SPEED POST

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
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आई एस ओ : 9001-2008
ISO : 9001-2008

सं :पक्षेविस /36वी पक्षेविस बैठक/ सहा सचिव/ 2018 5294-7 दिनांक : 7 JUN 2018
No. WRPC/36th WRPC Mtg./AS/2018/ Date :

सेवा में, /To,

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

विषय : पश्चिम क्षेत्रीय विद्युत समिति की 36 वीं बैठक की कार्यसूची
Sub.: Agenda of the 36th meeting of Western Regional Power Committee

महोदय/Sir,

इस पत्र के साथ **23** जून **2018, 10:30** बजे को अहमदाबाद में आयोजित होने वाली पश्चिम क्षेत्रीय विद्युत समिति की **36** वीं बैठक एवं इससे पहले **22** जून **2018, 10:30** बजे को आयोजित होने वाली तकनिकी समन्वयन समिति की बैठक की कार्यसूची संलग्न है।

Please find enclosed herewith the Agenda of the 36th meeting of Western Regional Power Committee to be held on 23rd June 2018 at 10:30 hrs to be preceded by TCC meeting on 22nd June 2018 at 10:30 hrs at Ahmedabad for your needful.

भवदीय/Yours faithfully,

संलग्न :उपरोक्तानुसार

Encl: As Above

(ए . बालन / A Balan)
सदस्य सचिव/Member Secretary

		2018-19
List of members of WRPC		FAX NUMBERS
1	Chairman, WRPC/ Principal Secretary,Dept. of Energy Govt.of	0755-2575666
	MP and Chairman, MPPTCL, Bhopal.	
2	Member (GO&D), CEA, New Delhi	011-26108834
3	Managing Director, CSPTCL,Raipur	0771-2262141
5	Managing Director, CSPGCL, Raipur.	0771-2262741
4	Managing Director, CSPDCL, Raipur.	0771-4066566
6	Executive Director(LD), SLDC, Raipur.	0771-2574174
7	Chairman,GUVNL,Vadodara.	0265-2340220
8	Managin Director, GSECL, Vadodara	0265-2344734
9	Managing Director, GETCO,Vadodara.	0265-2338152 Gen.2337918
10	Managing Director, Madhya Guj.Vij.Com.Ltd, Vadodara	0265-2338280 / 2338164
11	Chief Engineer (LD), SLDC, GETCO, Vadodara.	0265-2352019 / 2356469
12	Managing Director, MPPTCL, Jabalpur	0761-2664141
13	Managing Director, MPPGCL, Jabalpur.	0761-2665661
14	Director (Commercial) MP Paschim VV Nigam.Lindore,	0731-2424300
15	CE(LD), SLDC, MPPTCL, Jabalpur.	0761-2670119, 2664343
16	Chairman & Managing Director, MSETCL, Mumbai.	26598595
17	Chairman & Managing Director, MSPGCL, Mumbai.	26471060, 26581400
18	Chairman & Managing Director, MSEDCL, Mumbai.	26478672
19	Chief Engineer (LD), SLDC, MSETCL, Kalwa.	27601769
20	Chief Electrical Engineer, Electricity Dept., Goa	0832-2426986
21	Secretary(P), UT of Daman & Diu, Moti Daman.	0260-2230771/ 2230088
22	Secretary(P), UT of DNH, Silvassa.	0260-2630220
23	Director (HR.), NTPC Ltd., New Delhi.	011-24360912
24	Director (Finance), NPCIL, Mumbai.	022-25993332
25	Director (Operation), PGCIL, Gurgaon.	0124-2571922 / 2571802
26	Chief Executive Officer, NLDC, New Delhi.	011-26536901
27	Executive Director, POSOCO, WRLDC, Mumbai.	28202630
28	COO & Executive Director (O), Tata Power Com.L. Mumbai	66657966
29	Managing Director, RGPPL, Noida	0120-4148911, 13, 14
30	Chief Executive Director&MD, NHDC Ltd, Bhopal.	0755-4030003
31	Executive Director, Torrent Power Generation, Surat	02621-661151
32	COO(O&M), Adani Power Ltd, Ahmedabad	079-25557155, 25557176
33	COO,GMR Warora Energy Ltd,Chandrapur, Maharashtra.	
34	PTC India Ltd	
35	VP(Distribution), Torrent Power, Surat.	
36	Director & CEO, JSW Energy Ltd.,New Delhi.	011-48178740
37	EVP & Station Head,Jindal Power Ltd,Raigarh,Chhattisgarh.	07767-281995
38	CEO,Coastal Gujarat Power Ltd,Kutch.	02838-661181
39	Sr.Vice President (O),RattanIndia Power Ltd,Gurgaon	0124-6695868
40	President & Plant Head, Jaypee Nigrie STPP,Sigrauli,MP	
41	Project Head, D.B.Power Ltd, Raigarrh, Chhattisgarh.	
42	COO(O&M), Adani Power Maharashtra Ltd, Ahmedabad	079-25557155
43	Project Head, KSK Mahanadi Power Co.Ltd.,Bilaspur, C.G.	
44	President-Thermal,MB Power(M.P.) Ltd,New Delhi.	011-47624229
45	Project Head,Sasan UMPP,Sasan Power Ltd,Waidhan,M.P	

	List of members of TCC	2018-19
1	MD,MPPMCL/ Chairman,TCC of WRPC/MPPKVVCL,Jabalpur	0761-2664749
2	Chief Engineer (GM), CEA, New Delhi.	011-26109750
3	Executive Director (Comml.), CSPDCL, Raipur	0771-2574442
4	Executive Director(O&M:Gen), CSPGCL, Raipur	0771-2574425
5	Executive Director(Gen.), GSECL, Vadodara	0265- 2344537 / 252338848
6	Superintending Engineer (R & C), GETCO, Vadodara.	0265-2353086 / 2337918
7	Chief Engineer(Projects),Madhya Guj. Vij.Com.Ltd, Vadodara	0265-2337918
8	Executive Director (O&M-Gen), MPPGCL, Jabalpur.	0761-2664572
9	Director,(Technical),MP Paschim VV Nkigam Ltd,Indore.	0731-2426218
10	Director (Operation), MSETCL,Mumbai	022-26590383, 26591254
11	Director (Operation), MSPGCL, Mumbai.	26478852 / 26474190
12	Director (Operation), MSEDCL, Mumbai.	26581465 / 26472976
13	Executive Engineer, DD, Nani Daman	0260-2250889
14	Executive Engineer, DNH, Silvassa	0260-2642338
15	Regional ED, NTPC Ltd., WRHQ-I, Mumbai.	28259364
16	Regional ED, NTPC Ltd., WRHQ-II, Raipur	0771- 2544550 / 2544513
17	Associated Director (Trans), NPCIL, Mumbai.	25993664
18	Executive Director, WRTS-I, PGCIL, Nagpur.	0712-2641471
19	Executive Director, WRTS-II, PGCIL, Vadodara.	0265-2488564
20	Head, Tata Power Company Ltd, Chembur, Mumbai	67175385
21	General Manager (Power), RGPPL, Ratnagiri	02359-241071
22	Chief Engineer(Elect.), NHDC, Bhopal, M.P.	0755-4030130
23	Executive Director (O&M), Torrent Power, Surat	02621-661151
24	Asso. V. President(P&M),Adani Power Ltd,Ahmedabad	079-25557176
25	Head -O&M,GMR Warora Energy Ltd,Chandrapur Maharashtra.	
26	PTC India----------	
27	G.M.(EHV), Torrent Power, Surat.	
28	Director (Technical), JSW Energy Ltd., Bandra(E),Mumbai	022-42863000
29	General Manager-Power Control Jindal Power Ltd Chhattisgarh.	
30	Chief (O&M),Coastal Gujarat Power Ltd,Kutch. &	02838-661181
31	Sr.Vice President (O),RattanIndia Power Ltd,Gurgaon	0124-6695868
32	General Manager, Jaypee Nigrie STPP,Sigrauli,MP	
33	Project Head, D.B.Power Ltd, Raigarrh, Chhattisgarh.	
34	A. V. P(P&M),Adani Power Maharashtra Ltd,Ahmedabad	079-25557155
35	Project Head, KSK Mahanadi Power Co.Ltd.,Bilaspur, C.G.	
36	GM-Business Development, MB Power (M.P.)Ltd,New Delhi.	
37	Project Head,Sasan UMPP,Sasan Power Ltd,Waidhan,M.P	
38	Chief Engineer, NPC, New Delhi	011-26865206,26526361
	SPECIAL INVITEE	
1	CMD, MPPMCL Jabalpur.	0761-2664749, 2661245
2	Member (Power), NCA, Indore.	0731-2559888
	Copy to	
1	Member Secretary, ERPC, Kolkata	033-24239652, 24239653
2	Member Secretary, SRPC, Bengaluru	080-22259343
3	Member Secretary, NERPC, Shillong	0364-2534040
4	Member Secretary, NRPC, New Delhi	011-26868528, 26865206

भारत सरकार

Government of India

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

पश्चिम क्षेत्रीय विद्युत समिति

Western Regional Power Committee

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दिनांक **22** एवं **23** जून **2018** को

अहमदाबाद में आयोजित होने वाली **36** वी बैठक की कार्यसूची

Agenda of 36th Meeting of TCC/WRPC to be held on 22nd June 2018 & 23rd June 2018

at

Ahmedabad

to be hosted by

Gujarat

C o n t e n t s

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Annexures

Annexure	Particulars
Annexure –B.1	MoM of meeting was held on 23.01.2018 under the Chairmanship of Member (Thermal), CEA, New Delhi
Annexure –C.2	KAPS Site visit MoM
Annexure – C.3	Status of progress commissioning of FGD
Annexure – C.4	The Status of unutilized 220kV line bays at Existing Substations in WR and under Construction 220 kV line bays at New Substations / Substation Extensions in WR
Annexure –C.6-1	MSEDCL vide letter No. MSEDCL/CE/PP/77th CCM/8085 dated 12.04.18
Annexure –C.6-2	MSEDCL vide its letter dated 01.06.2018
Annexure –C.6-3	MPPTCL vide its letter dated 29.05.2018
Annexure –D.1-1	MPPTCL vide letter No. 04-02/PSP-20/282 dated 06.02.18
Annexure –D.1-2	MPPTCL vide their letter dated 03.05.2018
Annexure –D.4-1	Hon'ble CERC Petition No. 10/MP/2018, Order dated 19th January, 2018
Annexure –D.4-2	Appellate Tribunal For Electricity Order DFR No. 1052 of 2018 dated 27th March, 2018
Annexure –D.5-1	The detail of frequency profile for the months of during December 2017 to April 2018
Annexure –D.5-2	The details of unrestricted peak demand, demand met and energy requirement and availability
Annexure –D.5-3	The detail of voltages at important 400 kV and 765 kV sub-stations during the period of during December 2017 to April 2018
Annexure –D.5-4	The schedule of installation of reactors
Annexure –D.6	The anticipated power supply position in the region for the

	period from July to September 2018
Annexure –D.7	Status regarding Generating units, commissioned /expected to be commissioned during the current year 2018-19
Annexure –D.8	MoM of a meeting of the Group was held on 22.02.2018(Five minutes' scheduling and energy accounting)
Annexure –D.9-1	MoM of a meeting between NTPC and WRPC was held on 15.12.2017 to discuss regarding preparation of compensation statement for the gas based stations of NTPC
Annexure –D.9-2	Report of observed values witnessed at Kawas and Gandhar gas power plant
Annexure –D.9-3	The comments from MSEDCL letter dated 27.04.2018, GUVNL letter dated 23.04.2018 and NTPC letter dated 27.04.2018
Annexure –D.10	List of transmission elements into commercial operation for the period from 01.05.2017 to 22.03.2018
Annexure –D.11	Revised details of LC to be opened by WR entities for the FY 2018-19
Annexure –D.12	The status of DSM charges Payable/Receivable by WR entities to WR Deviation pool account fund maintained by WRLDC as on 23rd May 18
Annexure –D.13	The Payable/Receivable by WR entities to Reactive pool account fund maintained by WRLDC as on 21.05.2018
Annexure –D.15-1 to D.15-4	Interest statements against all the Regulatory Pool accounts maintained by WRLDC
Annexure –D.17	Updated status of the protection audit observations/ recommendations as on December 2017
Annexure –D.18-1	SPS for JP-Nigirie and MB Power were formulated in a special meeting held at WRPC on 23.08.2017
Annexure – D.18-2	The current SPS operating condition at CGPL
Annexure – D.18-3	The details of modifications proposed by WRLDC for SPS of CGPL

