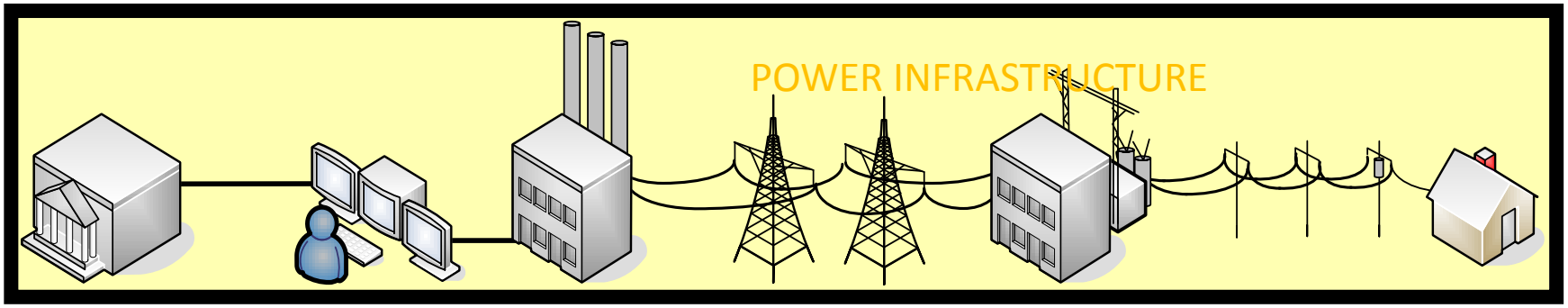
पावरग्रिड

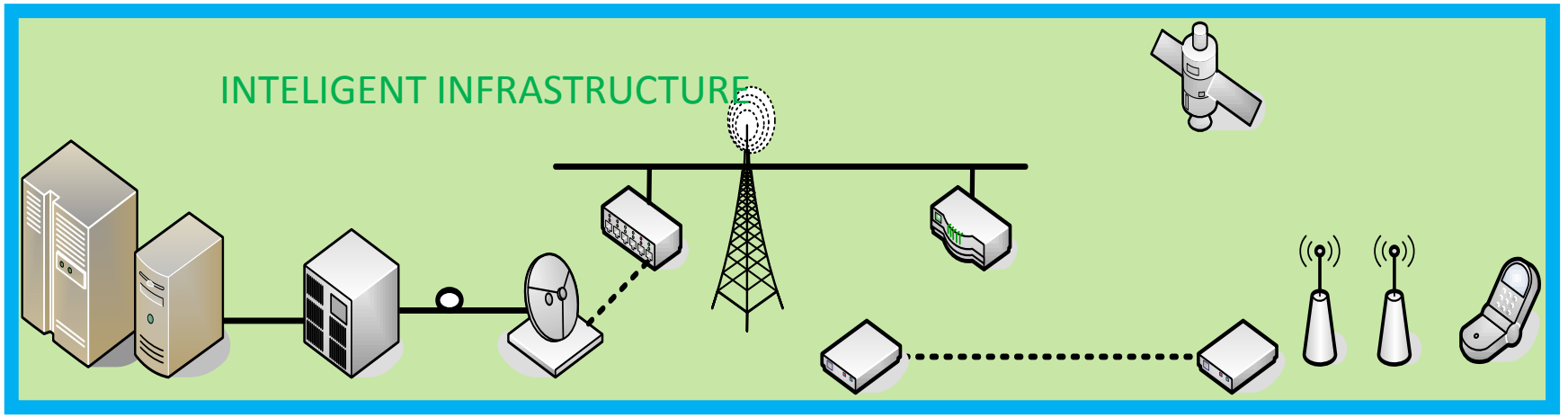
Critical Infrastructure and Critical Information Infrastructure

- In general Critical Infrastructure (CI) can be defined as:
- those facilities, systems, or functions, whose incapacity or destruction would cause a debilitating impact on national security, governance, economy and social well-being of a nationį¨.
- Critical Information Infrastructure (CII) are those ICT infrastructure upon which core functionality of Critical Infrastructure is dependent.
- Information Technology Act 2000
  - **Section 70: Critical Information Infrastructure:** "computer resource, the incapacitation or destruction of which, shall have debilitating impact on national security, economy, public health or safety."
- Inter-dependence of Critical Infrastructure on the underlying Information Infrastructure
- Critical Sectors are Inter-Dependent

पावरग्रिड

AMALGAMATION OF ELECTRICAL & INTELLIGENT INFRASTRUCTURE





Inter-Dependence of Critical Sectors

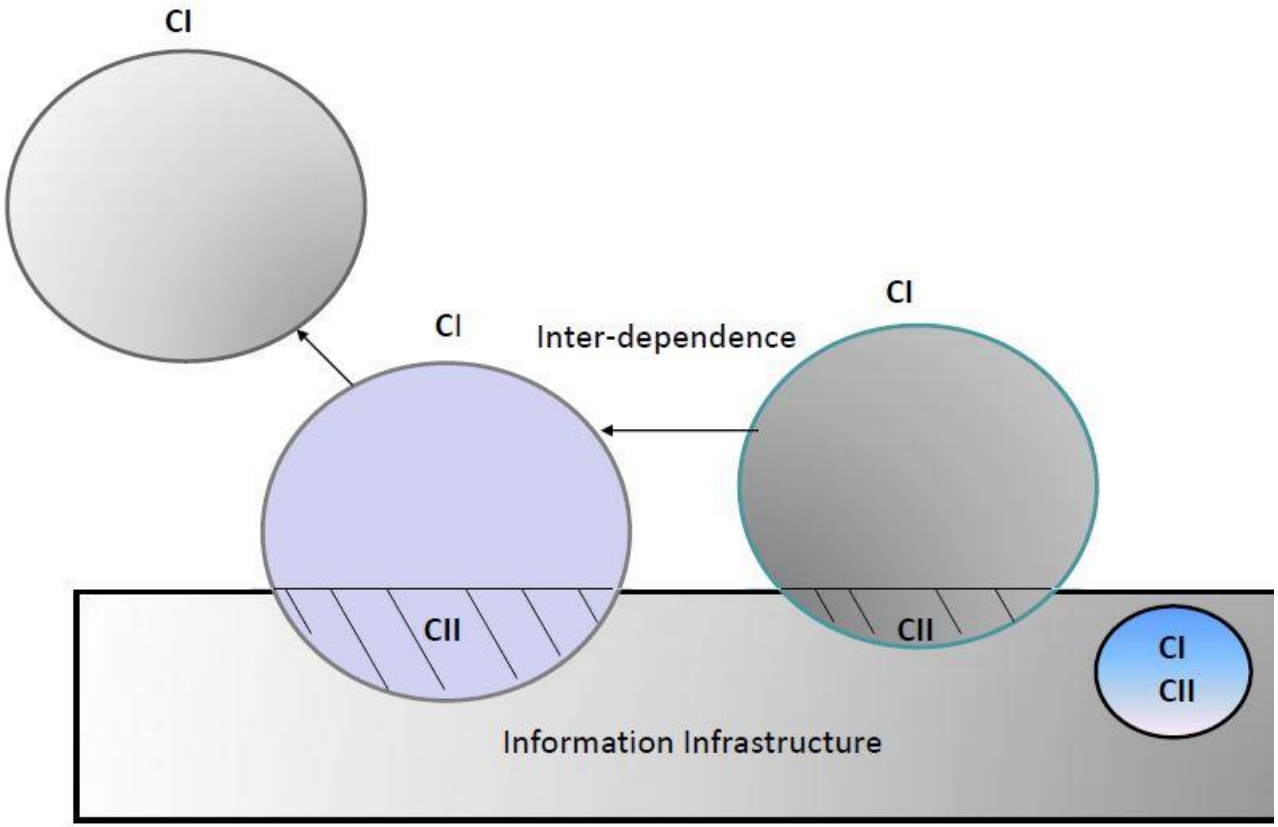
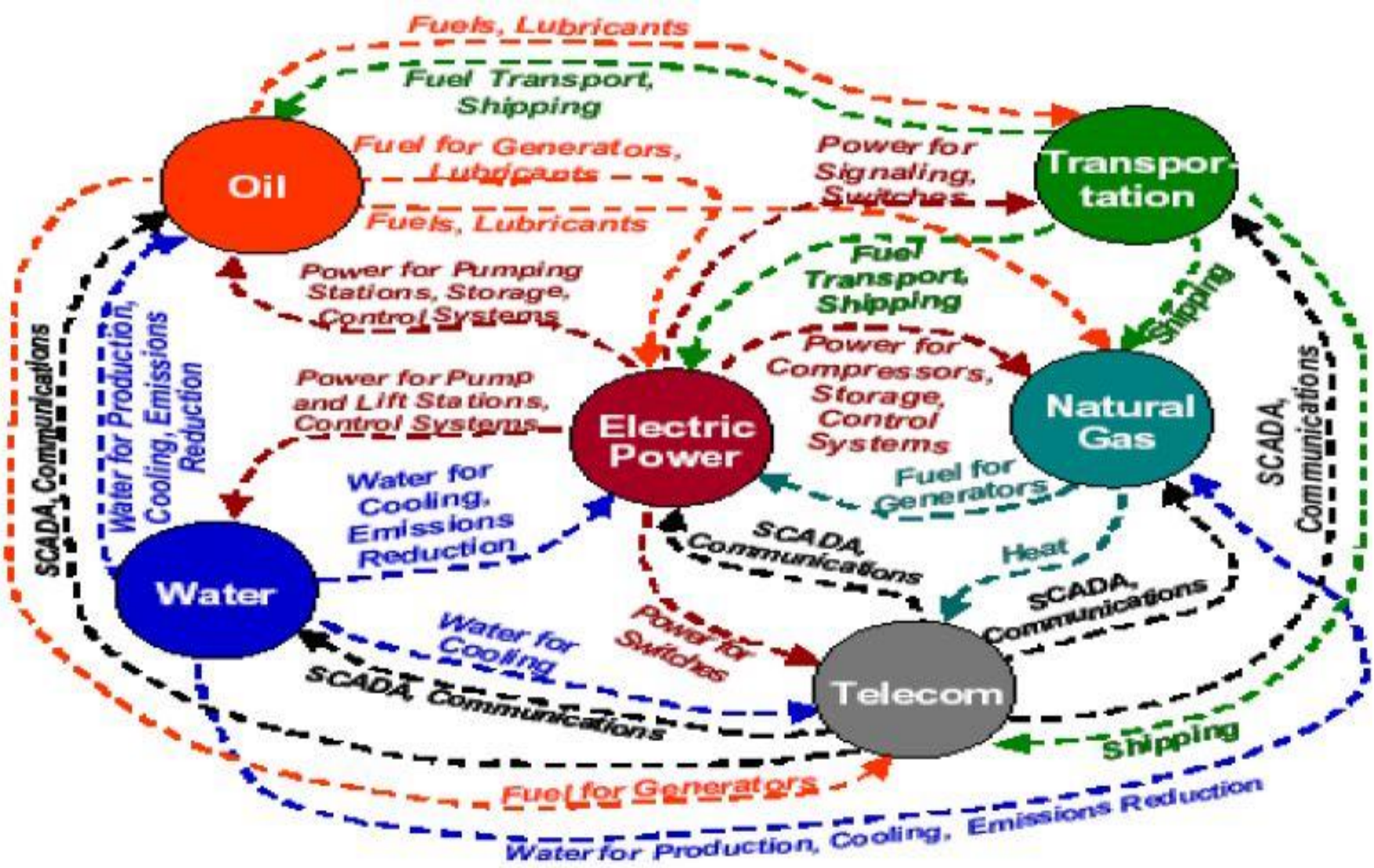


Figure: Varying Dependence of CI on Information Infrastructure

Courtsey: NCIIPC

Inter-Dependence of Critical Sectors



Courtsey: NCIIPC

Business IT and Process Control IT : Marriage of Convenience

- Advantages of marrying Business IT and Process IT
  - Low Cost Ubiquitous and Reliable network connectivity
  - Reduction in Control Plant size and increase in maintainability of the control plant
  - Reduction in cost of Software Development and Maintenance
  - Ease of integration with Third Party Systems and Applications

पावरग्रिड

Business IT and Process Control IT: Marriage of Convenience

- Disadvantages of marrying Business IT and Process IT
  - TCP/IP and Software Stacks were not primarily designed for security.
  - Relatively low level skill sets required to break-in
  - Till date Process IT installations in practice are observed as relatively secure as they are largely isolated.