Annexure –D.19	MoM of Mumbai islanding a meeting was held on 13.03.18 at WRPC Mumbai
Annexure –D.20-1	The existing slabs and quantum of load shedding under UFR
Annexure - D.20-2	MoM of Special Meeting to discuss the issue of raising the AULFS slab and slab wise quantum of load shedding held on 13.03.2018
Annexure –D.24	The action taken report in pursuance of MoM of 35th TCC/WRPC meeting held on 19th & 20th December 2017

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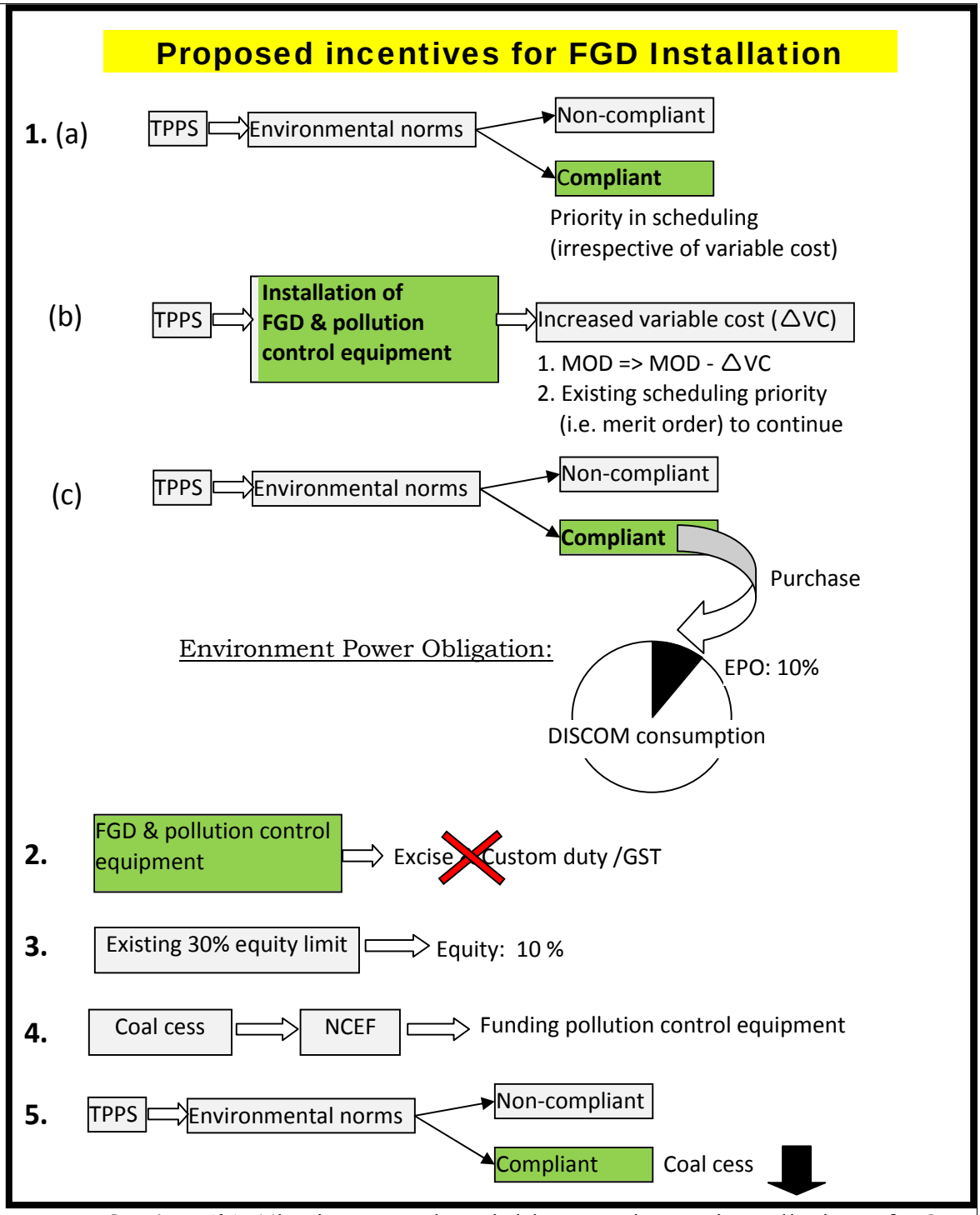
36th TCC/WRPC Agenda Notes

	A. Confirmation
A.1	**Confirmation of the Minutes of 35th Meeting of WRP Committee**
	The minutes of 35th meeting of WRP Committee held on 20th December 2017 at Jabalpur were forwarded to the members vide letter No. WRPC/35th WRPC Mtg. /AS/2018/2076 dated 01.03.2018. No comments have been received.
	TCC/WRPC may confirm the minutes.
	B. New issues
B.1	**Incentive schemes for early installation of FGD**
	A meeting was held on 23.01.2018 under the Chairmanship of Member (Thermal), CEA, New Delhi on the subject "Incentive to Thermal Power Plants for early installation of Pollution Control Equipment**"**. MoM of the said meeting attached as **Annexure B.1**. In the meeting Member (Thermal), CEA desired that RPC s should submit the views by discussing with DISCOM/Generators. The matter was discussed during 507th OCC meeting held on 15th May 2018 at WRPC. The following points on which comments/ views of DISCOM/Generators need to be deliberate: 1. Priority in Scheduling of environmentally compliant TPPs. The following **three options** were discussed: **Option (a)**. For the purpose of MOD (Merit Order Despatch), two categories in TPPs may be created. one which are environmental norms compliant and the other TPPs which are non compliant to environmental norms. Priority in scheduling may be given to the TPPs which are environmentally compliant irrespective of their variable cost.



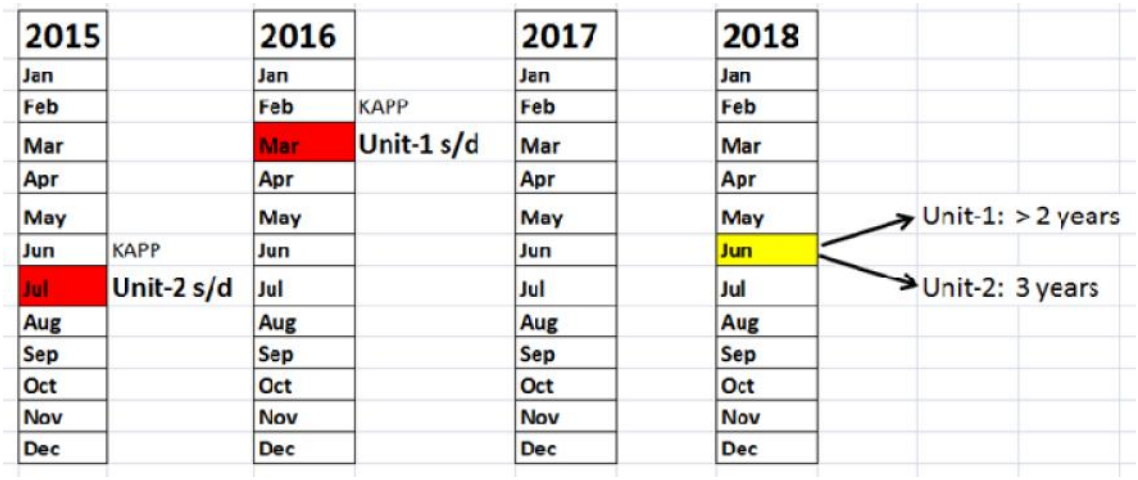
Option (b). The increased variable cost due to installation of FGD and other pollution control equipment may be subtracted from the tariff for MOD in respect of the plants installing pollution control equipment. The existing framework of scheduling priority, which is based on merit order, should continue. This is in order to ensure incentive to plants compliance with new environmental norms.

Option (c). EPO (Environment Power Obligation) may be introduced in line with RPO (Renewable Power Obligation) and should be

	made mandatory for DISCOM to purchase at least say 10% power from plants which are norms compliant. The finalized dispensation from above may be continued till December,2022 only. 2. Excise & Custom duty/ GST may be exempted for pollution control equipment like FGD etc. 3. Present limit of 30% equity to be met by plants to be relaxed to 10%, this will enable plants to raise the fund comfortably and encourage for early installation of pollution control equipment. 4. NCEF collected through coal cess may be utilized for funding the utilities for installation of pollution control equipment. 5. The amount of coal cess may be reduced for TPPs complying with new environmental norms. **Issue**: • Discom/Generators may point-wise comment on the same. • Any other incentive scheme for suggestion.
	TCC/WRPC may like to discuss.

	C. Follow up/status items
C.1	**Early revival of KAPP Unit No. 1 & 2 (220 MW each) and expediting of commissioning of KAPP Unit No. 3 & 4 (800) MW each**
	CE, SLDC Gujarat informed that the installed capacity of Kakrapar Atomic Power Station is 440 MW (2 x 220 MW). It is connected with 220 KV power system of South Gujarat. The both units of KAPP are under forced shutdown since long. KAPP Unit No. 1 (220 MW) is under forced shutdown from 11.03.16 and KAPP Unit No. 2 (220 MW) is under forced from 01.07.15 (almost more than two years). Non-availability of KAPP units leads to severe constraint in 220 KV system of South Gujarat, which is having mostly urban and industrial loads. The issue of early revival of KAPP units discussed in many OCC meeting of WRPC. Till date, there is no clarity regarding revival of units.

Also, it is learnt that the construction work of KAPP Unit No. 3 & 4 (800 MW each) is under verge of completion. The evacuation schemes of KAPP Unit No. 3 & 4 is already commissioned and it is in operation.



Issue:

- NPCIL may give details about revival of units 1 & 2.
- NPCIL may give target dates for commissioning unit 3 & 4.

TCC/WRPC may like to discuss.

C.2 Installation of ICT at KAPP

CE, SLDC Gujarat informed that in earlier board meetings, SLDC – Gujarat informed that there is need for providing interconnection between 220 KV and 400 KV switchyard at KAPP by commissioning 400/220 KV, 500 MVA ICT.