पावरग्रिड

Distinct characteristics of Process Control IT

- 24x7x365 Real Time operations
- Very Long Operational Life
- Patching and frequent updates impractical at times
- Combination of new and legacy systems: Legacy does not have resources for supporting security requirements
- Geographical Spread / Harsh Environments
- Non-availability impacts population at large
- Critical Infrastructure
- 3G Security is insufficient ! : Gates, Guards and Guns : WWW Threat: Wealth, Women and Wine
- Enter Stuxnet, DuQu and Shamoon

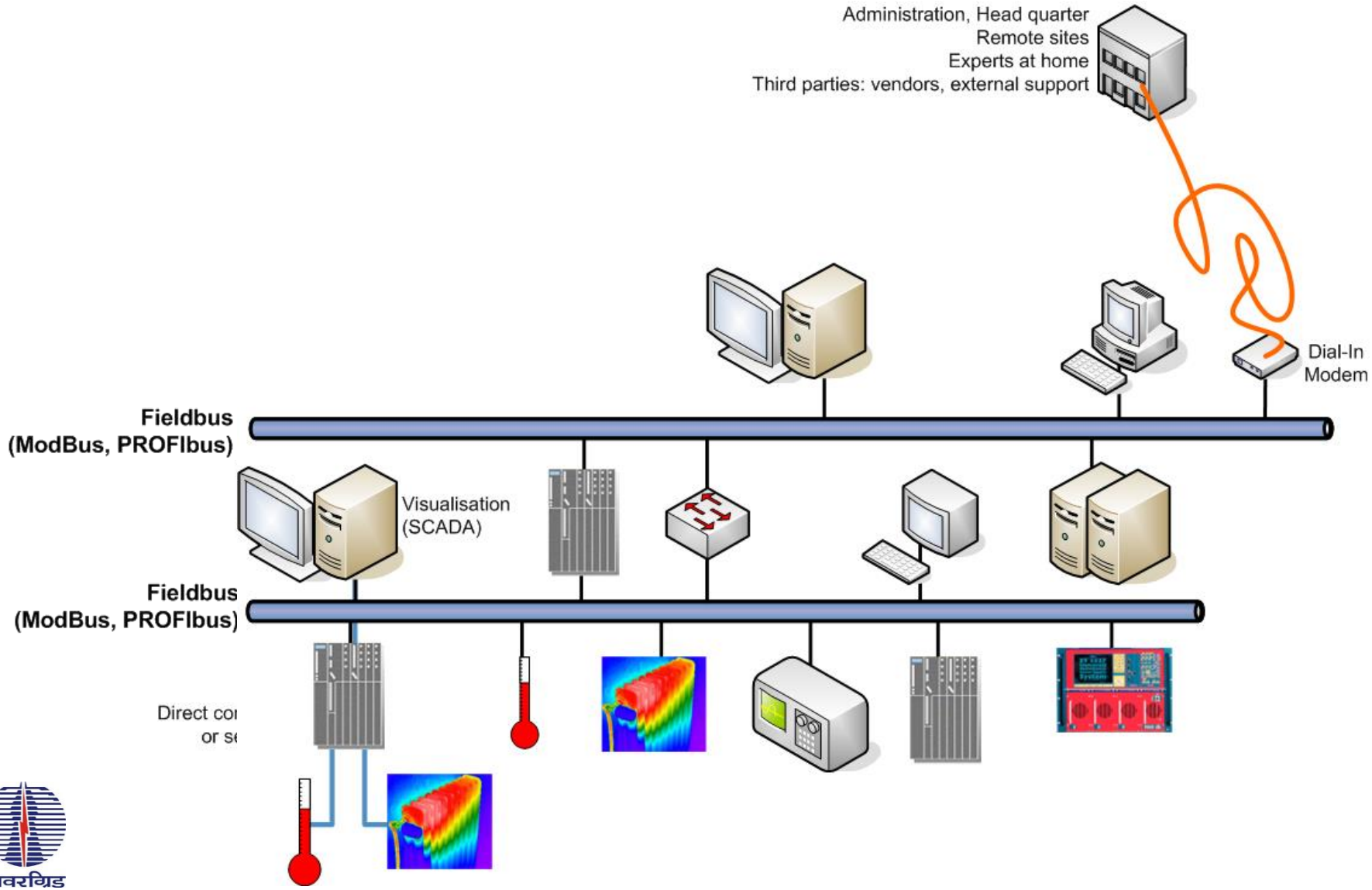
पावरग्रिड

Historical Industrial Control System

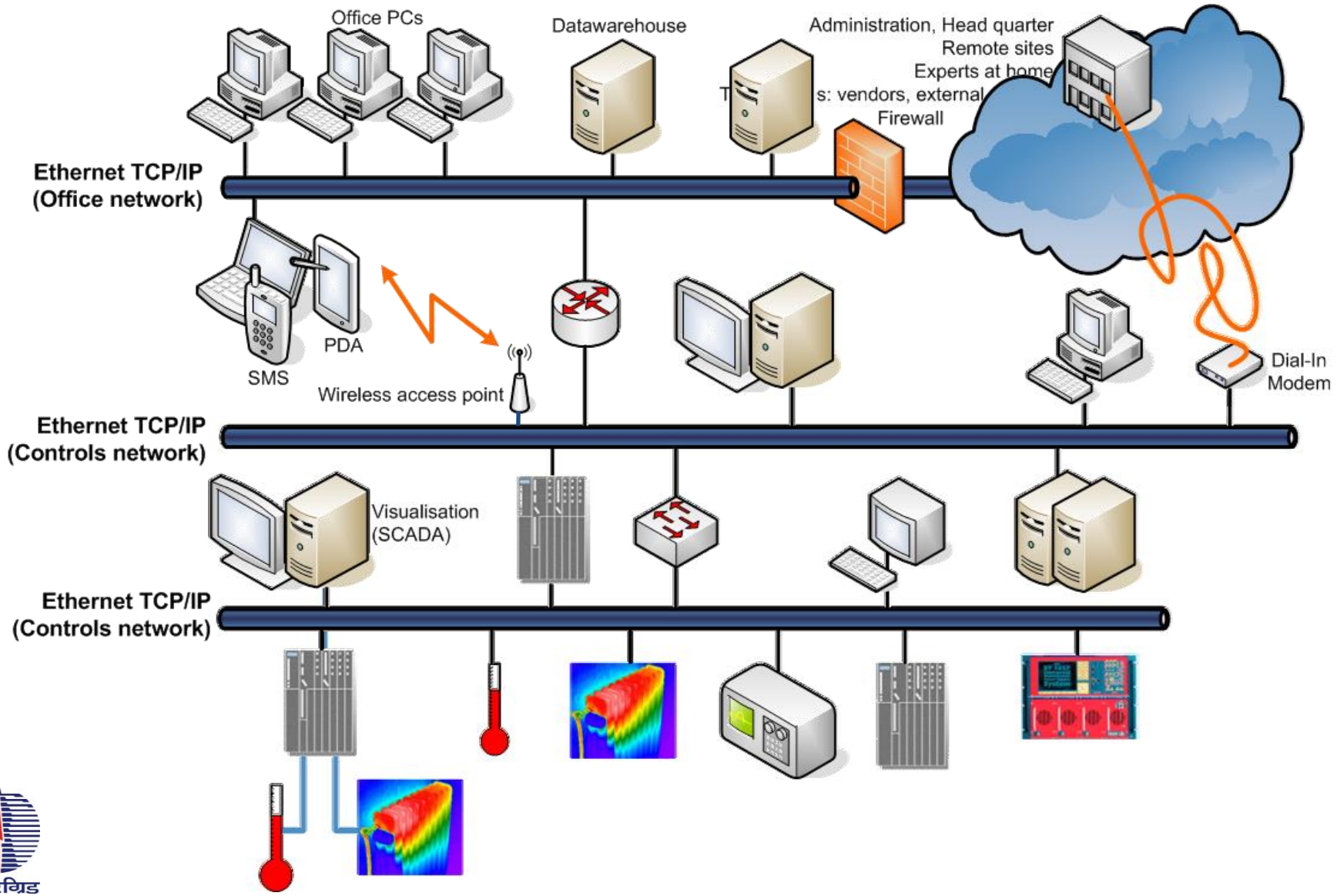
- Proprietary
- Stand-alone and interconnected using proprietary networks only
- Not designed with security considerations
- Security through obscurity

पावरग्रिड

ICS : Evolution (The past)



ICS : Evolution (Today)



Modern day ICS

- Uses COTS (Commercial-Off-The-Shelf) technologies
  - Operating systems—Windows, WinCE, embedded RTOS
  - Applications—Databases, web servers, web browsers, etc.
  - IT protocols—HTTP, SMTP, FTP, DCOM, XML, SNMP, etc.
  - Networking equipment—switches, routers, firewalls, etc.
- Connectivity of ICS to Enterprise LAN
  - Improved business visibility, business process efficiency
  - Remote access to control center and field devices
- IP Networking
  - Many legacy protocols wrapped in TCP or UDP
  - Most new industrial devices have Ethernet ports
  - Most new ICS architectures are IP-based

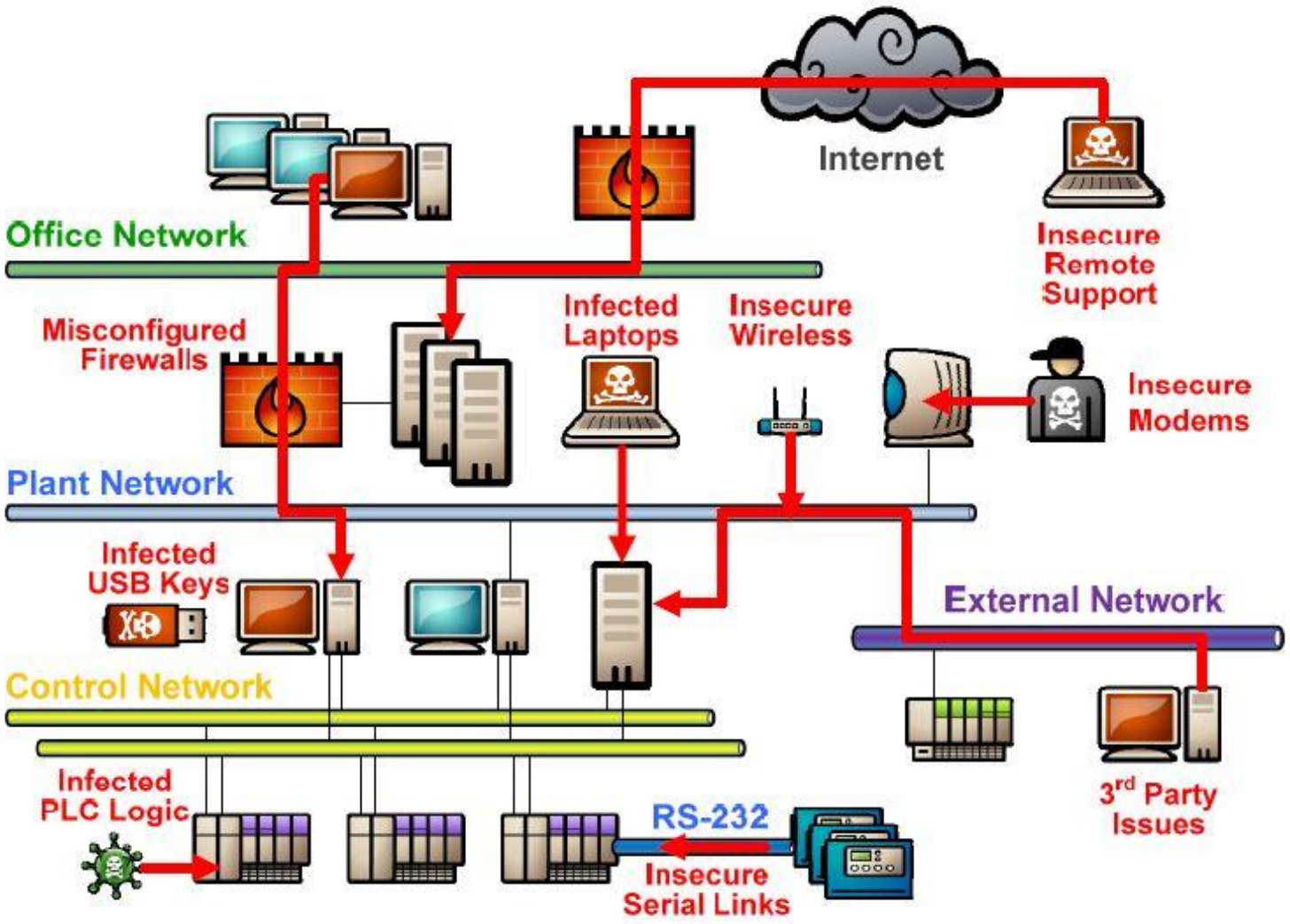
पावरग्रिड

Different Security Paradigm

- Business IT World: Confidentiality, Integrity and Availability
- Process IT World: Availability, Integrity and Confidentiality: Designed for Performance rather than security
- Non-Repudiation, Authentication and Authorization

पावरग्रिड

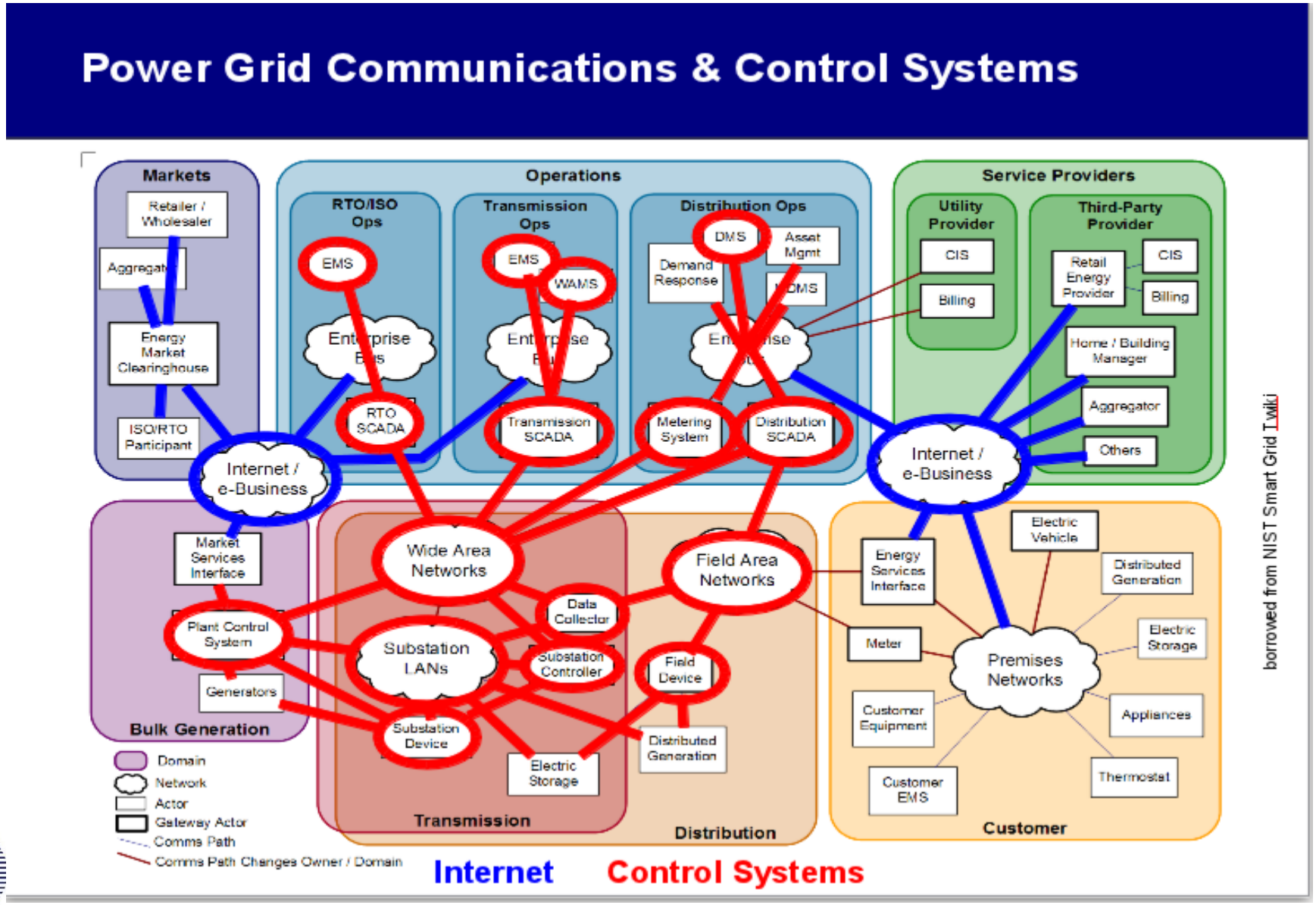
Attack Sources



Courtsey: Toifino

पावरग्रिड

Systems and Interconnections



पावरग्रिड

Typical Pitfalls

- Poorly Configured Devices: Authentication, RBAC
- Insecure External Connectivity / Communication Links
- Insufficient Physical Access Controls, Lack of Access Logs, No Analysis
- Outdated Technologies using Plain Text on wire : telnet, SNMP v1/2, ftp
- Outdated and/or Unsupported Software; Patches
- Lack of secure processes and policies: Default Passwords: factory defaults
- Lack of awareness: Employees, Management, Vendor Support
- Viruses, Malware, Worms, Botnets, DoS, DDoS, SQL Injection
- Vulnerabilities in Software
- Insider disgruntled employee, Social Networking

पावरग्रिड

Security Risks to ICS : Usage of COTS technologies

- ICS previously used the principle of security through obscurity
- Vulnerabilities of COTS technologies are easily available in the internet
- These vulnerabilities are added to ICS
- Details on exploiting the vulnerabilities are widely available today
  - Automated scripts, freeware hacking toolkits etc.