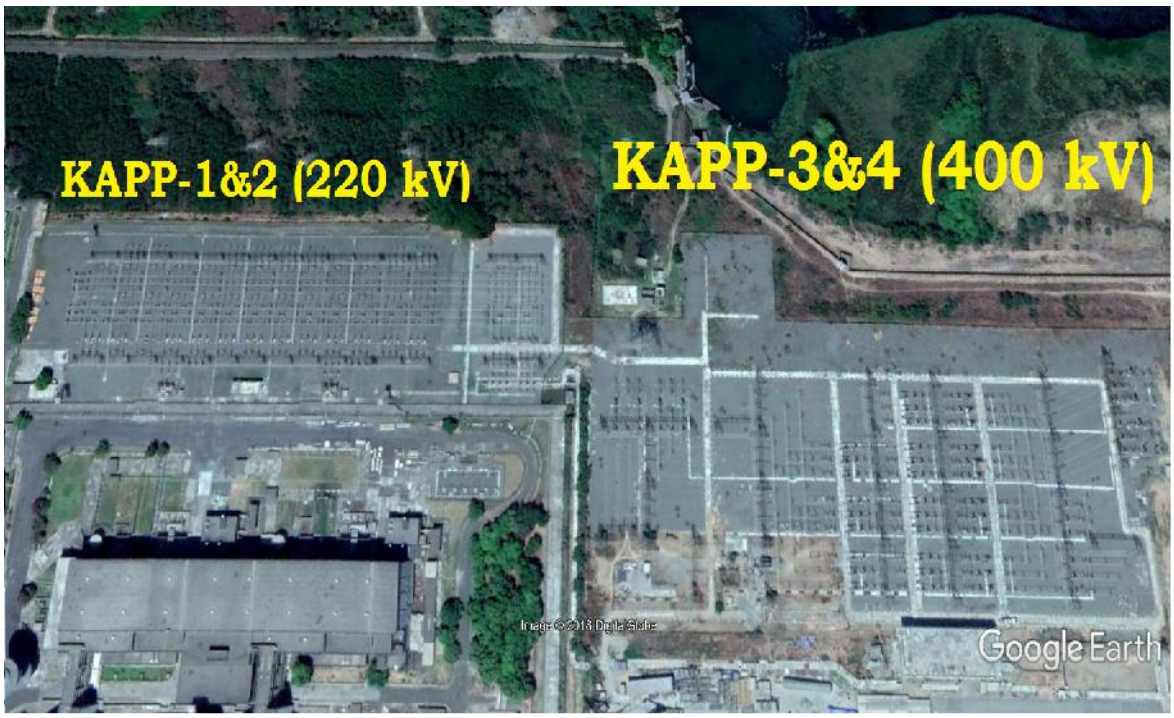
In **35th WRPC** meeting, it was decided that PGCIL & GETCO would carry out site inspection to check feasibility for providing interconnection between 400 KV & 220 KV Switchyard at KAPS - Regarding checking feasibility of providing 400/220 KV 500 MVA ICT.

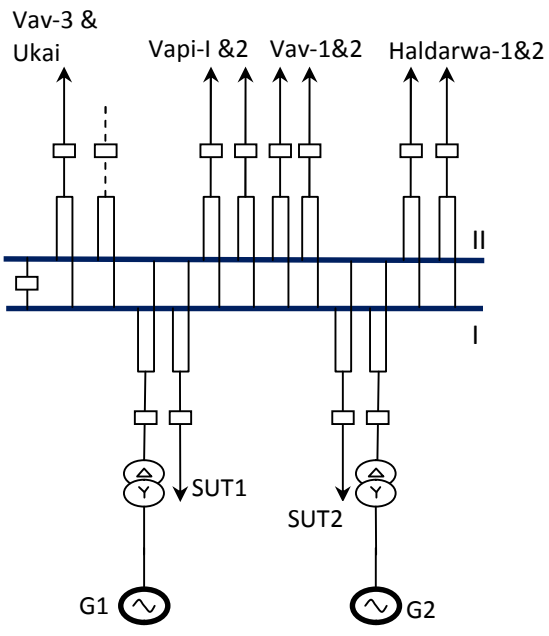
The representative of GETCO and PGCIL had visited KAPP site on 03.01.18 for checking feasibility of providing 400/220 KV, 500 MVA ICT at KAPP for interconnection of 400 KV & 220 KV Switchyard at KAPS. The detailed report is attached herewith **(Annexure C.2)**.

As per the report, a spare bay is available in 400 KV Switchyard at KAPP for providing ICT. The 220 KV power cable will require to be laid down from 400 KV Switchyard to 220 KV Switchyard.

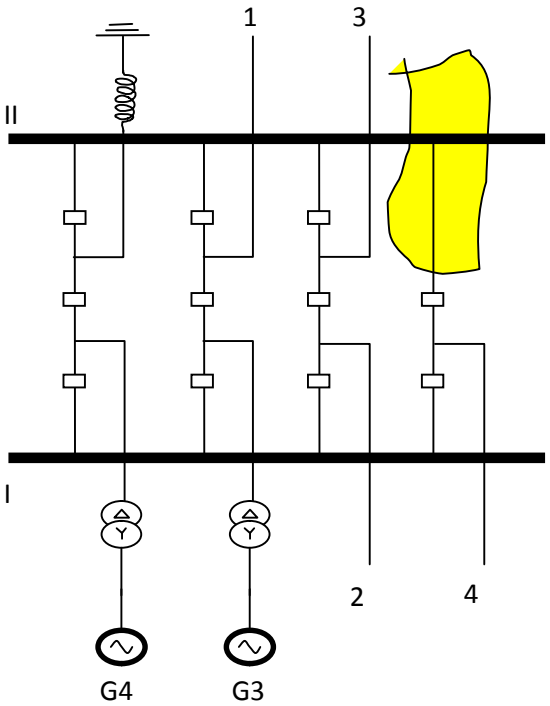
The commissioning of ICT would also help for extending power supply to New KAPP project during large-scale blackout as Kawas, Jhanor, GPEC and Ukai Hydro plants are having black start facility. In addition, the

commissioning of ICT would lead less loading on 220 KV D/C Haldarva – Jhanor line, 220 KV D/C Kawas – Ichhapore line and 220 KV D/C Ukai – Mota line etc.



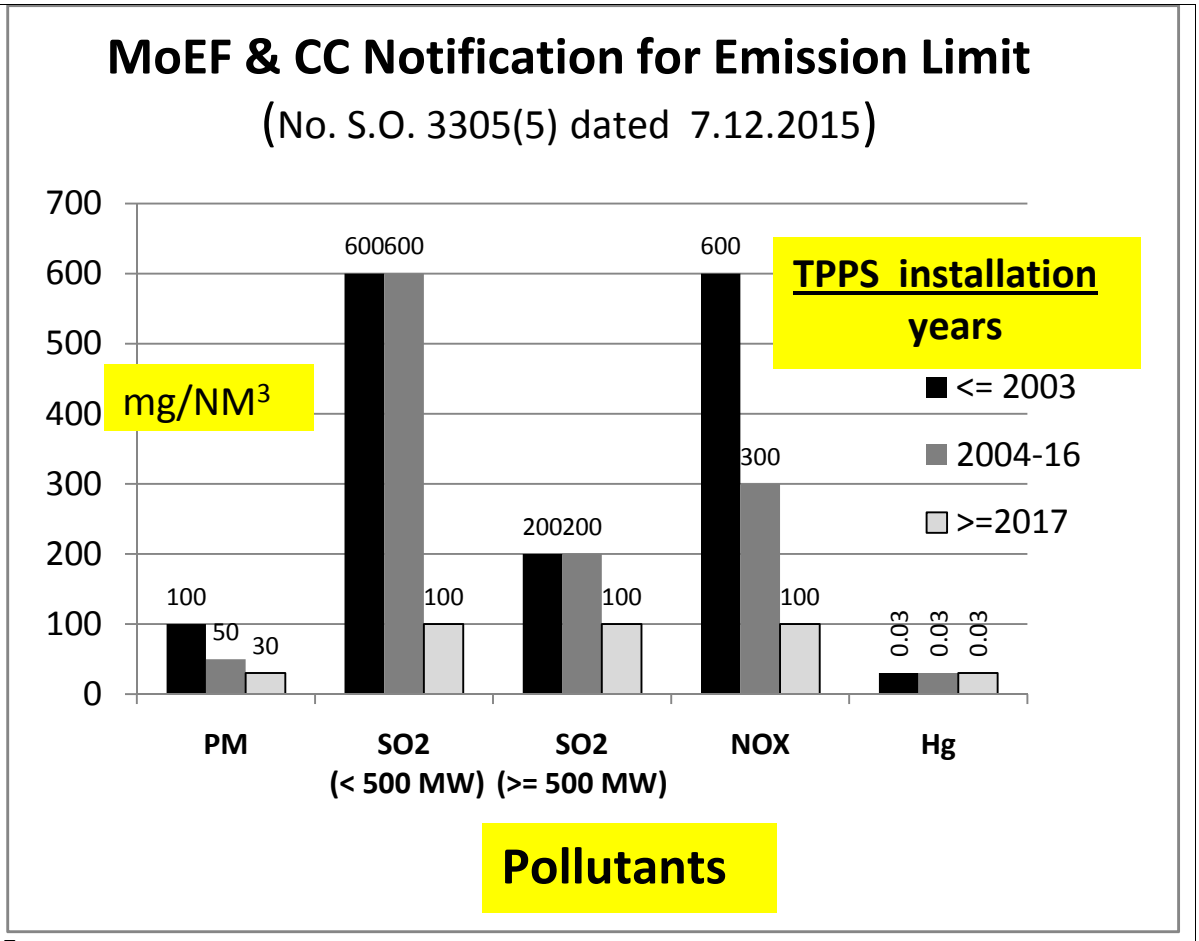


KAPP 1 & 2 (220 kV)



KAPP 3 & 4 (400 kV)

	Issues: 1. Discussion on requirement of providing interconnection between 400 KV and 220 KV switchyard at KAPP by ICT. 2. NPCIL may give their views. 3. Discussion on the following aspects: (i) SCM approval (ii) Funding mechanism (iii) List of equipment required at 220KV, 400KV buses and in between. (iv) Target date (v) Ownership (vi) O&M of equipment - charges
	TCC/WRPC may like to discuss.
C.3	**Installation of FGD in generating units-Progress Status:**
	Background : A special meeting was held on 01/09/2017 at New Delhi to review implementation of new environment norms for Thermal Power Plants under the Chairmanship of Secretary, Ministry of Environment, Forest and Climate Change. Subsequently, CEA directed WRPC to organise a Special TCC meeting to discuss above issue. In this regard a discussion was held by PCE, CEA with some of the generators on 21.09.2017 at WRPC, Mumbai. After this, a Special TCC meeting of WRPC was held on 28.09.2017 at WRPC, Mumbai to discuss a single point agenda for revised plan for Installation of FGD in generating units to comply with new MOEF norms of SOX emissions. The issue has been taken in different OCC (504th, 505th 506th) meetings of WR. The latest status of progress discussed in 507th OCC meeting of FGD is attached at **Annexure C.3.**



Issue:
The concerned Generators may update the progress of installation of FGD on the following aspects:

(i) Completion of Feasibility Study,
(ii) NIT issued
(iii) Bid Opening
(iv) Award of contract
(v) Commissioning activity
(vi) Completion date.

TCC/WRPC may like to discuss.

C.4 **Progress of downstream network of constituents whose terminating bays are under construction by POWERGRID**

The important assets were planned under various transmission schemes & under implementation.

However, downstream 220kV system needs to be commissioned for utilization of the system.

The Status of unutilized 220kV line bays at Existing Substations in WR and under Construction 220 kV line bays at New Substations / Substation

	Extensions in WR is attached at **Annexure C.4.** **Issue:** Constituents may update on the following aspects: (i) NIT issued (ii) Bid Opening (iii) Award of contract (iv) Start date of Commissioning activity (v) Percentage of work completed (vi) Completion date (vii) Any other constraints, if any.
	TCC/WRPC may like to note the same.
C.5	**Ongoing transmission schemes (765/400 kV & above): status of completion**
	The ongoing transmission projects (which are being executed/ implemented by transmission agencies) are regularly being monitored in Transmission scheme progress Review Meeting (TRM) meeting. In line with decision taken in 34th WRPC meeting (28th July, 2017), TRM meetings are conducted quarterly. Recently TRM was held on 17th April, 2018 at WRPC wherein reviewing of the status of ongoing projects and other associated issues like readiness of down-stream networks, Railway crossing works, ROW related issues, other constraints etc. were discussed. The updated status on various ongoing transmission schemes for the year 2018-19 as per the latest TRM is available at WRPC website at http://www.wrpc.gov.in/occ/APRIL18TRM_MINUTE_FINAL.pdf . **Issue:** Constituents may update on the following aspects: (i) Percentage of work completed (ii) Completion date (iii) Any other constraints, if any.
	TCC/WRPC may like to note the same.
C.6	**Declaration of 132 KV Nepanagar (Madhya Pradesh) - Dharni (Maharashtra) line as Inter-state Transmission line (ISTS)**
	Background: • MSEDCL vide letter No.MSEDCL/CE/PP/77th CCM/8085 dated

12.04.18 (copy enclosed at **Annexure C.6-1** has informed that the 132 kV Nepanagar (MP) - Dharni (MS) line has been charged in radial mode and on this line power flow has started from 16.02.2017 to MSEDCL. Further MSEDCL stated that as per CERC regulation for Sharing of Inter State Transmission Charges and Losses, the line has to be certified by WRPC as interstate line so that scheduling of central sector (ISGS) power to MSEDCL is possible through this line.