पावरग्रिड

Security Risks to ICS : More threat sources

- Attacks by
  - Terrorists / non state actors
  - Foreign intelligence services, Industrial spies
  - Malwares, spyware, virus
  - Insider Attack
- Lack of Robustness
  - Mal-configured or broken devices flood network
    - Use of default passwords/no passwords
    - Lack of proper firewall configuration / rules
  - Error caused by Operator
- Lack of Procedures
  - Flawed updates or patches provided by third parties
    - Lack of testing of Patches
  - Inappropriate test & maintenance policy
    - Lack of System Hardening Policy

पावरग्रिड

What if ICS fails?

- Loss of life
- Loss of production
- Lawsuits
- Loss of public trust
- Loss of market value
- Physical damage
- Environmental damage
- Penalties

पावरग्रिड

Governance Initiatives: Regulations & standards

Regulations:

- Commercial Listed Companies : SEBI
  - Clause 49 -> Enterprise Risk Management

- CERC India Electricity Grid Code:

  Clause 4.6.5 "Cyber Security: All utilities shall have in place, a cyber security framework to identify the critical cyber assets and protect them so as to support reliable operation of the grid."

पावरग्रिड

National Cyber Security Policy:

- Setting up a 24x7 National Critical Information Infrastructure Protection Centre
- Provide Fiscal schemes and benefits to businesses for adoption of standard security practices
- CERT-in as the Nodal Agency for co-ordination
- Businesses to designate a CISO and allot a security Budget
- Use of Open Standards for Cyber Security
- Develop a Dynamic Legal Framework
- Wider use of PKI Infrastructure
- Information Security Professionals to assist e-Governance; PPP- Centers of Excellence, Training and Awareness, Labs
- Evaluating and Certifying Trustworthy ICT Security Products

पावरग्रिड

Information Technology Act 2000 [Amendment 2008]

- Clause 43: Penalties; Clauses: 66 A to E Offences
- Clause 66F: Cyber Terrorism, Critical Infrastructure
- Clause 85: Offences By Companies: Due Diligence
- Clause 70A: Critical Infrastructure Protection: NCIIPC
- Clause 70B: India CERT
- CERT Guidelines :
- Crisis Management Plan : Critical Sector : Sectoral CERTs: CERT Transmission
- ISO : 27001

पावरग्रिड

NCIIPC-National Critical Information Infrastructure Protection Centre

- Constituted under 70A, caters to cross-sector inter-dependent cybersecurity threats, affecting critical infrastructure.
- Presently, working under the ageis of NTRO, reporting to PMO.
- NSA, Committee of Secretaries [CoS] reporting to Union Cabinet Secretary

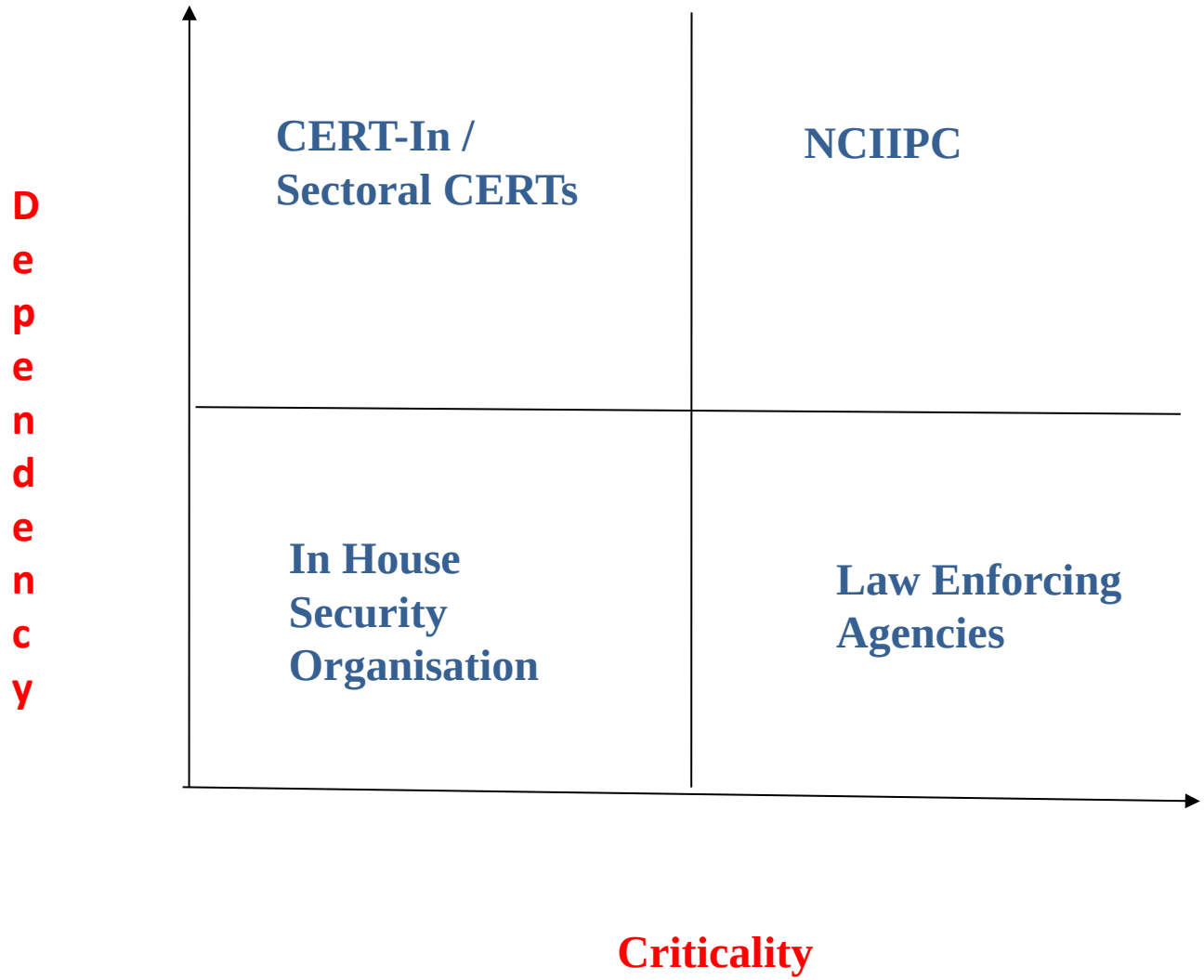
पावरग्रिड

Standards

- NERC CIP 002 – 008
- NIST SP-800-53, Series
- NISTIR 7628
- IEC 62351
- ISO: 27000 ; ISO: 62443 ; ISA99
- IEEE P1711, OPSAID
- CIGRE JWG B5/D2-46
- CPNI
- BIS LITD 10, LITD 17

पावरग्रिड

NCIIPC-National Critical Information Infrastructure Protection Centre



Challenges in ICS cybersecurity

Challenges : ICS ≠ IT systems

- Most security solutions are built around IT security
  - Priority conflict of ICS and IT systems
- ICS requires time-critical interactions Easy / Default / No Passwords
- Cleartext Protocols
- Systems based on 'Trust'
- Unsupported Software / Firmware
- Ill Informed Users, Managers
- No clear Policies and Responsibilities

पावरग्रिड

Challenges:

- Critical round the clock operation
- Uses Commercial software and hardware technologies
- Isolated systems- with air gap or Limited connectivity: Legacy Sub-Systems being migrated to Network.
- Known Communication partners/protocols/Applications
- Restricted access to system through intermediates servers (Web servers/Data historian)
- Software and systems generally do not change, not frequently updated
- Distributed geographically (Remote Areas)
- Remote Management adopted for devices located in other areas
- Vulnerabilities not readily known /shared

पावरग्रिड

Challenges

- Zero day vulnerabilities and Advanced Persistent Threats(APT)
  - E.g. : Stuxnet
- Unpatched systems
- Legacy equipment
  - Impossible to add security features
- Unauthorized applications/services in ICS systems
  - Any software/service not required for the operation of ICS
- Importance of proper System hardening policy
- Absence of cybersecurity monitoring

पावरग्रिड

Approaches for Security in Operations

Security Operation Phases (Technical)

- Real Time Monitoring : Identification
- Anomaly Detection
- Impact Analysis
- Mitigation

पावरग्रिड

Security Operation Phases (Technical)

- Incident Response
  - Attack Identification and Response
    - [Q : Survived / Restorable / Forensics]
  - Help Desk Security Operations Centre
  - Crisis Management Plan: Single Points of Contact
  - Management Reporting: Chief Information Security Officer
- Risk Management and Reporting: Metrics
- ISO 27001 Certification
- Disaster Recovery vs Business Continuity

पावरग्रिड

Organizational preparedness

- SCADA Process Owners vs IT
- Different Skill sets : Planning and Maintaining Security Infrastructure
  - SCADA Forensics
- Information Security vs IT Security :
- Roles of people in M, E and I Domains
  - Management [Directives, Policies, Rules and Responsibility]
  - Energy [Core Business Operations]
  - Information [Data Transportation and Processing]
- Mock Drills: US CERT Cyber Storm Exercises; CERT-in Mock Drills; Sector specific CERTs

पावरग्रिड

Sectoral preparedness

- Supplier Side:
  - Products need to be built from scratch with security, not bolt-on.
  - Longer support for legacy; Legacy adaptation
  - Support development of standards and interoperability
- Consumer Side:
  - Create demand for secure products :
    - National Policy on Electronics: Domestic Manufacturing, Procurement from Domestic Sector
    - Common Criteria Labs: EAL Certification: 1-7
    - CCRA : Common Criteria Recognition Agreement
  - Amend specs and contractual clauses
  - Demand openness and inter-operability

पावरग्रिड

NCIIPC guidelines: (40 controls)-screen-1

1. Identification of CII
2. Vertical and Horizontal Dependencies
3. Information Security Department
4. Information Security Policy
5. Training and Skill Upgradation
6. Data Loss Prevention
7. Risk Assessment Management
8. Maintenance Plans
9. Feedback Mechanism: Threat Reporting
10. Contingency Planning
11. Predictable Failure Prevention
12. Information Data Leakage Protection
13. Checks and Balances for Negligence

पावरग्रिड

NCIIPC guidelines: (40 controls)-screen-2

14. Outsourcing and Vendor Security
15. Critical Information Disposal and Transfer
16. Disaster Recovery Site
17. DOS / DDOS Protection
18. Wi-Fi Security
19. Data Back-Up Plan
20. Testing and Evaluation of Hardware and Software
21. Hardening of Hardware and Software
22. Secure Architecture Deployment
23. Web Application Security
24. Periodic Audit and Vulnerability Assessment
25. Compliance and Security Recommendation

पावरग्रिड

NCIIPC guidelines: (40 controls)-screen-3

26. APT Protection
27. Network Device Protection
28. Cloud Protection
29. Intranet Security
30. Access Control Policies
31. Limiting admin Privileges
32. Perimeter Protection
33. Incident Response
34. Physical Security
35. Identification and Authentication
36. Maintaining, Monitoring and Analyzing logs

पावरग्रिड

NCIIPC guidelines: (40 controls)-screen-4

37. Penetration Testing
38. Data Storage: Hashing and Encryption
39. Security Certifications
40. Asset and Inventory Management