- Discussions during the 77th CCM:-

SE(C), WRPC stated that as per section 2(36) (i) of Electricity Act 2003, 132 KV Nepanagar-Dharni line qualifies as natural ISTS line and hence there is no need to give a separate ISTS certification from WRPC. The relevant section of the act is:

Quote

"2(36) inter-State transmission system includes-

i. any system for the conveyance of electricity by means of main transmission from the territory of one State to another State.

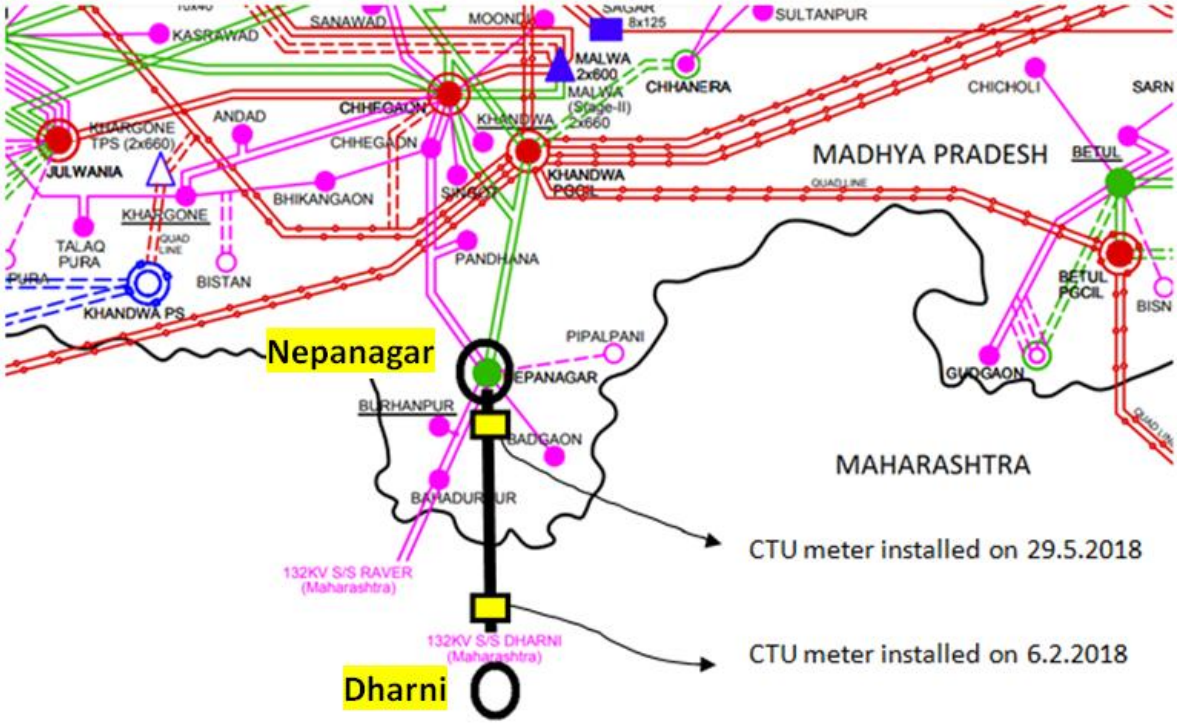
ii. the conveyance of electricity across the territory of any intervening State as well as conveyance within the State which is incidental to such inter-State transmission of electricity.

iii. the transmission of electricity within the tertiary of a State on a system built, owned operated, maintained, or controlled by a Central Transmission utility;"

Unquote

- Subsequently, after 77th CCM:
  - **MSEDCL** vide its letter dated 01.06.2018 (copy enclosed at **Annexure C.6-2** informed that the CTU meter at Nepanagar end was installed on 29.05.2018 and requested WRPC to include 220 KV Nepanagar Substation as ISTS drawal point of Maharashtra for energy accounting and scheduling purpose.

  - **MPPTCL** vide its letter dated 29.05.2018 (copy enclosed at **Annexure C.6-3**) informed that 132 KV Nepanagar- Dharni line has not been designated as an ISTS line by the competent authority or agency so far. Thus the flow on this line should be treated as radial power from MP to Maharashtra and accordingly DSM charges under Intra State ABT against power drawal by Maharashtra through this line shall be computed by MP SLDC.

	
	Issue: 1. No Certificate from WRPC for natural ISTS line. 2. Target date for approaching CERC for tariff fixation by MSETCL. 3. Agreement between MPPTCL & MSEDCL on drawl point. 4. Changes in the accounting by WRPC/WRLDC.
	TCC/WRPC may like to discuss the same.
C.7	**New Interface Energy Meters, AMR system and meter data processing system: installation**
	• **Background**: WRLDC vide letter No. WRLDC/MO/1551/2018 dated 12.04.18 has informed that in the 73rd meeting of the WR Commercial Committee (Item no. 12.3) held on 10.08.16. It was decided that all the SEMs which have completed more than 10 years in service, shall be replaced with new AMR meters. The issue was further deliberated in detail during the 33rd WRPC meeting held on 01.02.2017 wherein it was decided to replace all SEMs with AMR compliant Interface meters having capability to integrate energy at 5 min time interval (user configurable) and having time synchronization facility. It was also agreed to include communication as a part of the package.

- **34th WRPC (28-7-2017):**

Before the meeting, WRLDC have forwarded technical specifications for "Interface Energy Meters (5-min compatibility), Automated Meter Reading and Meter Data Processing" for Western Region. The draft technical specifications were circulated by WRLDC on email on 01st May 2017.

TCC / WRPC Discussion:

During the discussion CE, SLDC, Gujarat made a presentation containing concerns on specifications circulated by WRLDC. After presentation, WRLDC confirmed that GETCO's concerns have been incorporated in the specifications. TCC/WRPC approved the specifications and PGCIL to take up the execution/ implementation of installation of New Interface Energy Meters, AMR system and meter data processing system.

- **35th WRPC (20-12-2017):**

During discussion, the status of installation of new interface meter, AMR system and meter data processing system was sought from PGCIL and in response ED PGCIL that it is CERCs jurisdiction to decide 5 min metering and the issue was discussed with Director (Opn.) and their management's view is that after getting approval from CERC procure and replace the existing15 min meters with new meters at the estimated cost of Rs.30 crores.

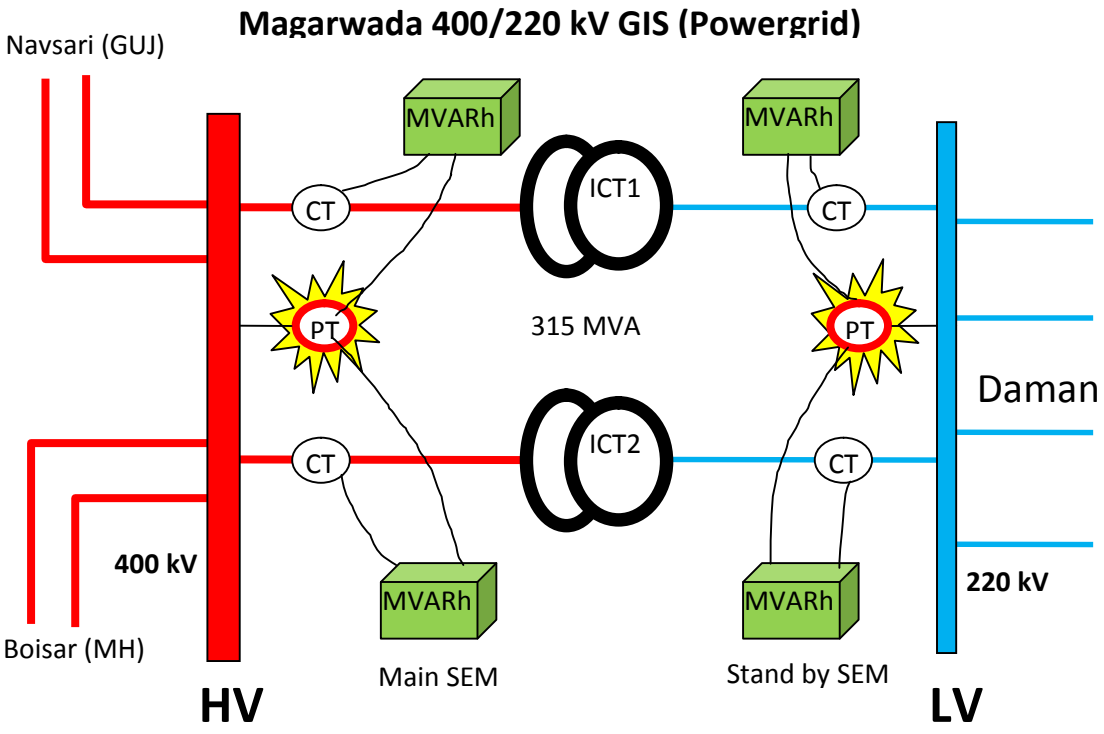
35th WRPC decision:

WRPC agreed to TCC recommendations and decided that PGCIL/CTU should go ahead with the replacement of existing meters with installation of New Interface Energy Meters, AMR system and meter data processing system having specifications as approved in 34th WRPC meeting. WRPC also noted that it is the responsibility of CTU to install the meters with AMR at all location of inter connection of ISTS, irrespective of the substation owned by CTU or STU.

- **77th CCM (20-04-2018):**
  - POWERGRID apprised the CCM regarding the following -
    - The status of procurement and plan for testing/replacement of energy meters -

    For the status of procurement and plan of testing of energy meter, PGCIL representative informed that -
    a. In case the 15 minutes IEMs are required to be replaced with 5 minute IEMs, necessary amendment in the CEA Metering regulation 2006 is required to be carried out by CEA
    b. There is difficulty in implementing for want of tariff regulation for SEM meters. The cost of meters to be replaced shall be recovered by one time reimbursement till finalization of terms and conditions of tariff for SEMs by CERC.

	▪ Procedure being adopted for testing of meters – IEC standard procedure is adopted for testing of meters o During discussion, it was learned that the work of installation of New Interface Energy Meters, AMR system and meter data processing system has not yet started despite the direction of the WRPC forum in 35th WRPC meeting.
	Issue: PGCIL may update the progress of installation of New Interface Energy Meters, AMR system and meter data processing system as decided by the 35th WRPC.
	TCC/WRPC may like to discuss the same.
C.8	**Error in computation of MVARh by SEM at 400/220kV Magarwada (PG) substation**
	Background – Methodology for settlement of excess amount paid by DD for reactive energy charges on account of erroneous reading was discussed in 34th WRPC meeting. The relevant portion of MoM of 34th WRPC/TCC decision is as follows - Quote *Representative from PGCIL informed that meter reference voltage was corrected on 21 April 2017 and meter started recording MVARh correctly. Both DD & PGCIL agreed to consider the reading of meter which was under observation for billing.* *WRPC informed that the adjustments towards excess payment already made by DD from the commissioning of the station till 21 April 2017 would be made from excess leftover amount in the DSM pool fund after completing obligations towards ancillary services operations. After the adjustment is made towards DD the remaining amount shall be passed on to PSDF.* Unquote Subsequently, WRPC Secretariat worked out revised REC in respect of DD for the period from 16.03.2015 to 21.04.2017 based on methodology given below. This methodology is required to be approved by 36th WRPC so that excess amount paid by DD can be settled In line with the decision taken in 34th WRPC.



HV side error

Requirement:
400 kV (388 to 412 kV)
/ 110 V

Actual:
420 kV (407.4 to 432.6 kV)
/ 110 V

Correction in MVARh meter:
Reference voltage on 400kV side of ICT = ***60.5 volts***

LV side error

Requirement:
225 kV (213.4 to 226.6 kV)
/ 110 V

Actual:
245 kV (237.65 to 252.35 kV)
/ 110 V

Correction in MVARh meter:
Reference voltage on 220kV side of ICT = ***57.0 volts***

Error period:

- *Erroneous setting from:* 16th March 2015
- *Error corrected in meter: 21st April, 2017 (12:45 hrs)*

Claim by Daman & Diu:

Revised reactive energy (REC) charges from 16th March, 2015 to 21st April, 2017

Proposed settlement:

From weekly DSM pool accounts:

- Adjustment towards ancillary services.
- Adjust for D&D towards MVARh corrections.
- Remaining sent for PSDF.

Follow up activities:

- Letter to DD (Daman & Diu) seeking details of excess payment made.
- Based on the data received WRLDC, calculations for revised REC in respect of DD for the period 16.03.2015 to 21.04.2017.
- Methodology adopted for computing excess REC payment is given below:

---------- start of method ----------

Methodology for Calculating Excess Payment of REC made by DD on Account of Erroneous Reading of SEM

1. Preparation of **regular** REC statements issued by WRPC on weekly basis:

   REC statement is issued by WRPC on weekly basis. The charges at High Voltage and Low voltage are calculated as follows in respect of DD:

   Input data: DD3 text file provided by WRLDC

   Charges at High Voltage= rate *∑(MvarH_h)

   where ∑(MvarH_h) = Day wise MVARH_h value at (
   220KV Magarvada line1 + 220KV Magarvada line2 +
   400KV Magarvada ICT1 + 400KV Magarvada ICT2)

   Charges at low Voltage = rate *∑(MvarH_l)

   where ∑(MvarH_l) = Day wise MVARH_l value at (
   220KV Magarvada line1 + 220KV Magarvada line2 +
   400KV Magarvada ICT1 + 400KV Magarvada ICT2)

2. The input data for day wise MVARH value for the period 16.03.2015 to 21.04.2017 in respect of 400KV Magarvada ICT-1 and ICT-2 was erroneous and this was included along with the correct data i.e data of 220KV Magarvada line-1 and line-2 in REC issued by WRPC. Due to this reason the figures appeared in REC accounts issued for the above period is incorrect.

   Methodology:
   To know the revised week-wise correct amount of REC in respect of DD, erroneous amount of 400KV Magarvada ICT-1 and 400KV Magarvada ICT-2 need to be calculated from input data file for the entire period by using the following equations.:

   Charges at High Voltage = rate *∑(MvarH_h)

   where ∑(MvarH_h) = Daywise MVARH_h value at (
   400KV Magarvada ICT1 + 400KV Magarvada ICT2)

   Charges at low Voltage= rate *∑(MvarH_l)

   where ∑(MvarH_l) = Daywise MVARH_l value at (
   400KV Magarvada ICT1 + 400KV Magarvada ICT2)

3. The amount indicated as per the above methodology will have to be restricted upto the actual payments made by DD towards REC during the period 16.03.2015 to 21.04.2017.

---------- end of method ----------

Issues:

- Excess payment data made by DD is not readily available and it requires computation and methodology.
- Approval of methodology used by WRPC, for computing excess payment of REC made by DD.
- If methodology is approved, WRPC will issue provisional statement of revised REC charges on account of erroneous data. Based on this statement, WRLDC will make the necessary adjustments for DD and disburse the due amount.

TCC/WRPC may like to discuss the same.

D. Information/noting items

D-1 Certification of Natural ISTS lines of MP

77th CCM:

MPPTCL vide letter No. 04-02/PSP-20/282 dated 06.02.18 (copy enclosed at **Annexure D.1-1**) has requested to consider the following EHV line of Madhya Pradesh state as natural inter-state line and approval in this respect may please be accorded so that MPPTCL may file the petition before CERC for determination of point of connection charges –

S. No	Name of ISTS line	Voltage (kV)	Connecting States
1	Sheopur – Khander 132kV line	132	MP-Rajasthan
2	Neemuch – Nimbahera 132kV line	132	MP-Rajasthan
3	Gandhi Sagar – Rana Pratap Sagar 132kV line-1	132	MP-Rajasthan
4	Gandhi Sagar – Rana Pratap Sagar 132kV line-2	132	MP-Rajasthan
5	Seoni – Pench HEP 132 line-1	132	MP-Maharashtra
6	Seoni – Pench HEP 132 line-2	132	MP-Maharashtra
7	Balaghat – Dongargarh 132kV line-1	132	MP-CG
8	BalaghatBhanegaon – Dhamdha 132kV line-2	132	MP-CG
9	Kotma – Manendragarh 132kV line-1	132	MP-CG
10	Kotma – Manendragarh 132kV line-2	132	MP-CG
11	Morwa – Beena (Rihand) 132kV line	132	MP-UP
12	Morwa – Anpara 132kV line	132	MP-UP
13	Bina – Rajghat HEP 132kV line	132	MP-UP

14	Pichhore – Rajghat HEP 132kV line	132	MP-UP
15	Pichhore – Matatila HEP 66kV line	66	MP-UP

SE(C), WRPC stated that as per section 2(36) (i) of Electricity Act 2003, the lines given in the above TABLE provided by MPPTCL, qualify as natural ISTS line and hence there is no need to give a separate ISTS certification from WRPC.

CERC order on natural ISTS lines:

Relevant Excerpt from Hon'ble commission order dated 14.03.2012 under petition No:15/Suo-Motu/2012 (Clause 6):

Quote

As a first step towards inclusion of non-ISTS lines in the PoC transmission charges, the commission proposes to include the transmission lines connecting two states, for computation of PoC transmission charges and losses. However, for the disbursement of transmission charges, tariff for such assets needs to be approved by the commission in accordance with the provisions of Sharing Regulations. Accordingly, we direct the owners of these inter-state lines to file appropriate application before the commission for determination of tariff for facilitating disbursement.

Unquote

Follow up after 77th CCM:

Subsequently MPPTCL vide their letter dated 03.05.2018 (copy enclosed at **Annexure D.1-2**) requested that in order to file the petition before CERC, certification of WRPC for all the inter-state lines as natural ISTS shall be necessary. Once these lines are certified as natural ISTS lines by WRPC. MPPTCL shall approach CERC for approval of tariff for these lines.

Issue:

In view of the above and other relevant orders of the Hon'ble commission, MPPTCL may approach the commission for determination of tariff of the line mentioned under Table.

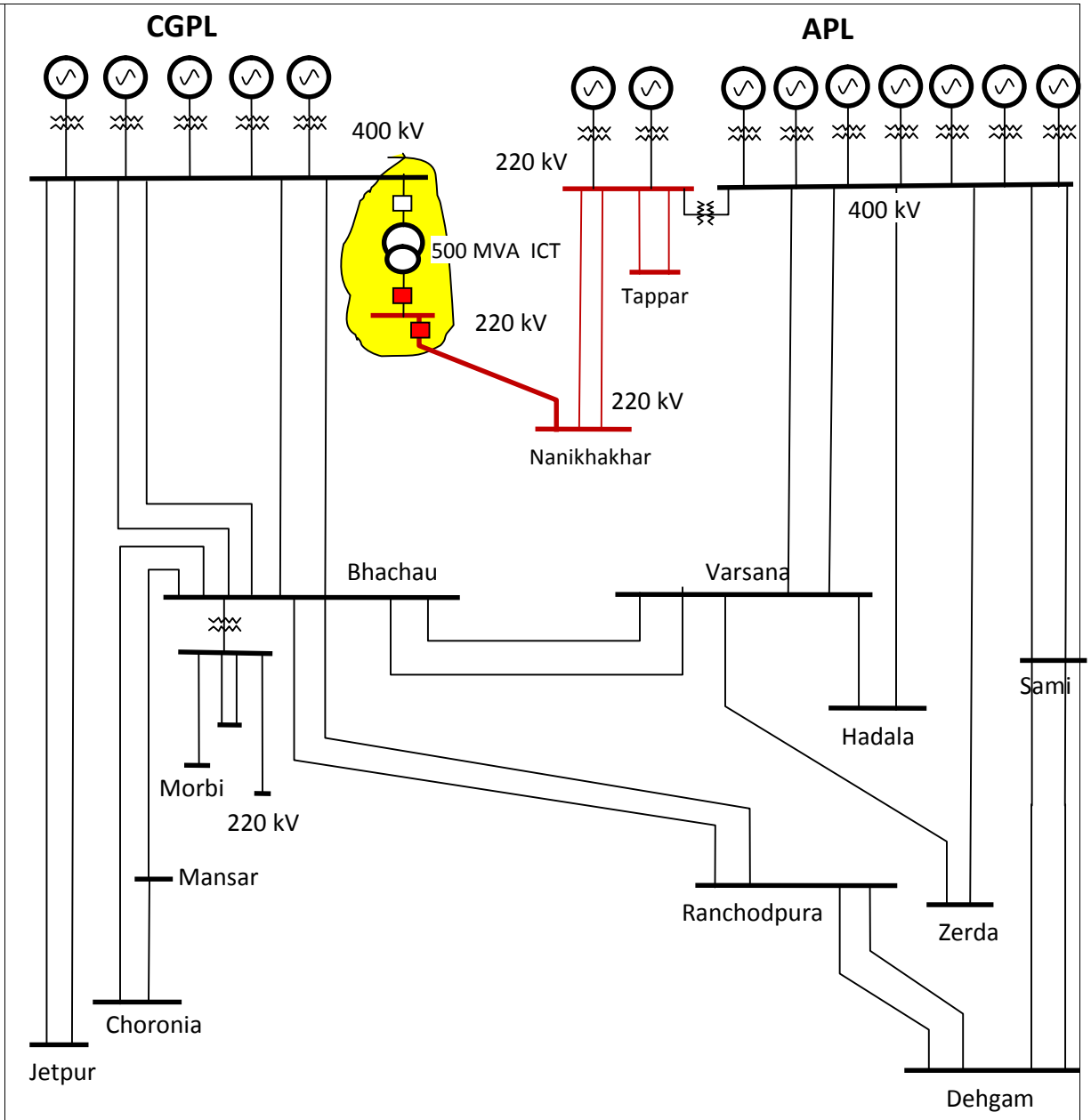
TCC/WRPC may like to note.