पावरग्रिड

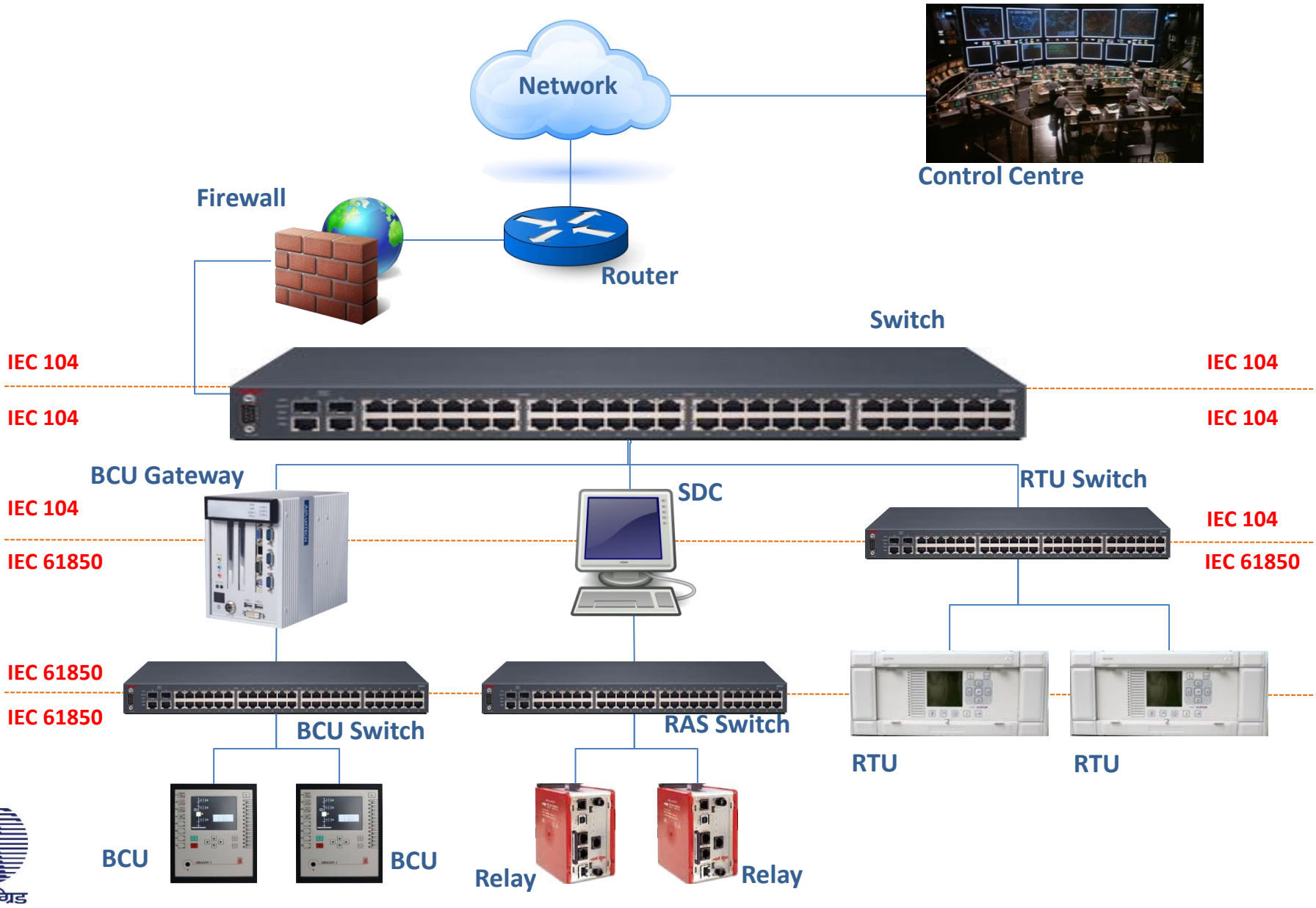
Best Practices for ICS cybersecurity

Ground rules of cybersecurity

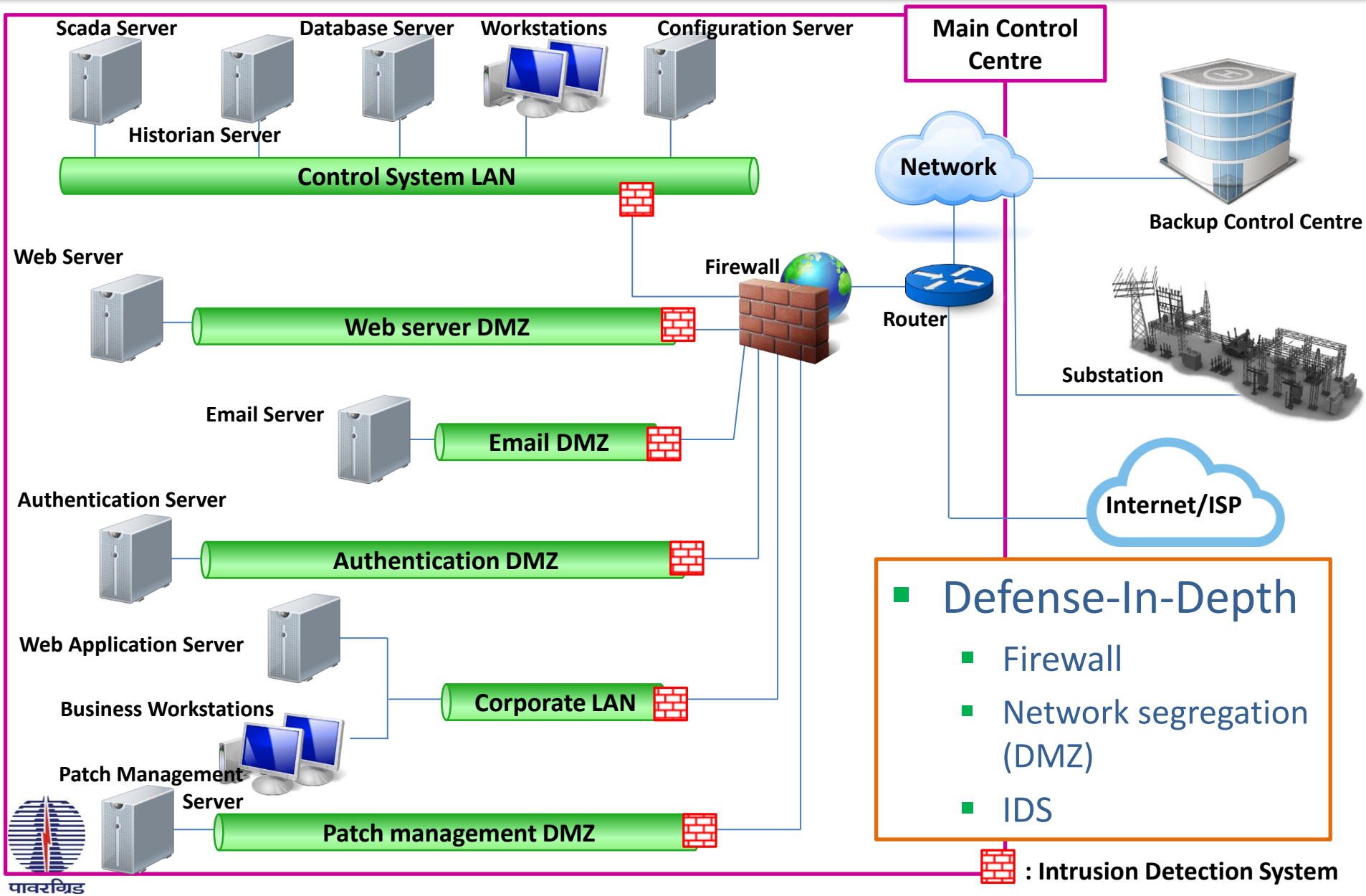
- "Defense-in-Depth" protection
  - Multiple layers of security to provide redundancy
  - Perimeter protection
- Segregate network to different zones
  - Inside, External, De-militarized zone (DMZ)
- Separate control network from enterprise network
- Standard compliance
  - NERC CIP
  - Electric Subsector- Cybersecurity Capability Maturity Model,
  - BIS Security standard for power control system.
- ICS cybersecurity should align with IT security

पावरग्रिड

Substation architecture

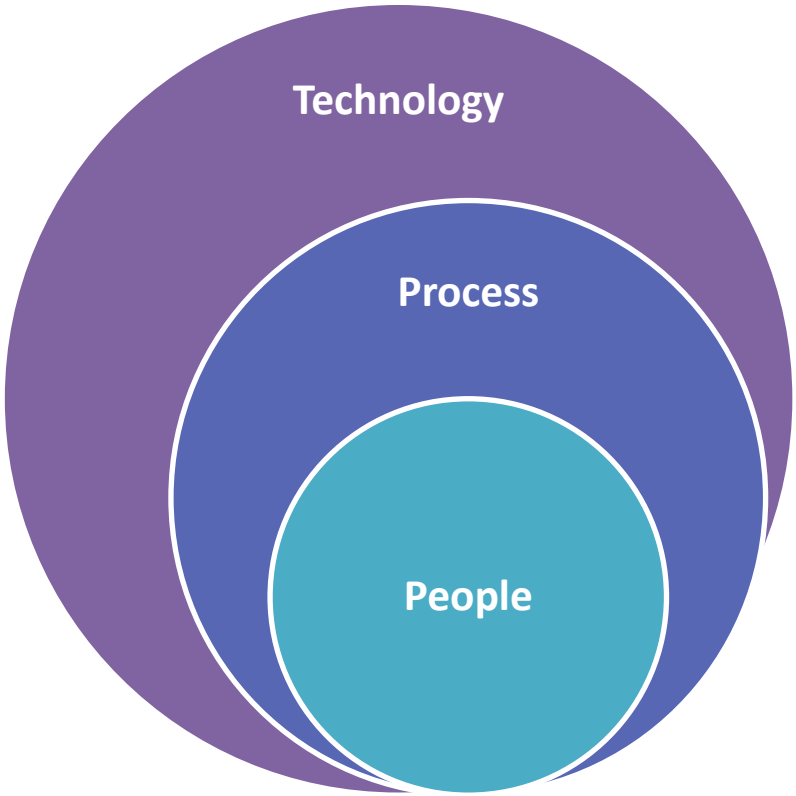


Control Centre Architecture & Defense-In-Depth



Ground rules of cybersecurity

- Use of technology alone will not suffice
- Principle of People, Process, Technology (PPT)



पावरग्रिड

Ground rules of cybersecurity

- People
  - Training and awareness
  - Security Vision and Insight
  - Experience and Maturity
- Process
  - Consists of Policy and procedure
  - Create and monitor metrics
  - Procedure focuses on how to put policy into action
  - Checklists, forms, flowcharts, etc.
- Technology
  - The security implementing assets in your facility
  - Having right and proven technology which can implement Processes.

पावरग्रिड

Ground rules of cybersecurity

Cybersecurity is a continuous process

Summary (NIPP Guidelines)

- National Infrastructure Protection Plan for Transmission Sector
  - Physical Security
    - Normal, Sensitive, Hypersensitive Substations
    - Perimeter Protection
    - Personnel Checks
    - TL Patrolling

पावरग्रिड

Summary (NIPP / IB Guidelines)

- Cyber Security
  - Identification of Critical Assets
  - VAPT Testing and Audits
  - Secure Communication
  - Hardening of Systems
  - Isolation of Networks
  - Authenticity and Accountability
  - Pen Drives, Default Passwords, Laptops, WiFi
  - Security Policy Manual

पावरग्रिड

Some Practical Guidelines

- SAS : Restricted use only
- Applications and Services not required uninstalled
- Pen Drives, Data Dongles, Bluetooth, Wi-Fi, External HDD : Strictly prohibited
- Identification and Labelling of Assets
- OEM Default Passwords – Reset: Authorized Personnel only Complexity and Frequency of change
- Change Management: Logbook
- Remote Support
- Internal / Third Party Audit Event Logs
- Incident Reporting

पावरग्रिड

Crisis Management Plan for CII

- Identify CII Assets
- Determine the System Normal Patterns: Benchmarking
- Deviations from “Normal” are the trigger points of a crisis
- Study the impact of crisis triggers
- Risk Categorisation, Prioritisation and Ranking
- Identify Crisis Action Group and Fix Responsibility
- Determine Mitigation Methods
- Business Continuity Planning

पावरग्रिड

Training and Awareness

- Identify People
  - CISO, Information Security Department
  - End Users, Managers and Policy Makers
- Design of appropriate course curriculum
- Sharing of Incident Informations
  - Learning Phase for Industry
  - Fear of deterrent actions: Impediment for reporting
- Core Team
  - Mock Drills
  - Infrastructure for Mock Drills

पावरग्रिड

Thank you..

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पश्चिम क्षेत्र - 1
WR - 1

IT / CYBER SECURITY AT NTPC

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WR - ₩R -1

WELCOME TO PRESENTATION ON
CYBER SECURITY

BY

NTPC WESTERN REGION HQ-1

OUR VISION-

To be world's largest and best power producer powering India's growth

NTPC IT Vision-

To Provide Fast , Reliable and Secure IT Solutions to enable the organization to become the world's largest and best power producer

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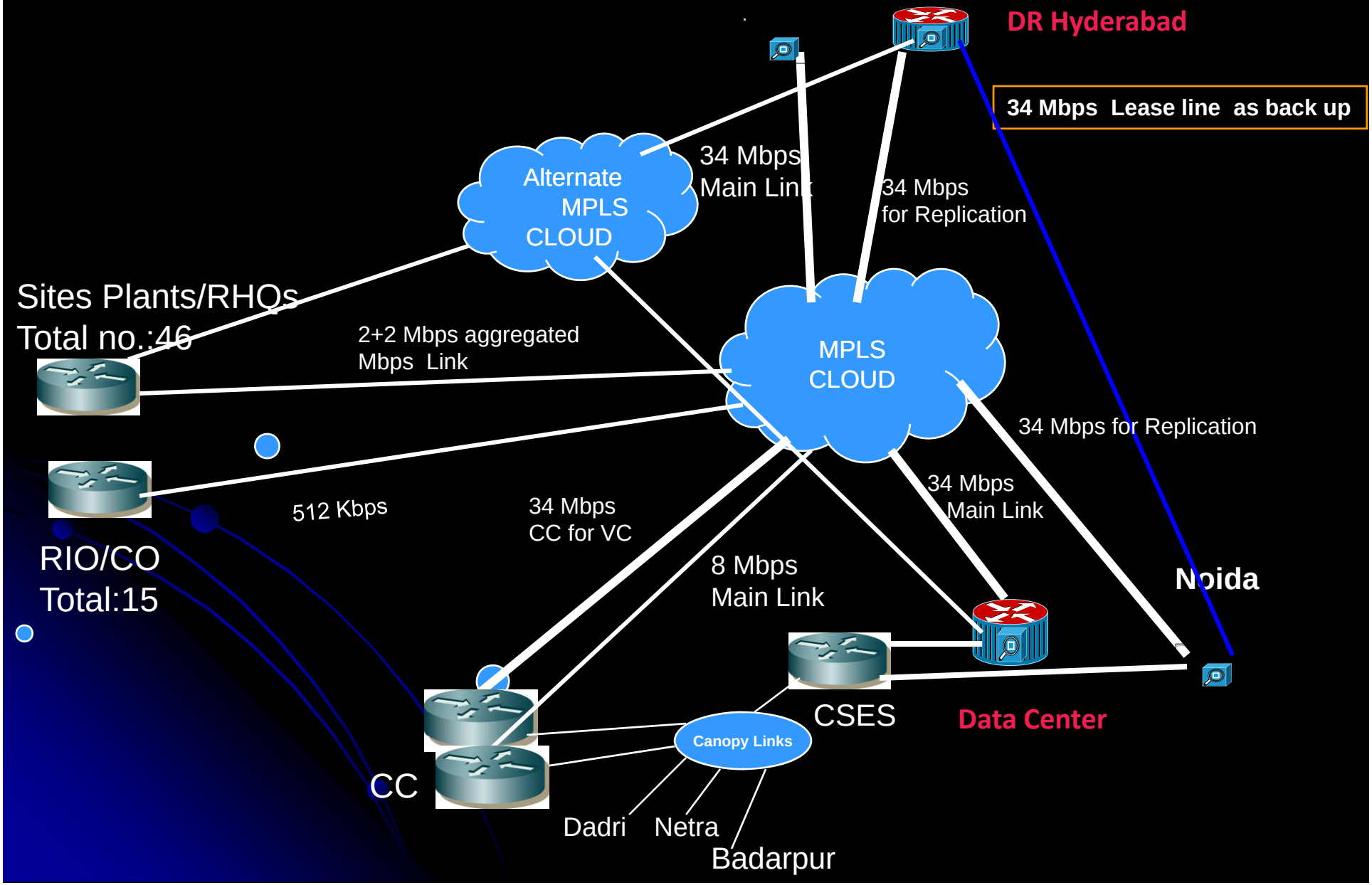
पश्चिम क्षेत्र - 1
WR - 1