D-2 **Increase in GETCO Transmission loss due to high power flow on + 500 KV Mundra-Mohindergarh Bi-Pole HVDC line**

Background:

- 34th TCC/WRPC: the issue was first discussed.
- 35th WRPC meeting: it was decided that WRLDC and GETCO would sit together for joint study and come up with the final finding by 15th January, 2018 and if the result of the joint study remains

	inconclusive then in that case the reply given by WRLDC shall be considered to be in order. **Issue:** WRLDC/GETCO may appraise the findings of the joint study carried out.
	TCC/WRPC may like to note the same.
D-3	**Interconnection between CGPL UMPP and Adani Mundra STPS in Gujarat – provision of 400/220 KV ICT at CGPL Mundra and compensation mechanism for 220 KV S/C CGPL Mundra – Nanikhakhar line & bays**
	Background: 35th WRPC (20th Dec, 2017): • The matter of provision of 400/220 kV, 315 MVA or 500 MVA ICT along with one no. of 400 kV ICT bay and one no. of 220 kV ICT bay at M/s CGPL Switchyard was discussed in the meeting. • Members agreed that the work of installation of ICT and associated bays at CGPL Complex shall be carried out by PGCIL and the cost of the same shall be recovered through POC mechanism. • WRPC also agreed to take the similar stand in similar cases in future. **Follow up after 35th WRPC:** • Work of installation has not been started by PGCIL as capacity of ICT was not decided during last WRPC Meeting. • Subsequently the matter was discussed during the 43rd SCM held on 11th May 2018 at Vadodara. Members deliberated on the rating of the ICT to be installed (315MVA or 500MVA) and it was decided that 1x500MVA, 400/220kV ICT shall be implemented as the difference of costs is not significant. • PGCIL agreed/noted for the same **Issues:** PGCIL may **update** the progress of work and give details on the following aspects: ⇨ NIT issued. ⇨ Informing SCM for size of the transformer and consent. ⇨ Target date for commissioning. ⇨ Any other related issue.



TCC/WRPC may like to note the same.

D-4 **Extension of LILO arrangement for evacuation of power by ESSAR Power M.P. Ltd., 2x600 MW ("EPMPL")**

34th WRPC :

Following decision was taken:

(1) Essar shall continue with existing interim LILO arrangement till 30th September, 2017. After September, 2017 decision shall be reviewed by WRPC based on visible progress made in construction work of dedicated line.

(2) Essar shall furnish Weekly Progress Report showing details like no. of foundation completed, stringing completed, no. of tower erected etc. to WRPC Secretariat.

(3) Essar shall be permitted to synchronise Unit No. 2, however Essar shall also have to ensure total generation of Essar Complex within the limit of 600 MW. WRLDC shall restrict injection of Essar upto 600 MW in real time operation.

35th WRPC :

WRPC decided the following;

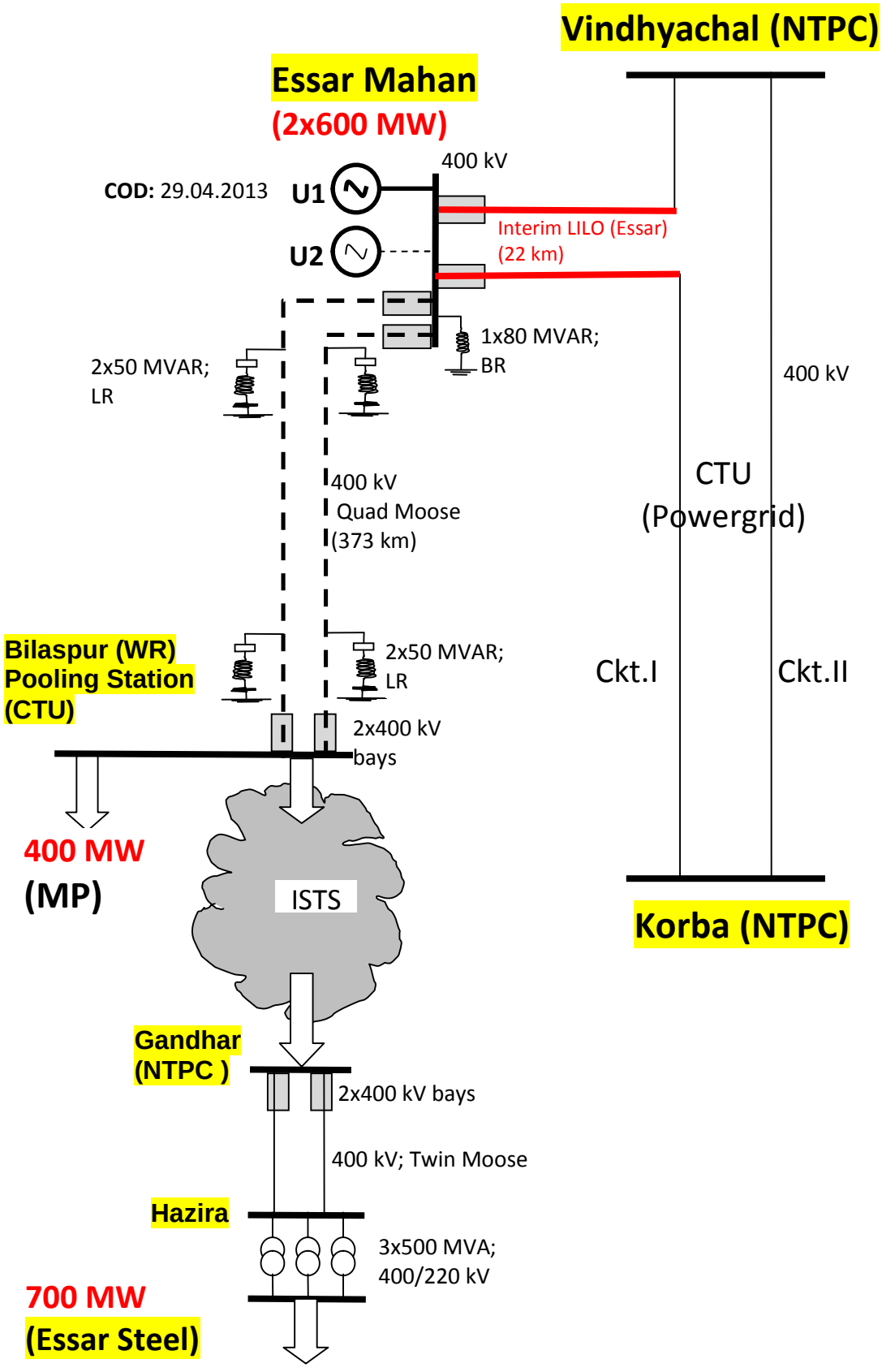
(i) M/s Essar Mahan may approach CERC if they want extension to the interim LILO arrangement beyond 20.01.2018.

(ii) In absence of extension order from CERC by the deadline of 20.01.2018, the interim LILO shall be disconnected by WRLDC without coming to WRPC.

(iii) If CERC gives an interim order before 20.01.2018 on the petition to be filed by M/s Essar Mahan seeking extension for the interim LILO arrangement, the WRP Committee authorized the Chairman WRPC to take decision as per the directives in the interim order and inform WRPC in next meeting (36th WRPC).

Follow-up after 35th TCC/WRPC meeting:

- M/s Essar Mahan approached Hon'ble CERC in month of January 2018.
- Hon'ble CERC vide its Petition No. 10/MP/2018, Order dated 19th January, 2018(copy attached at **Annexure D.4-1**) allowed M/s Essar Mahan the use of the LILO till 31.03.2018.
- Hon'ble CERC further directed the M/s Essar Mahan to ensure completion of the Mahan-Sipat line by 31.03.2018. Till that time, status quo shall be maintained.
- If the transmission line is not commissioned by the M/s Essar Mahan on or before 31.3.2018, CTU shall take immediate necessary action for disconnection of the LILO arrangement with effect from 01.04.2018.
- In case, CTU wants to continue with the LILO beyond 31.3.2018, CTU shall approach the Commission well before 31.3.2018 with proper justification.
- Subsequently M/s Essar Mahan approached Hon'ble APTEL in the month of March 2018 for further extension of LILO of 400 kV Vindhyachal-Korba Ckt-I.
- The Appellate Tribunal For Electricity vide Order DFR No. 1052 of 2018 dated 27th March, 2018(copy attached at **Annexure D.4-2**) allowed M/s Essar Mahan the use of the LILO till 30.06.2018.



TCC/WRPC may like to note the same.

D-5	**Performance of WR grid: during December 2017 to April 2018**

(i) System performance

a) Frequency:

Period: December 2017 to April 2018	
IEGC frequency range of 49.90 Hz to 50.05 Hz	from 73.86 % to 80.25 % of time
Frequencies below 49.9 Hz	from 9.69 % to 12.99 % of time
Frequency remained above 50.05 Hz	from 7.63 % to 13.28 % of time
Monthly average frequency during December 2017 to April 2018	49.98 Hz.

The detail of frequency profile for the months of during December 2017 to April 2018 is placed at **Annexure D.5-1**.

b) Demand:

The maximum unrestricted demand of Western Region was in the range of 48797 MW to 50,654 MW(Ex Bus) in during December 2017 to April 2018. The details of unrestricted peak demand, demand met and energy requirement and availability are as furnished at **Annexure D.5-2**.

(ii) Voltage Profile

Overall voltage profile had been satisfactory during the period under review. However, instances of high voltages beyond the IEGC specified operating range were observed at some of the EHV sub-stations in the region. Higher voltages in the range of 421 kV to 440 kV were noted at Bhopal, Khandwa, Damoh, Nagda, Indore, Raipur, Raigarh, Bhilai, Wardha, Dhule, Parli, Boisar, Kalwa, Karad, Dehgam, Vapi, Mapusa, Magadwada and Hazira substations. Also higher voltages of around 800 kV were observed at 765 kV Wardha, Durg, Kotra & Tamnar.

To contain high voltages WRLDC resorted to opening of lightly loaded EHV lines on certain days. The detail of voltages at important 400 kV and 765 kV sub-stations during the period of during December 2017 to April 2018 is placed at **Annexure D.5-3**. The schedule of installation of reactors in attached at **Annexure D.5-4.**

TCC/WRPC may like to update/note as above.

D-6	**Anticipated power supply position in WR: July to September 2018**
	The anticipated power supply position in the region for the period from July to September 2018 is at **Annexure D.6**. The anticipated regional demand is likely to vary between 49,800 MW to 52,600 MW and the capacity surplus will be around 3.0 - 6.0 %. In terms of energy, the unrestricted requirement is expected to range from 32,200 MUs to 33,500 MUs with regional energy surplus of around 1.5 % to 2.6 %.
	TCC/WRPC may like to note as above.
D-7	**New generating units in WR: during the current year 2018-19**
	The status regarding Generating units, commissioned /expected to be commissioned during the current year 2018-19 as updated in 507th OCC meeting held on 15.05.2018 at WRPC, Mumbai is attached at **Annexure D.7**.
	TCC/WRPC may like to note as above.
D-8	**Impact of forthcoming 'Five minutes' scheduling and energy accounting**
	Background Based on decision taken in 76th CCM held on 23rd October 2017 at WRPC, Mumbai a group was formed comprising representatives from WRLDC, SLDC, NTPC, State Gencos, PGCIL, Discoms, IPP and WRPC to analyse/discuss the impact of 5 minutes scheduling and energy accounting. The 1st meeting of the group on 5 minutes scheduling was held on 22.02.2018 at WRPC, Mumbai. **Outcome of the Group meeting -** In line with the above decision a meeting of the Group was held on 22.02.2018 (MoM is enclosed at **Annexure D.8**). The outcome of the meeting is as follow; a) Members in general opined that Primary and Secondary controls of generation should be strictly implemented before making any changes in the existing scheduling mechanism. To start with, AGC should be implemented for CGS, state Gencos, and IPPs. If AGC serves the purpose, then there may not be any necessity for changing the existing scheduling mechanism.

	b) Generators and DISCOMs expressed difficulties (such as boiler response, flame failure, fatigue failure, boiler tripping, etc.) in many aspects to maintain their actual injection/drawl close to their schedules in the 5-minute time frame. c) As the proposed 5-minute scheduling mechanism requires fast response, the existing manual control of generation may not be suitable for fast response. d) In RE-rich state it would be difficult for DISCOMs and SLDCs to absorb the deviation due to intermittent RE integration, since RE generators are not penalized for deviations. e) For forecasting, detailed guidelines covering various aspects are required. f) Some members expressed that it is feasible to switch over to 5-minute scheduling provided hardware/software is upgraded and additional manpower is deployed. Capacity building at various levels is required. g) Precise load forecasting, RE generation forecasting, and weather forecasting are essential for switching over to 5-minute scheduling. h) Some members expressed that: o As for as possible, existing meters are modified to support 5-minute recording. o Replacement of existing meters, if required, should be done in phased manner by CTU. o Meter replacement activity may take around 1½ – 2 years time.
	TCC/WRPC may like to discuss the same.
D-9	**Partial Loading Compensation for Kawas and Gandhar Gas Power Plant**
	<u>Background:</u> Hon'ble CERC vide notification No. L-1/18/2010-CERC dated 06.04.2016 issued 4th amendment in IEGC. The relevant clause of the amendment is as follows - **Quote** *"In case of gas based Central Generating Station or inter-State Generating Station, compensation shall be decided based on the characteristic curve provided by the manufacturer and after prudence check of the actual operating parameters of Station Heat Rate, Auxiliary Energy Consumption, etc."* **Unquote** A meeting between NTPC and WRPC was held on 15.12.2017 to discuss regarding preparation of compensation statement for the gas based stations of NTPC and the minutes of the meeting are enclosed at **Annexure**

D.9-1. Further NTPC has provided data vide their letter no. WR-I/HQ/Comml/2017-18/ dated 02.01.2018 for calculation of compensation for gas based stations.