Data Network Set up / Connectivity



Critical Security Controls / Area of concern for Cyber / Physical Security

- Boundary Defense
- Device & Infrastructure Protections
- Configurations & Setup
- Network Controls
- Applications & Websites,
- Audit, Logs & Policies
- Data Leakage Protection,
- Recovery Procedures, BCP & DR Setup

3 Tier Security Structure

- Having it's presence across the country NTPC is concentrating on IT security at 3 levels

- Corporate Level
- Regional Level
- Unit Level

HIGHLIGHTS

NTPC at its Corporate Level has policies and procedures to strengthen IT Security in line with Information Security Management Systems (ISMS), aligning to ISO27001 & 27002 with combination of

- preventive,
- detective and
- reactive process

to deal with security crisis, in order to minimize cyber threats

ADS Implementation

- All Microsoft windows based user desktops are part of NTPC Domain
- DHCP based IP addressing
- NAP (Network Access Protection) server authentication
- If the computer is not healthy, the computer is enforced to be updated through WSUS server / Antivirus server
- Uniform policy across all Desktops / Laptops, who want to connects thru LAN

Mail & Messaging Security

- Enterprise Messaging System on Domino 8.5 (Linux Red Hat Enterprise) with Lotus 8.5 Clients
- Hub & Spoke Architecture
- POP3 & SMTP services on server blocked
- Tivoli mail and Trend Micro scanning administration application deployed at central gateways for curtailing spam / virus mails

Internet Facility to Employees

- Through proxy cascading with central UTM equipment
- Corporate UTM are configured for multiple ISP for fallback arrangement
- The same has been hardened by means of antivirus gateway, Intrusion detection & prevention systems and access denied for unwanted websites

Internet Facility to Employees

- Data links are configured for using limited bandwidth so as not to affect business transactions.
- Proxy server access Log is kept as backup for a year.

Application Level Security

- Application Servers with Web based access w.r.t ERP application is configured behind peremetric IT security setup at corporate level
- Two-Factor Authentication with End-Point Security implemented for providing Remote access, to NTPC employees not on NTPC Network.
- The Log of all transactions in SAP are being recorded and monitored regularly

Business Continuity Plan / Disaster Recovery

- Data Centre at Corporate Centre Noida
- DR site at Hyderabad (separate seismic zone)
- Replication of all important Business transactions and other data over dedicated 34 MBPS circuit + VSAT
- NTPC main website (www.ntpc.co.in) is hosted within NTPC behind IT security setup. Its mirror website (www.ntpcindia.com) is hosted at NIC server along with tender & PMI websites

Application Level Security

- Password expiry period of 90days has been set for forcing all users to change their passwords regularly
- Accounts gets automatically locked after 03 consecutive failed login attempts.
- PUM – to be implemented

Antivirus Management

- Local Server at Each Location for getting regular updates through secured UTM
- All PCs & Servers updates itself with latest virus & spyware patterns using push technology
- Regular centralized monitoring at corporate level
- PCs disconnected from LAN / USB disabled by local admin in case of potential treat is sensed

OPERATING SYSTEM AND PATCH MANAGEMENT

- All PCs and servers are being regularly updated with latest OS updates.
- All PCs and servers are configured for auto update using NAP services.

Wi-Fi Networks

- Deployment of Wi-Fi in intranet restricted to areas where no feasibility of laying physical cabling
- At other places, Wi-Fi networks isolated from Business network.
- Wireless Encryption Protocols (WEP) access control security along with WPA2 with pre-shared Key (PSK) are being used.

Information Infrastructure & Network

- Hardening Measures done using Firewall controls from external access with setup implemented under De-Militarized Zones.
- Network Audits from external Cert-In certified agencies is done.
- Devices configurations/Policies are being Monitored regularly
- Using of VLANS in LAN Networks
- Regular Version Upgrades on Network Systems and Devices are under implementation.
- Administrative control to authorized persons only
- (2+2 MPBS) Data links at each locations + VSATs / alternate MPLS

Generation Data – SCADA System Security

- All generation system and other SCADA data being captured by local Plant Information (PI) servers
- Firewall Between PI and SCADA system with only data capturing port open
- Only one way communication b/w PI and SCADA System
- Redundant PI servers at all plant locations

Other Highlights

- Regular Reporting of any Security Breach / incident is being given on quarterly basis through Enterprise Risk Management reporting System.
- CC, NTPC has been identified as nodal agency for Cert-IN Thermal and has also participated in 3 Mock Drills
- Augmentation of Data Centre with PUM (Privilege User Mgmt.)

Physical, Technological & IT security

- Access control
  - prevention to safeguard personnel & equipment
  - prevent unauthorized access to critical structures, systems, material or information
    1. **Man – Smart cards/ RFID/ biometric entry exit**
    2. **Vehicle – physical barriers etc**
- CCTV Surveillance (IP PTZ Cameras)
  - Perimetric Security, Proj. Mgmt & safety
  - Boom Barriers
  - Security Control Room

Mouda Safety Control Room Screen Shot

Solapur IP Camera Screen Shot

Crisis Management Plan – STATUS

- Implementation plan to complete ISMS setup is under process in line with Crisis Management Plan
- CMP suggests to implement mainly following critical controls

  Boundary Defense, Device Protections , Configurations, Setup, Infrastructure Protection, Network Controls, Applications, Websites, Audit, Logs, Policies, Data Leakage Protection, Recovery Procedures, DR Setup and BCP, etc.
- **Requires periodic and Continual testing of Controls**

ISMS Implementation at NTPC-to prevent Cyber Security Incidents

- Nomination of CISO & Nodal Officers
- IT security Policy being reviewed in line with ISO 27001.
- People / Process / Technology
- Security Training and Awareness
- NTPC is following Threat Level (Level1) & for Level 2 with CERT-In

ISMS Implementation at NTPC-to prevent Cyber Security Incidents

- As advised by CERT-In the activity to assess the vulnerabilities at the Internet/External gateway points. Penetration Tests are conducted during IT Security Audit
- Role at Level – 1(Nodal Officer) and Level – 2 (Chief Information Security Officer) defined.

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WR - 1

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,

R Jin lal
22/11/2016

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

IN MW/MVAR

X-- AREA --X	FROM GENE-RATION	AT AREA BUSES FROM IND GENERATN	TO IND MOTORS	TO LOAD	TO BUS SHUNT	TO GNE BUS DEVICES	TO LINE SHUNT	FROM CHARGING	TO LOSSES	-NET INTERCHANGE- TO TIE LINES	TO TIES + LOADS	DESIRED NET INT
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 GENE-RATION	AT ZONE BUSES FROM IND GENERATN	TO IND MOTORS	TO LOAD	TO BUS SHUNT	TO GNE BUS DEVICES	TO LINE SHUNT	FROM CHARGING	TO LOSSES	-NET INTERCHANGE- TO TIE LINES	TO TIES + 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

Annexure-C

TLTG Results

INCR. TRANS CAPAB	LIMITING ELEMENT FROM			CKT	TO			CKT	DISTR. FACTOR	PRE-SHIFT MW	RATING BAS/CNT A/B	CONTINGENCY DESCRIPTION
-405.3	378040	SHOLAPUR	765.00	2	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	1	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	1	378043	AURANGABD-PG	765.00	1	0.38895	-2589.8	2750.0	OPEN 378040 [SHOLAPUR 765.00] TO 378043 [AURANGABD-PG765.00] CKT 2
-411.9	378040	SHOLAPUR	765.00	2	378043	AURANGABD-PG	765.00	2	0.38895	-2589.8	2750.0	OPEN 378040 [SHOLAPUR 765.00] TO 378043 [AURANGABD-PG765.00] CKT 1

Exhibit-I : Base case with 6650 MW SR Import

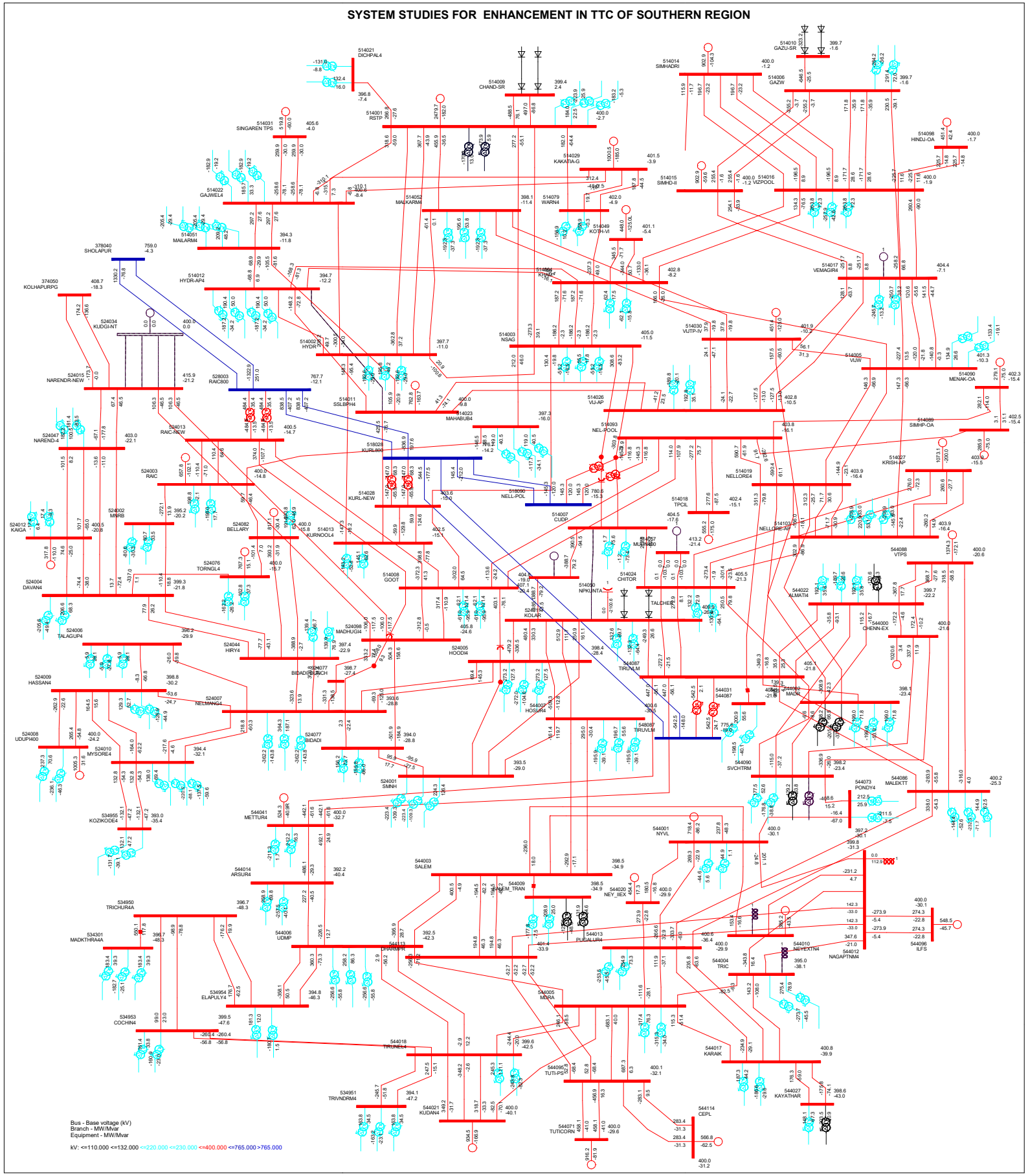


Exhibit-II(a) : Base case with 7050 MW SR Import

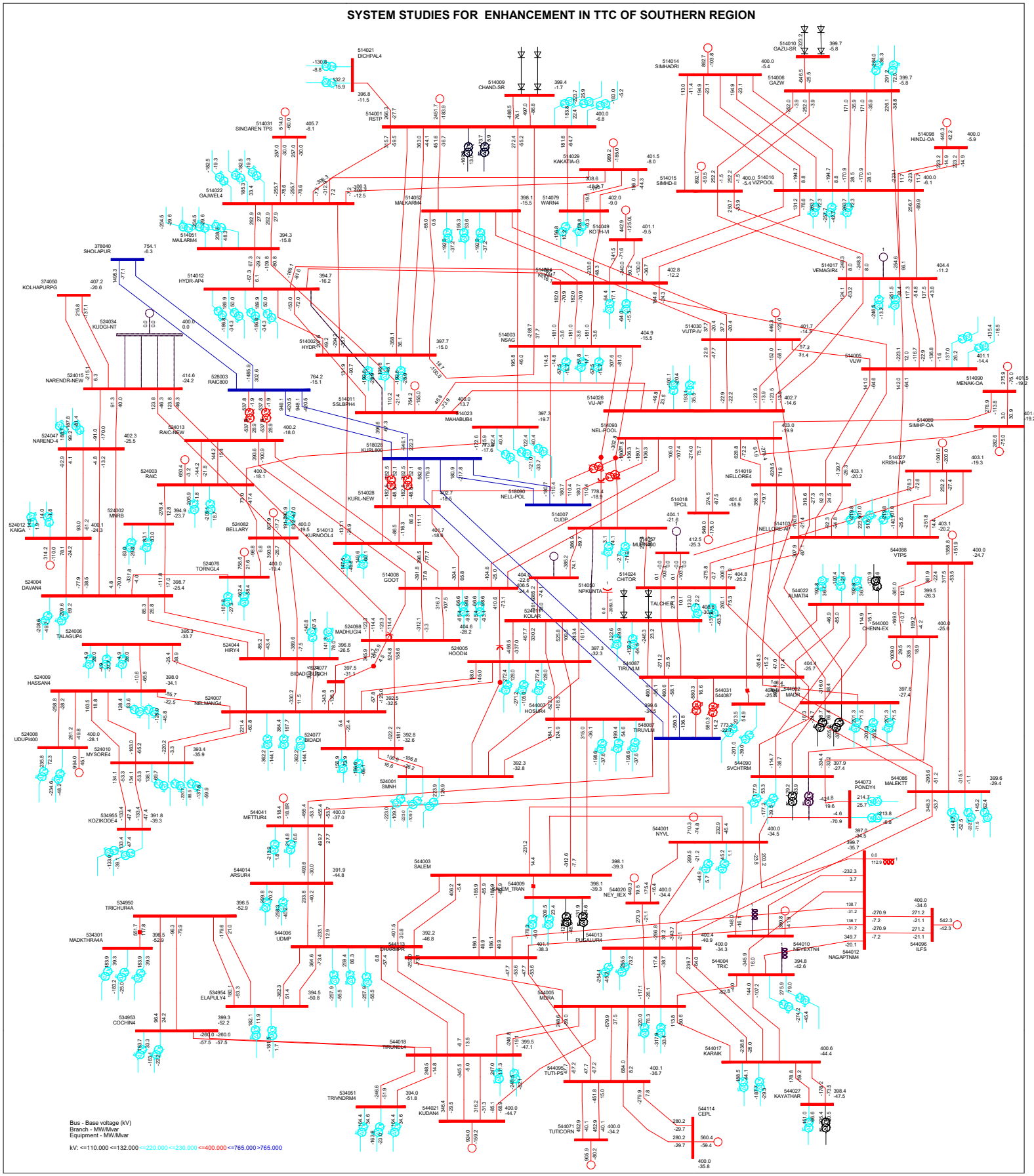


Exhibit-II(b) : Base case with 7050 MW SR Import & N-1 of Raichur-Solapur 765kV S/c line

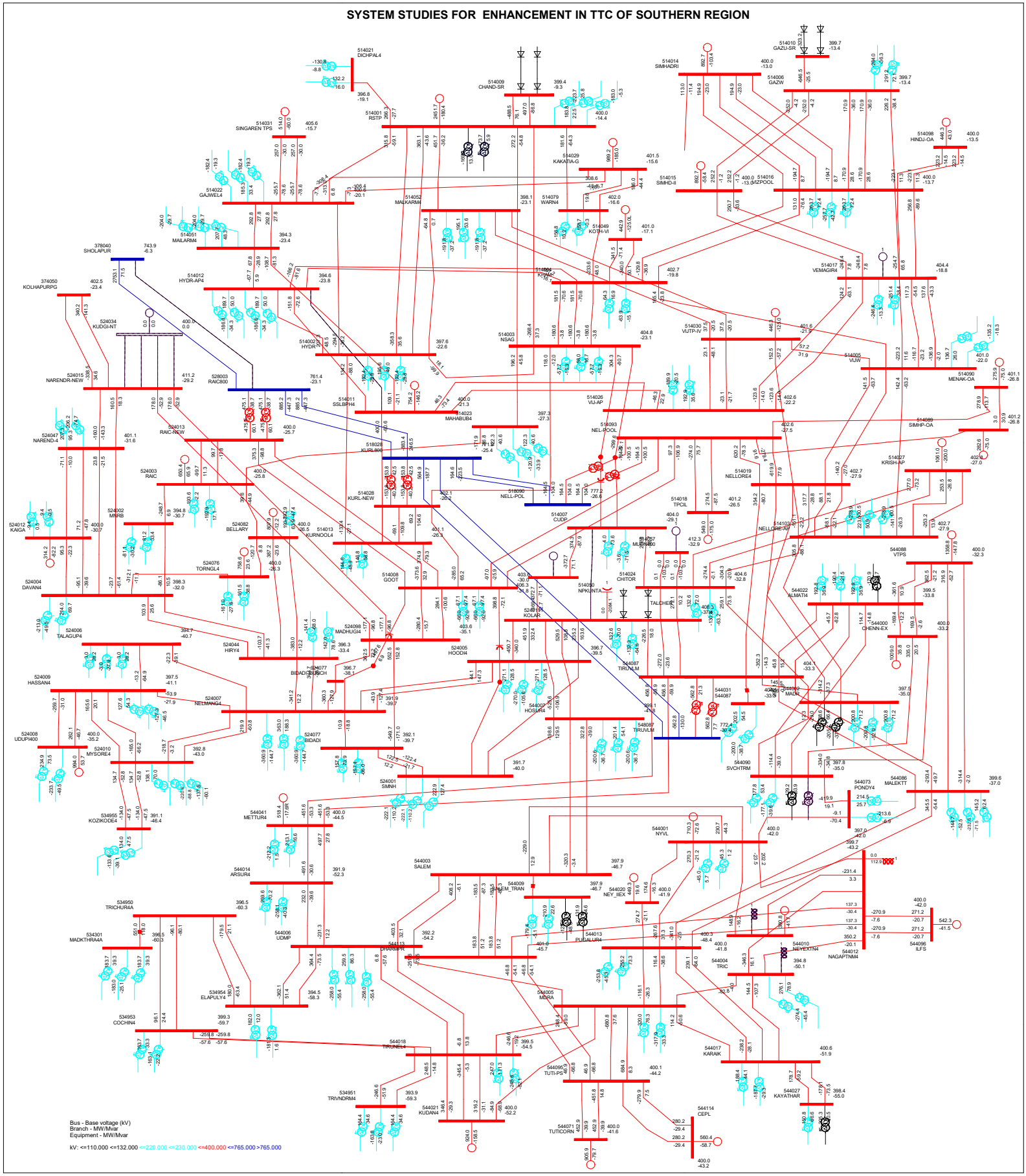


Exhibit-II(c) : Base case with 7050 MW SR Import & outage of Kudankulam unit-I

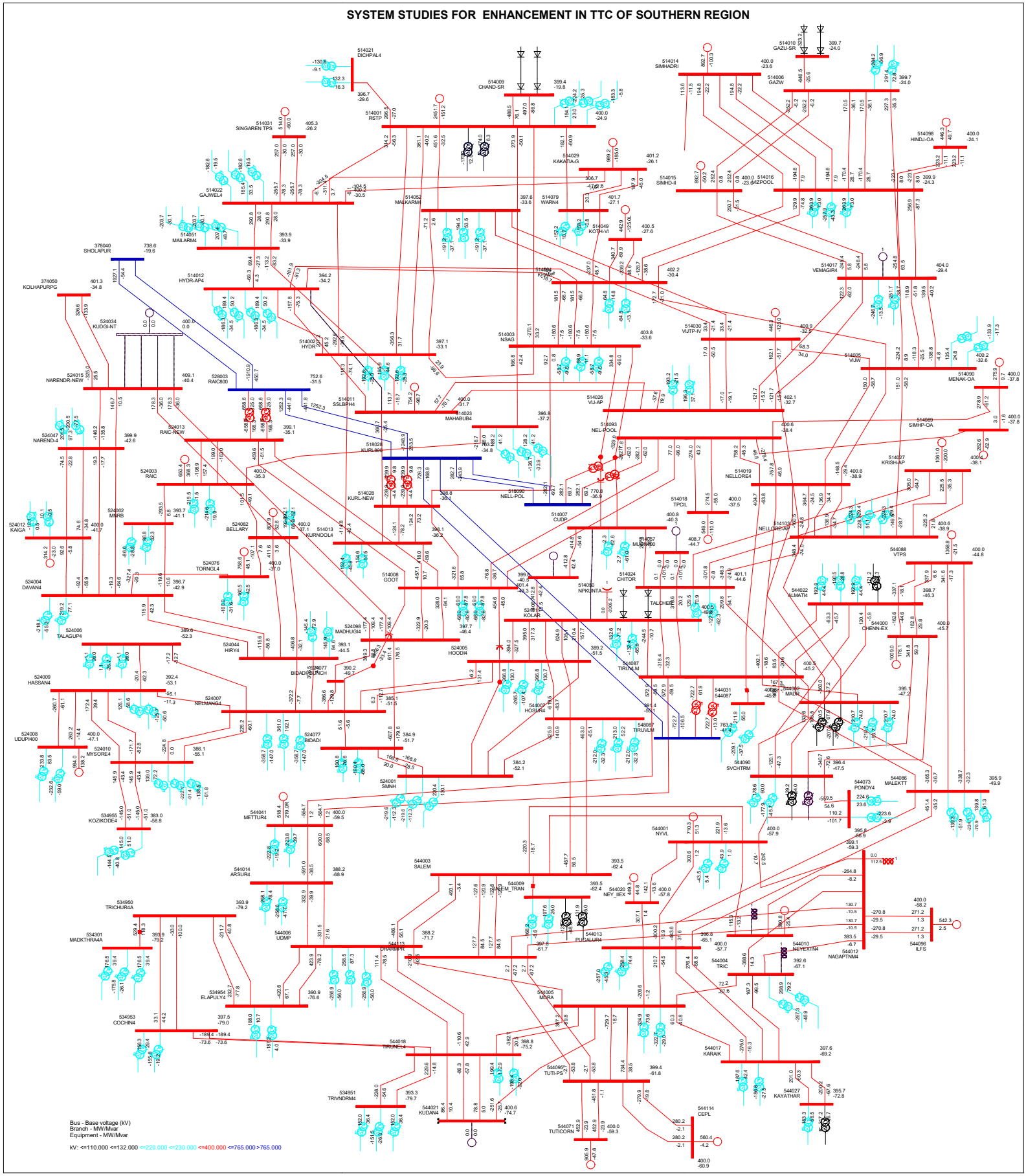
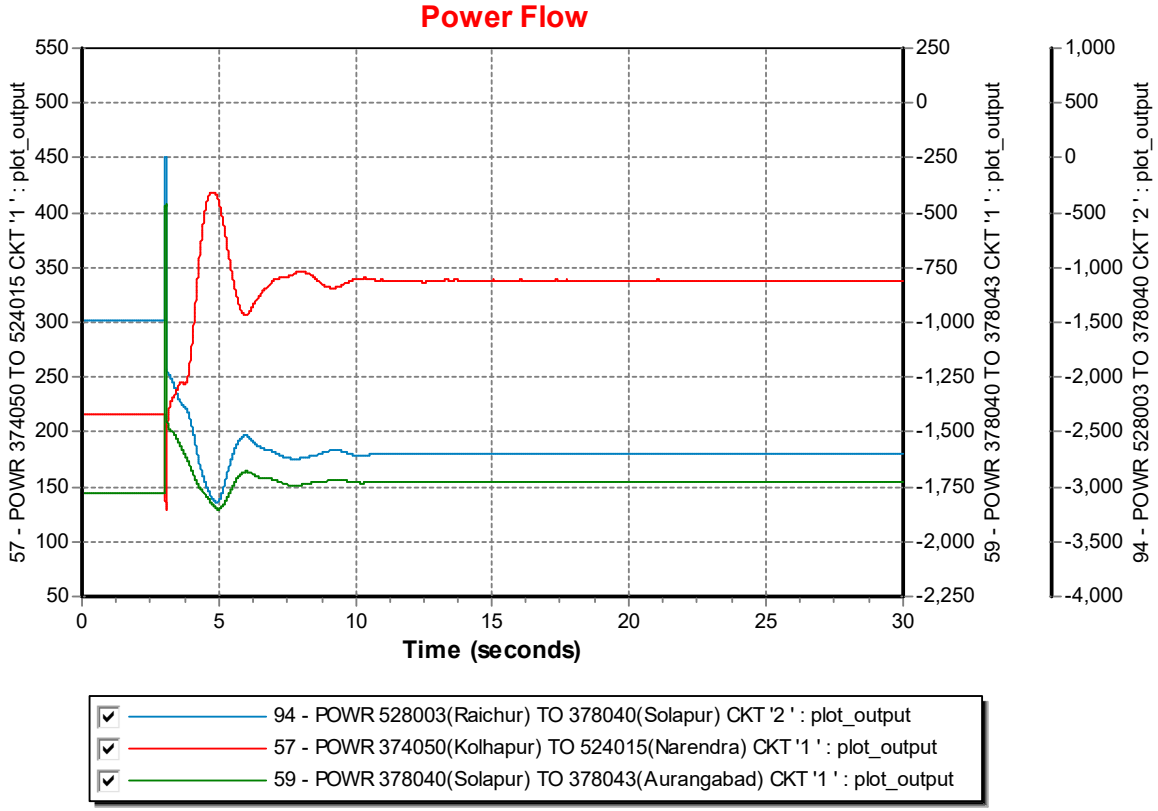