As per the recommendation of the meeting and a way forward for preparation of compensation statement WRPC officials along with official from NTPC, MSEDCL, GUVNL and MPPMCL visited Kawas gas power plant on 08th and 09th March 2018 and Gandhar gas power plant on 15th and 16th March 2018 to observe the values of degraded SHR and APC.

In this visit to Kawas and Gandhar gas power plant, the values were observed for half module and full module for varying load condition from 55% load to 85% load. The report of observed values witnessed at Kawas and Gandhar gas power plant are provided at **Annexure D.9-2**.

Further NTPC vide letter no WR-I/HQ/Comml/2017-18/2511 dated 29.03.2018 has requested to release of accounts for partial loading compensation for gas stations in WR.

Discussions during 77th CCM:

- MSEDCL representative informed that only 100% and 80% loading data is provided by OEM based on HBD and the other data is interpolated by NTPC. As per The DoP dated 05.05.2018 in Appendex-II 4.1(V) the following is given:

Quote

For Gas based generating stations, degraded SHR and AEC shall be decided based on the characteristic curve provided by manufacturer. If the characteristic curve is not provided for the entire range of the operating range i.e. up to 55% of module rating, then the extrapolation of the curve provided by the manufacturer shall be done to extend the curve up to 55% of module loading.

Unquote

- MSEDCL opined that in the absence of the OEM curve, NTPC may approach Hon'ble CERC for further instructions for the compensation mechanism for gas based power plant.
- MPPMCL and GUVNL representatives agreed to the view of MSEDCL and suggested NTPC to approach the Hon'ble CERC.
- NTPC representative stated that OEMs have provided HBD for 100% and 80% loading and it has provided the degraded curves for SHR and APC based on 'Actuals' as recorded in real time operation over the years. Further he requested that the Accounts for Partial Loading Compensation for Gas station of WR may be issued in line with the Hon'ble CERC order 05.05.2017.
- NTPC representative highlighted point no 5 of Hon'ble CERC order dated 05.05.2017.

	Quote *The RPCs are directed to provide feedback, after consultation with the stakeholders, on the operation of the Compensation Mechanism within six months from the date of issue of this order for assessment of the efficacy of the Compensation Mechanism. It is clarified that review of the Compensation Mechanism will be undertaken only if it is considered necessary based on operational experience.* Unquote • He further informed that as per the above the RPCs have a provision to give feedback to Hon'ble commission and hence he suggested that RPC secretariat may issue the provisional/Interim compensation statement for gas stations as per the data provided by NTPC or the observed values obtained during the visits at Kawas and Gandhar and later may submit the commission feedback. • 77th CCM recommendations – The committee recommended that NTPC and beneficiaries provide their views after consulting their management within a week regarding interim compensation statement based on the observed values during the visit to Kawas and Gandhar gas stations. **Subsequent developments:** The comments from MSEDCL vide letter dated 27.04.2018, GUVNL vide letter dated 23.04.2018 and NTPC vide letter dated 27.04.2018 have been received by WRPC and are enclosed at **Annexure D.9-3**. As per the above communications MSEDCL and GUVNL have not agreed for issuing interim compensation statement based on the observed values during the visit to Kawas and Gandhar gas stations. As per the decision taken in 77th CCM, WRPC Secretariat has to send feedback on the compensation mechanism in due course of time.
	TCC/WRPC may like to note the same.
D-10	**Declaration of Transmission elements into commercial operation by ISTS licensees**
	PGCIL vide email dated 11.04.18 has intimated the list of transmission elements into commercial operation for the period from 01.05.2017 to 22.03.2018. The list of the transmission elements is attached at **Annexure D.10.**
	TCC/WRPC may like to note the same.

D-11	**Status of Letter of credit (LC) opening against Deviation charges liability for 2018-19.**
	WRLDC vide letter No. WRLDC/MO/1551/2018 dated 24.05.18 has informed the details of LC to be opened by WR entities for the FY 2018-19. WRLDC vide email dated 07.05.2018 provided the revised details of LC to be opened by WR entities for the FY 2018-19 and the status is attached at **Annexure D.11.**
	TCC/WRPC may like to note the same.
D-12	**Status of Deviation charges**
	WRLDC vide letter No.: WRLDC/MO/1551/2018 dated 24.05.18 has informed the status of DSM charges Payable/Receivable by WR entities to WR Deviation pool account fund maintained by WRLDC as on 23rd May 18 (copy enclosed at **Annexure D.12**). WRLDC is also uploading weekly status of DSM in the following link. http://www.wrldc.org/Commercial/WR%20UI%20Pool%20Account%20Status.htm Major outstanding entities towards Deviation charges are listed below - 1. Essar Steel- Rs76.58Lakh up to 05th week(23-29.04.18) 2. Vandana Vidyut Ltd- Rs10.00Crs 3. Jindal power ltd. -Rs 81.55Lakh up to 05th week(23-29.04.18) 4. KSK Mahanadi-Rs. 37.87 Lakh up to 05th week(23-29.04.18) All DSM Pool members are requested to have the latest status from the above link and make timely payment to DSM Pool account
	TCC/WRPC may like to note the same.
D-13	**Status of Reactive Energy charges**
	WRLDC vide letter No.: WRLDC/MO/1551/2018 dated 24.05.18 has informed the Payable/Receivable by WR entities to Reactive pool account fund maintained by WRLDC as on 21.05.2018 (copy enclosed at **Annexure D.13**). Outstanding Entities towards Reactive Energy charges – DD
	TCC/WRPC may like to note the same.

D-14	**Status of Reconciliation of Deviation, RRAS and REC pool account for the period Oct'17 to Dec'17.**
	WRLDC vide letter dated 19.04.2018, had sent the signed reconciliation statement for the period Jan'18 to Mar'18to all Deviation/REC pool members. All the details of payments/receipts of Deviation charges and REC during Jan'18 to Mar'18are also uploaded on WRLDC website (http://wrldc.org/Commercial/POOL_RECONCILIATION/2017-18/). The following members are yet to send back the signed reconciled statement to WRLDC for the period mentioned above. It may also pl. note that in case of non receipt of reconciled statement for FY 2017-18 for Q1 to Q4 is not received by WRLDC by 30th June'2018, the same shall be considered as deemed reconciled by the Regional entities.

DSM Pool Members

1	CSPDCL	14	GMR Warora Energy ltd
2	MP Power Management Co. Ltd.	15	KORBA WEST POWER Corp. LTD
3	MSLDC UI Settlement account	16	JAYPEE NIGRI TPP
4	Goa	17	Essar Steel Ltd
5	D&D	18	DGEN (Torrent Energy Limited)
6	HVDC Bha.	19	GMR Chhattisgarh Energy ltd
7	LancoAmarkantak Power Ltd	20	MB POWER
8	RGPPL	21	JHABUA POWER
9	BALCO	22	SKS POWER
10	CGPL UMPP MUNDRA	23	TRN Energy ltd
11	DCPP JSPL	24	HVDC CHAMPA
12	KSK Mahanadi	25	KAPS 3&4(INFIRM
13	Vandana Vidyut Ltd		

REC Pool members

1	CSPDCL
2	MP Power Management Co. Ltd.
3	MSEDCL
4	D&D

RRAS

1	RGPPL
2	CGPL
3	SASAN

All the above entities are requested to reconcile at their end and send the signed statement to WRLDC at the earliest. Non receipt of signed reconciliation statement by 30th June'2018 shall be considered as deemed reconciled by WRLDC.

	TCC/WRPC may like to note the same.

D-15 **Interest on delayed payments w.r.t. the Regulatory pool accounts maintained by WRLDC**

WRLDC vide letter dated 11th May 2018 has issued interest statements against all the Regulatory Pool accounts maintained by WRLDC as per the details given below. The detailed payment sheet is given at **Annexure D.15-1** to **Annexure D.15-4**. Detailed calculation sheet along with letters are also available in the following links.

Regulatory Pool Account	Letter Issued date	Interest for the period	Detailed calculation and statement available at the following links
DSM	11-05-18	1/7/17 to 31/3/18	http://www.wrldc.org/Commercial/DSM%20INTEREST/1718/
RRAS	11-05-18	11/4/16 to 31/3/18	http://www.wrldc.org/Commercial/RRAS%20INTEREST/1718/
REC	11-05-18	1/10/16 to 31/3/18	http://www.wrldc.org/Commercial/REC%20INTEREST/1718/
Congestion	11-05-18	1/7/16 to 31/3/18	http://www.wrldc.org/Commercial/CONGESTION%20INTEREST/1718/

All are requested to make the payment.

TCC/WRPC may like to note the same.

D-16 **Opening of Letter of Credit**

General Manager(AM), PGCIL, Corporate Office Gurgaon vide letter dated 23.05.2018 informed that Essar Power (MP) Ltd, Western Railway (RGPPL), West Central Railway (RGPPL) and SKS Power untied have not opened their LC. DNH has not renewed their LC for the requisite amount. The beneficiaries may renew LC for the requisite amount in favour of POWERGRID.

TCC/WRPC may like to note the same.