Exhibit-III

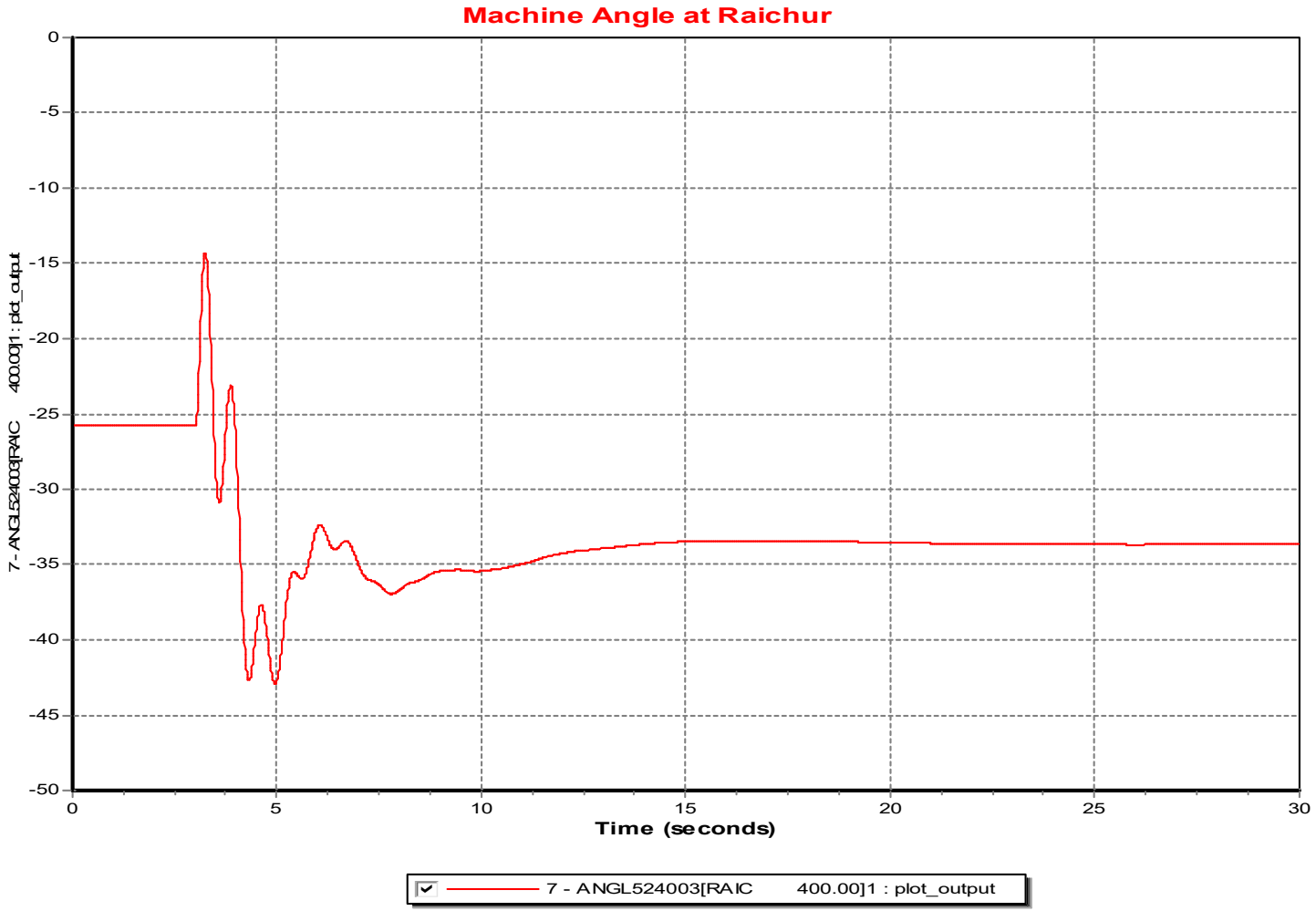
Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



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

Exhibit-III

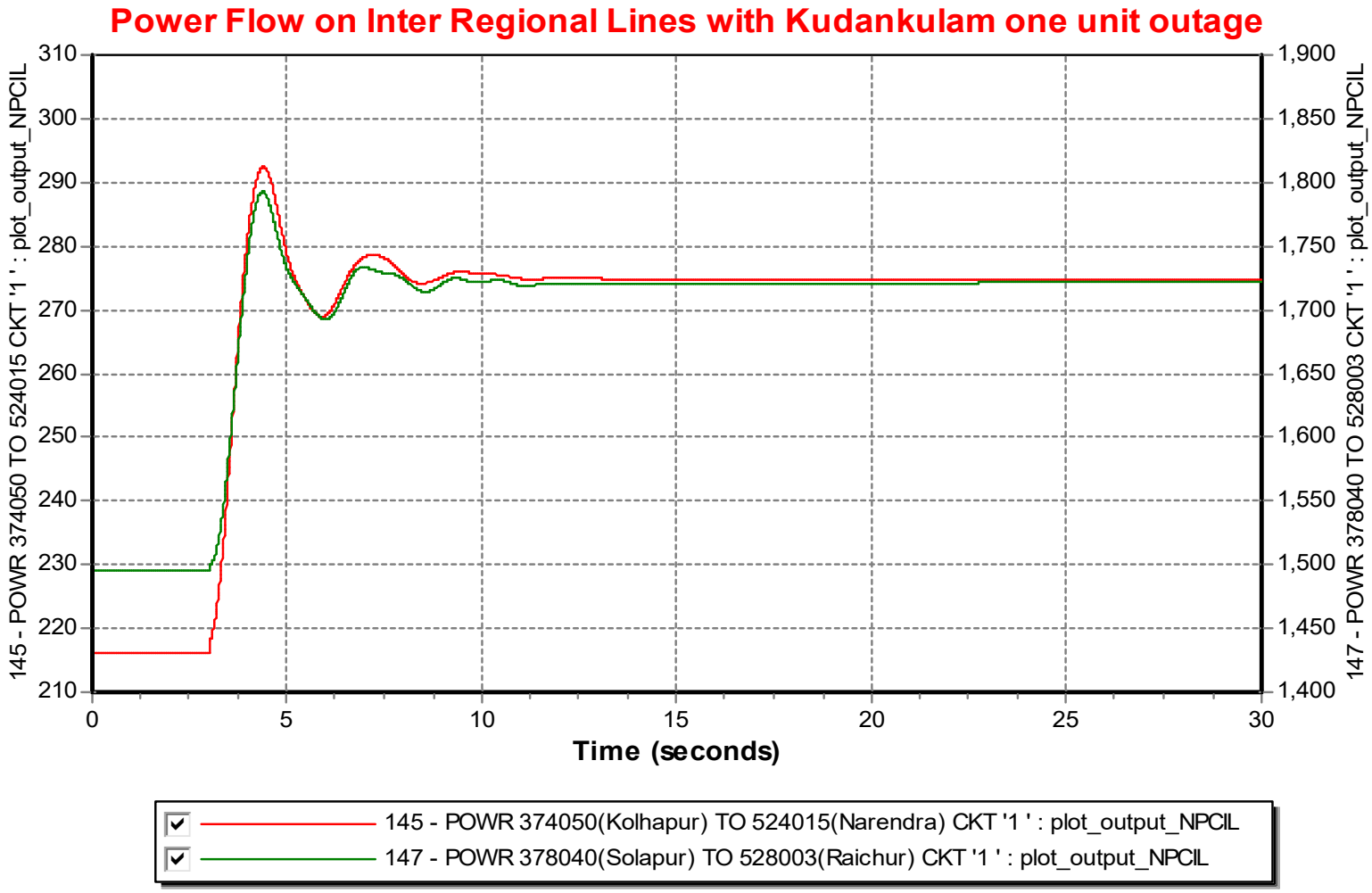
Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



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

Exhibit-III

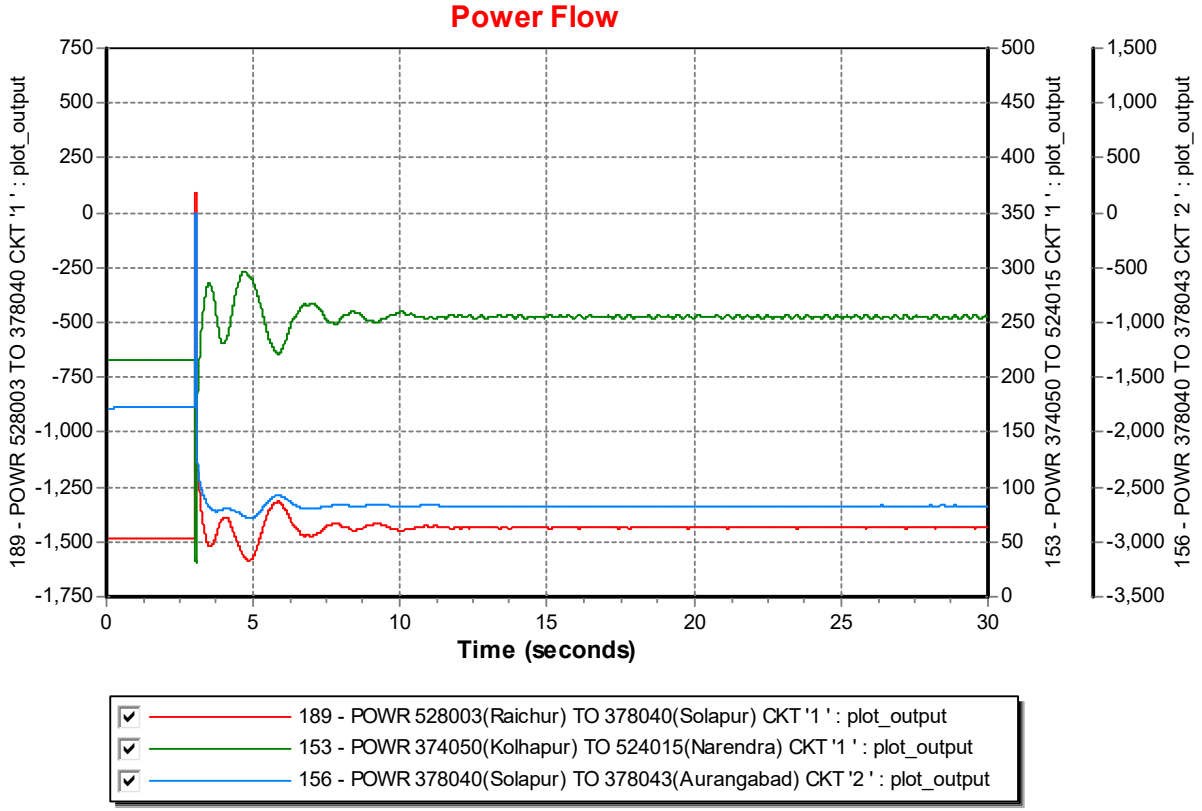
Dynamic Simulation Study for enhancement of TTC by increasing the limit on Raichur – Solapur 765 kV 2xS/c & Aurangabad – Solapur 765 kV D/c line(under n-1 contingency)



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

Exhibit-III

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,

(S.D.TAKSANDE)
Member Secretary.

Encl:-As above.

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. 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).

SE (O)

Pl include in 49th OCC agenda

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,

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.

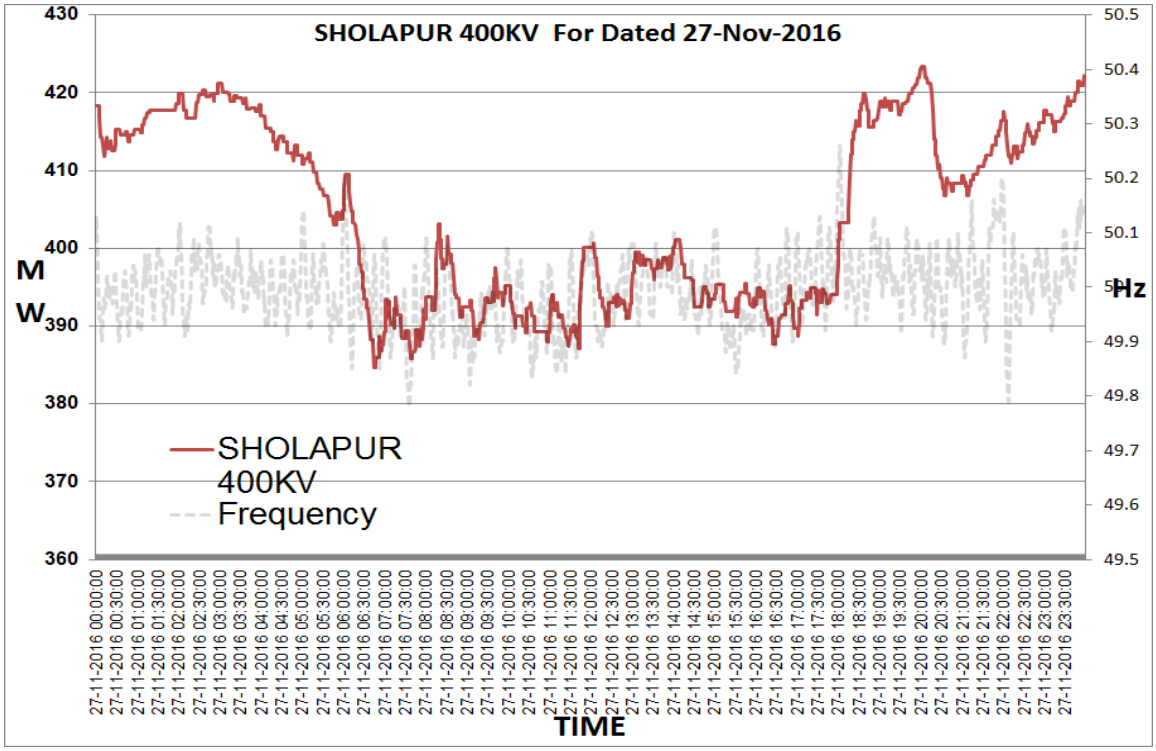
b. Voltage dip at 400kV & 765kV substations in WR due to tripping of 765 kV Aurangabad-Sholapur lines under two import scenarios

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**

Note: In	S. No.	Name of the substation	6650 Import by SR		
			Basecase	(n-1) of 765kV Aurangabad-Sholapur	(n-1-1) of 765kV Aurangabad-Sholapur
	1	765kV Aurangabad	766	761	770
	2	400kV Wardha	401	400	399
	3	400kV Parli (PG)	**393**	**386**	**374**
	4	400kV Sholapur (PG)	**397**	**390**	**381**
	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. Lowe 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 lese 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

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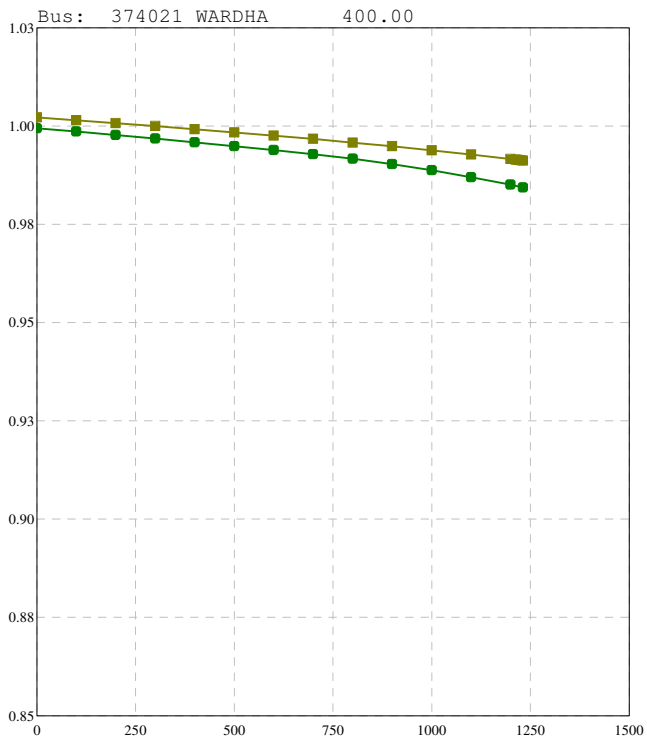

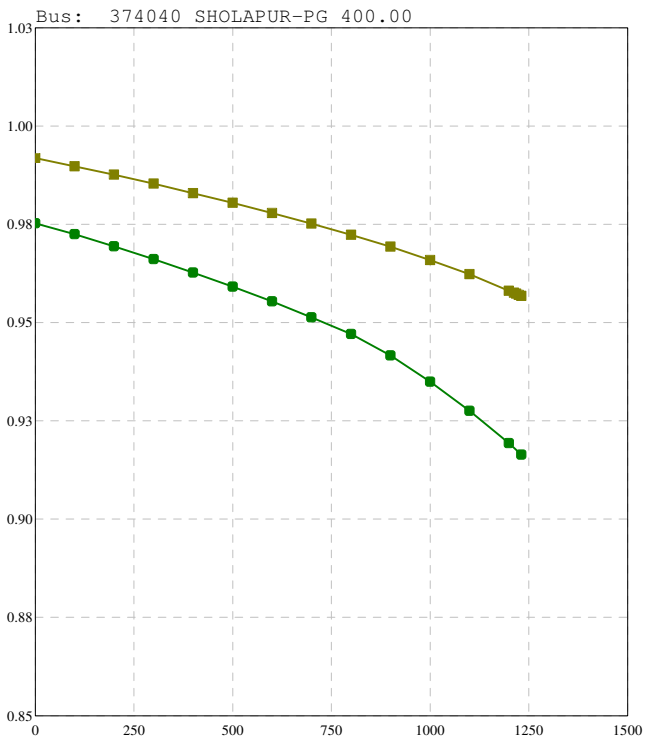

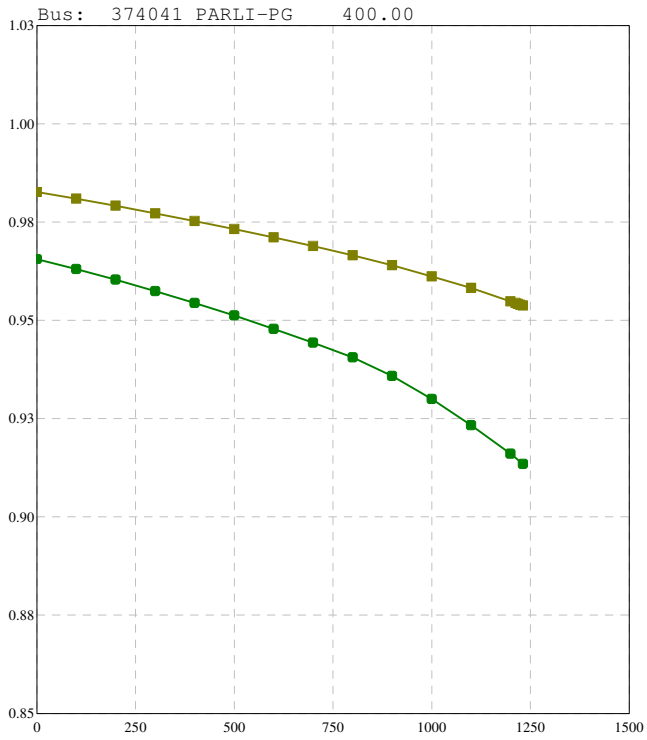

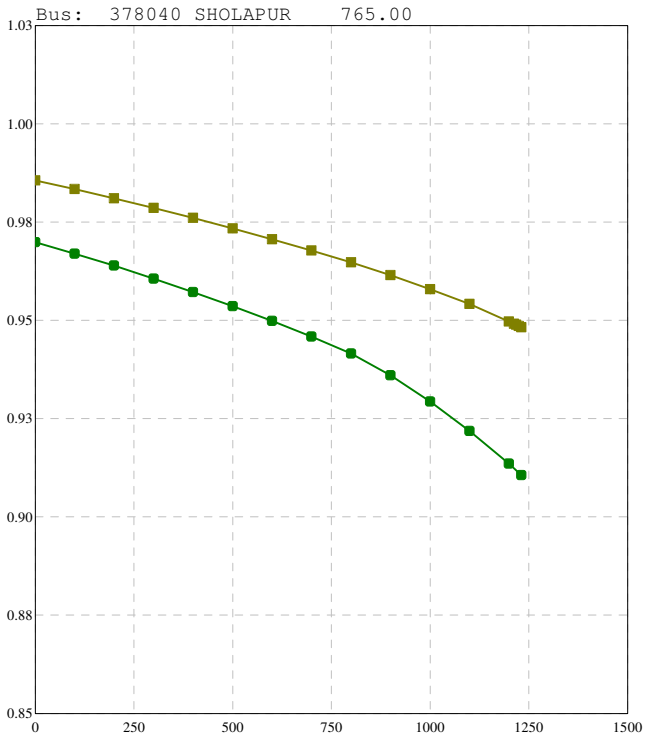

Mark	Contingency
	BASE CASE
	OUTAGE_AURANGABAD_SHOLAPUR_ONE_CKT
	OUTAGE_OF_BOTH_AURANGABAD_SHOLAPUR_CKTS

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of IndiaEnterprise)
पावरग्रिड
"आय.एस.ओ. 9001 : 2000 प्रमाणित कपनी"- "I.S.O. 9001 : 2000 Certified Company"
प्लाट नं. 54, अम्बे विद्यालय के सामने, समा सावली रोड, वडोदरा - 390018(गुजरात)
Plot No. 54, Opp. AmbeVidyalaya, SamaSavli Road, Vadodara – 390018(Gujarat)
Email: rhqoswr2@gmail.com
पश्चिम क्षेत्र पारेषण प्रणाली-II, क्षेत्रीय मुख्यालय
Western Region Transmission System – II, Regional Headquarters

ANNEXURE-8.4

RTV COATING OUTAGES ON EQUIPMENT:

AGM (WR-II), POWERGRID, has appraised that RTV coating on terminal equipment, ICT/Reactor bushings etc., is the one-time activity. The RTV coating reduces leakage currents by imparting hydrophobic properties to porcelain insulators, thus avoiding flashovers during adverse weather conditions. To maintain system healthy and stable, RTV coating to be done on equipment in locations which highly polluted or near to sea coast. The equipment in following important 765kV Substations are proposed for RTV coating presently as per the tentative dates given below:

1) Satna S/S: 15/12/16 to 20/12/16
2) Bina S/S: 21/12/16 to 26/12/16
3) Indore PS: 27/12/16 to 30/12/16
4)Vindhyachal PS: 5/1/17 to 7/1/17
5) Vadodara GIS: 9/1/17 to 11/1/17

POWERGRID has further informed that RTV coating on terminal equipments of Bhachau SS & POWERGRID bays at Varsana SS (GETCO) has been completed in October-November 2016. Similarly, RTV coating on terminal equipments of Navsari (GIS) & Magarwada (GIS) has also been completed in November 2016. Further RTV coating ofbayequipments of Bhachau SS and terminal equipments of Kala(GIS), Vapi, Boisar &Pirana SS is being taken up in next phase.

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
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पश्चिम क्षेत्र पारेषण प्रणाली-II, क्षेत्रीय मुख्यालय
Western Region Transmission System – II, Regional Headquarters

ANNEXURE-8.5

TRIPPING OF 765KV GWALIOR - AGRA CKT.1 DUE TO DENSE FOG WITH HEAVY POLLUTION CONDITIONS:

AGM (WR-II), POWERGRID, has informed that mass replacement of disc insulators with composite polymer insulators has been taken up by POWERGIRD in various lines in Gujarat and MP states, which are passing through highly industrial areas, near to sea coastal areas due to industrial & coastal pollution during foggy weather condition, there is tracking on insulators leading to flashover & tripping of lines. In order *to avoid undesirable tripping of critical Inter/Intra-stateand Inter-Regional lines and ensure to maintain the system healthy and stable, all porcelain/disc insulators are being replaced with polymer insulators as aone-time activity.*

Details of replacement of disc insulators with CLR Polymer insulators has been completed/planned as follows:

Sr.No.	Name of line	Schedule	Remarks
01	765Kv Gwalior – Agra Ckt.1	16.01.16 to 20.01.16 and 24.01.16	Replacement done from loc.no. 270 to 300 and loc.no. 30 to 40 in polluted affected sections of line
02	765Kv Gwalior – Agra Ckt.2	21.01.16 to 22.01.16	Replacement of done from loc.no. loc.no. 260 to 300 and loc.no. 30 to 40 in polluted sections of line
03	220kV Vapi – KharadparaCkt. 1&2	11.01.16 to 16.01.16	Replacement done in complete line
04	400kV Boisar - Padhge	18.05.16 to 20.05.16	Replacement completed in 17 towers in polluted sections

		10.01.16 to 12.01.16	Planning for replacement in balance 82 towers in polluted sections of line
05	220kV Kakrapara – Haldarwa 1&2 220kV Kakrapara- Vav 1&2	04.06.16 to 23.06.16	Replacement done in all towers
06	220kV Kakrapara – Vapi 1&2		Replacement done in 118 towers
		20.12.16 to 24.12.16	Planning for replacement in balance 253 towers
07	765kV Gwalior – Agra Ckt.1	06.12.16 to 10.12.16	Completed 252 towers against total 305 towers.
		23.12.16 to 24.12.16	Planning for replacement in balance 53 towers.
08	400kV Gandhar- Dehgam Ckt.1&2	02.01.17 to 05.01.17	Planning for replacement in balance 28 towers

Further, the replacement of disc insulators with polymer insulators are being planned in following lines, as Polymer insulators required for these lines are under procurement.

Sr.No.	Name of line	Tentative schedule of replacement
01	765kV Gwalior-Agra Ckt.2	May/June 2017
02	765kV Gwalior – Jaipur Ckt.1 & 2	June / July 2017
03	765kV Indore - Vadodara	March 2017
04	400kV Vadodara – Pirana Ckt.1&2	May/June 2017
05	400kV Navsari – Magarwada 1&2	
06	400kV Kala – Magarwada 1&2	June/July 2017
07	400kV Vapi – Kala 1&2	

ANNEXURE 10

SR NO	UTILITIES	OCC NO.	MONTH	STATUS	REMARK
1	NTPC VINDHYACHAL	480	Feb-16	HELD ON 08.02.2016 AT NTPC VINDHYACHAL	
2	PGCIL RAIPUR	481	Mar-16	HELD ON 11.03.2016 AT PGCIL RAIPUR	
3	WRPC	482	Apr-16	HELD ON 12.04.2016 AT WRPC MUMBAI	
4	M B POWER	483	May-16	HELD ON 12.05.2016 AT MB POWER	
5	GMR CHHATTISHGARH	484	Jun-16	HELD ON 14.06.2016 AT RAIPUR BY GMR CHHATTISGARH	
6	KSK	485	Jul-16	HELD ON 15.07.2016 AT BILASPUR BY KSK MAHANADI CHHATTISGARH	
7	JAYPEE NIGRIE STPP	486	Aug-16	HELD ON 17.08.2016 AT VARANASHI BY JAYPEE NIGRI(JNSTPS)	
8	APL	487	Sep-16	HELD ON 16.09.2016 AT AHMEDABAD	
9	WRTS-II	488	Oct-16	HELD ON 17.10.2016	
10	WRPC MUMBAI	489	Nov-16	HELD ON 11.11.2016	
11	RELIANCE INFRA(DTPS)	490	Dec-16	HELD ON 15.12.2016	
12	NTPC, Mauda	491	Jan-17	TO BE HELD ON 15.12.2016	
13	D B POWER	492	Feb-17		
14	TORRENT POWER	493	Mar-17		
15	DNH	494	Apr-17		
16	KWPCL	495	May-17		
17	RELIANCE TRANSMISSION	496	Jun-17		
18	SUGEN (TPL)	497	Jul-17		
19	NHDC	498	Aug-17		
20	CHHATTISHGARH	499	Sep-17		
21	NCA	500	Oct-17		
22	GUJARAT	501	Nov-17		
23	RGPPL	502	Dec-17		
24	MAHARASHTRA	503	Jan-18		
25	JPL	504	Feb-18		
26	WRTS-I	505	Mar-18		
27	RKM POWER GEN	506	Apr-18		
28	TAPS-1&2	507	May-18		
29	NTPC Gandhar/Kawas	508	Jun-18		
30	RELIANCE SASAN	509	Jul-18		
31	MADHYA PRADESH	510	Aug-18		
32	ESSAR TRANSMISSION	511	Sep-18		
33	BDTCL/JBTCL	512	Oct-18		
34	NTPC VINDHYACHAL	513	Nov-18		
35	NTPC KORBA	514	Dec-18		
36	TATA POWER	515	Jan-19		
37	ADANI POWER(TIRODA)	516	Feb-19		
38	NTPC SIPAT, CG	517	Mar-19		
39	TAPS-3&4	518	Apr-19		
40	CGPL	519	May-19		
41	RATTAN INDIA POWER LTD	520	Jun-19		