D-17 **Compliance Status observations made in Protection Audit (Petition No. 220/MP/2012):**

1. **First Phase Protection Audit Observation Compliances :**
   CERC vide its order dated 21.02.2014 in respect to petition No. 220/MP/2012 filed by POWERGRID have directed that CTU and

	SLDCs shall submit quarterly Protection Audit Report to the respective RPC latest by 15thday of the first month of next quarter and RPCs shall submit the report to the Commission latest by 15th day of the second month of next quarter. The Member Secretary of Regional Power Committees shall monitor the protection related issues and bring to the notice of the Commission any instance of non-compliance of the Regulation 1.5 of the Grid Code in respect of the protection related issues considered in the instant petition. The observations/recommendations of third party Protection Audit carried out by Utilities in WR is being regularly monitored in the Protection sub-Committee (PCM) of WR and it has been observed that the progress of compliances of these observations/recommendation is very slow. The PCM have time and again requested all the utilities to comply all the observations/recommendation, since the time lines given for compliances by Hon'ble CERC is over. However the utilities are not complying the observations/recommendations of the third party protection audit. The updated status of the protection audit observations/recommendations as on December 2017, is as attached at **Annexure D.17.** **2. Second phase of Protection Audit of old S/Ss and Protection Audit of Newly commissioned S/Ss:** Protection Audit of all the S/Ss is required to be carried out once in five years and The protection audit of newly commissioned S/Ss be carried out within one year of its commissioning as per the Enquiry Committee on the Grid disturbance of 30th June 2012, recommendation. Utilities may give their action plan in this matter.
	TCC/WRPC may like to discuss the same.
D-18	**Formulation & revision of SPS**
	A) SPS formulated for <u>JP-Nigirie and MB Power:</u>
	The SPS for JP-Nigirie and MB Power were formulated in a special meeting held at WRPC on 23.08.2017. The SPS formulated is enclosed at **Annexure D.18-1.** In the 131st PCM held on 27 & 28.02.2018, it was informed that MB power & J.P.Nigrie have implemented the SPS. As regards to exploration of the possibility of power swing blocking for Zone-1, when one line is already out and a temporary single phase fault on the other line in service, the sub-

	Committee discussed the issue and observed that in case of many generating stations such as NTPC & Adani Power they are keeping the power swing trip in Zone-1 in blocked mode for the DPS. The sub-Committee observed that J.P.Nigree and M.B.Power are connected through D/C line and are connected to the grid radially. Therefore to avoid tripping of the entire generating station the power swing trip in Z-1 may be blocked.
	TCC/WRPC may like to discuss/note the same.
	B). CGPL SPS revision
	The revision in SPS at CGPL was discussed and agreed in the 132nd PCM held on 18.04.2018 **B.1) Proposed SPS revision at CGPL:** CGPL generating station is an important UMPP in Western Region having the generating capacity of 830*5 MW and SPS is in place for safer evacuation of generation during contingencies. As the network configuration of the evacuating lines from CGPL generating station was changed due to LILO of 400 kV CGPL-Mansar and 400 kV CGPL-Chorania at 400 kV Bachau substation, there was a need for SPS revision in CGPL. The current SPS operating condition at CGPL is attached at **Annexure D.18-2.** As per the studies done by WRLDC, the details of modifications proposed by WRLDC is attached as **Annexure D.18-3**. **B.2) The revision of SPS was discussed and agreed in the 132nd PCM held on 18.04.2018 and is as given below** In the existing implemented SPS all the other conditions of the existing implemented SPS at CGPL are required to be removed, except the following conditions; (a) In case of D/C tripping of CGPL-Bachhau - Export is between 3300 to 3500MW then trip unit 40. - Two lines trip and export is more than 3500MW, then trip Unit 40 and runback in other selected unit. (b) The condition of extending trip command within 120msec to unit 40 as decided in the 3rd meeting of Expert Group held on 12.01.2018, when 5 units at CGPL are on bar and fault on any of the lines emanating from CGPL is not cleared within 100 msecs, would also continue to be in service. If one or more units at CGPL complex is already out then this scheme would be disabled. In the 132nd PCM the sub-Committee agreed for the revision of CGPL SPS with conditions (a) & (b) as above.
	TCC/WRPC may like to note the same.

D-19	**Review of Mumbai Islanding Scheme**
	3.a) Background: Tata Power Mumbai vide letter dated 23.10.2017 requested to review the existing Islanding Scheme. **3.b) Discussions in 131st PCM held on 27 & 28.02.2018:** The sub-Committee discussed the revision of the Mumbai Islanding Scheme and it was decided to hold a separate meeting on 13.03.2018 by involving TATA, BEST, Reliance-DISCOM, Reliance TRANSCO, MSETCL, WRLDC& WRPC. Accordingly a meeting was held on 13.03.18 at WRPC Mumbai and the decision taken in the meeting (MoM enclosed at **Annexure D.19**) is as follows; It was decided that if additional 300 MW load is shed then the island can be saved in case of Grid Disturbance. This additional 300 MW load to be shed, be shared proportionately among TPC and BEST on pro-rata basis peak demands (TPC would share 107 MW and BEST would share 193 MW). It was further requested that these load shedding be implemented as soon as possible. Representatives from TPC and BEST told that wherever Procurement is not required, it will be implemented within a month and wherever procurement will be required, it will take 3-4 months of time. **Follow up in the 132nd PCM held on 18.04.2018:** TPC representative informed that for existing substations where relays are available, it will be implemented by April 2018 end and where procurement is required, additional 6-8 months of time will be required. TPC & BEST representatives were requested to take up the issue of procurement of UFRs with their management and implement (wire up) the above additional load for shedding as early as possible.
	TCC/WRPC may like to discuss the same.
D-20	**Automatic Under Frequency Load Shedding (AUFLS) Scheme**
	4.a) Background: In the 7th NPC meeting held on 08.09.2017, MS, NPC sought the views of Members on the review of quantum of load shedding and stages of frequency. It was agreed that there is need for review of the quantum of load shedding without introduction of additional slabs/stages of frequency. Therefore, RPCs may deliberate on additional slabs of frequency as well as raising the set frequency for UFR operation. The views of RPCs would be put up in next meeting of NPC.

	The existing slabs and quantum of load shedding under UFR is enclosed at **Annexure D.20-1.** **4.b) 131st PCM (held on 27 & 28.02.2018) discussion:** WRPC informed that the flat frequency AUFLS is not aimed at smoothening out the frequency and it is a defence mechanism to arrest the fall of system frequency and try to bring back it to near the operating. There are other mechanisms already available in the system such as primary response, secondary response and tertiary response to address the variations in the system frequency around nominal frequency. Therefore any revision in the slabs and quantum of the flat frequency AUFLS may be decided by considering the fact that it is a defence mechanism. Further raising the slabs has to be judiciously decided based on the system inertia and the resources available (such as primary, secondary and tertiary responses) with the system operator. MP Representative stated that the slab spectrum should be large and studies should be carried out for review of the slabs and quantum under Flat frequency AUFLS. The sub-Committee decided that a separate meeting be held to discuss the issue of raising the AULFS slab and slab wise quantum of load shedding in detail. **4.c) Discussions in Special Meeting held on 13.03.2018:** In line with the decision taken in 131st PCM, a meeting was held on 13.03.18 at WRPC Mumbai (MoM enclosed at **Annexure D.20-2**) to discuss the issue of raising the AULFS slab and slab wise quantum of load shedding. During meeting, WRLDC informed the minimum frequency, maximum frequency and other frequency profile related details. From these details, it was clear that during last more than two years, frequency of grid did not touch below 49.5 Hz and therefore representatives from Gujarat, Maharashtra, MP and Goa were of the view to increase the first stage to 49.4 Hz from existing 49.2 Hz. The representative from WRLDC stated that it would be more convenient for a system operator to bring the system frequency to normative value from 49.4Hz instead of 49.2 Hz and therefore the stage should be raised to 49.4 Hz. WRPC stated that if first stage is fixed at 49.4 Hz, it would be more comfortable to system operator and also there would not be any frequent unnecessary operation of AULFS. After detailed discussion it was in general felt that the first frequency stage be raised to 49.4Hz from 49.2Hz. In the 132nd PCM it was decided that the outcome of the meeting held on 13.03.2018 regarding raising the AULFS slab and slab wise quantum of load shedding as mentioned above will be conveyed in forthcoming NPC meeting**.**
	TCC/WRPC may like to discuss the same

D-21	**Outage of 400kV Bus at Bacchau & Varsana S/Ss**
	Discussions in 131st PCM held on 27 & 28.02.2018: GETCO representative stated that they are not getting outage at Bacchau and Varsana bus due to the LILO of earlier 400 KV CGPL – Chorania and 400 KV CGPL –Manasar lines at 400kV Bacchau S/S, in a situation when there is full generation at CGPL. Now a days all the units at CGPL are on bar with full generation. As recommended by PCM a complete PPI at Varsana S/S and Bacchau S/Ss is undertaken by GETCO. Also due to pollution routine maintenance is required to be done at these S/S. However outage is not being granted for maintenance at 400kV Varsana S/S and Bacchau S/Ss by WRLDC citing outage will result in unsecure operation. In view of this GETCO is proposing to remove the LILO of 400 KV CGPL – Chorania and 400 KV CGPL –Manasar lines at 400kV Bacchau S/Ss. WRLDC representative stated that the CGPL-Bacchau loading limit communicated by PGCIL is 900MW. Also APL Mundra is very low now a days. Due to these line loading constraints, WRLDC is not in a position to give outage. To a query PGCIL representative replied that 400kV CGPL-Bachhau ckts the thermal loading limits is 1600MW and the normal loading limit is 1200MW. The sub-committee requested PGCIL to communicate the 1200MW load ability of 400kV CGPL-Bachhau ckts to WRLDC immediately. Also it was observed that before the LILO of 400 KV CGPL – Chorania and 400 KV CGPL –Manasar lines at 400kV Bacchau S/S, there were no constrains during such type of outages and also this system configuaration continued for more than 5years. Therefore the operation of the system configuration as suggested by GETCO(i.e. temporary removal of LILO of 400 KV CGPL – Chorania and 400 KV CGPL –Manasar lines at 400kV Bacchau S/S) may be accepted by WRLDC during the outages of 400kV Bacchau and Varsana. CGPL representative stated that they have proposed one unit outage in the month of April 2018. The sub-Committee also suggested that GETCO may co-ordinate their outage during the unit outage at CGPL.
	TCC/WRPC may like to discuss the same.
D-22	**Operationalization of WRPC Fund Management Committee**
	Background: WRPC Secretariat framed a new methodology for managing the contingency fund of WRPC and put up under item No.24 “Funding arrangement of Establishment and Contingencies fund of WRPC Secretariat” before 32nd WRPC meeting for discussion and it was agreed. However, while trying to implement the methodology many practical

	difficulties were faced. Hence a simplified methodology was proposed for the approval of competent authority. But it was not approved and WRPC Secretariat was directed to put up in the WRPC meeting. Hence the existing practice is being continued.
	TCC/WRPC may like to discuss the same.

D-23 **Meetings**

Meetings of WRPC from December 2017 to May, 2018 (since last WRPC meeting):

SN	Name of Meeting	Date	Place
	December,2017		
1	502nd OCC Meeting	12.12.2017	WRPC, Mumbai
2	Chairperson CEA meeting	15.12.2017	WRPC, Mumbai
3	Gas power plant partial load compensation meeting	15.12.2017	WRPC, Mumbai
4	TCC &WRPC meeting	19.12.2017 20.12.2017	Jabalpur,MP
	January,2018		
1	3rd Meeting of expert group meeting for CGPL meeting	12.01.2018	WRPC, Mumbai
2	CERC review meeting	15.01.2018	WRPC, Mumbai
3	503rd OCC Meeting	17.01.2018	WRPC, Mumbai
4	PSDF Proposal review meeting	19.01.2018	WRPC, Mumbai
	February,2018		
1	Training of Task I&II of package-B by M/s Powertech labs Inc.	8-10th Feb,2018	WRPC, Mumbai
2	Chairperson, CEA meeting on PSDF proposals meeting	09.02.2018	Jabalpur, MP
3	504th OCC Meeting	21.02.2018	WRPC, Mumbai
4	5 minute scheduling meeting	22.02.2018	WRPC, Mumbai
5	131st PCM Meeting	27-28th Feb 2018	WRPC, Mumbai
	March,2018		
1	Mumbai islanding meeting.	13.03.2018	WRPC, Mumbai
2	AUFLS review meeting.	13.03.2018	WRPC, Mumbai
3	505th OCC Meeting.	21.03.2018	WRPC, Mumbai
	April, 2018		
1	3rd REIF Meeting	17.04.2018	WRPC, Mumbai
2	Transmission Review Meeting	17.04.2018	WRPC, Mumbai
3	132nd PCM Meeting	18.04.2018	WRPC, Mumbai
4	506th OCC Meeting	19.04.2018	WRPC, Mumbai
5	77th CCM Meeting	20.04.2018	WRPC, Mumbai

	May 2018		
1	A meeting on pre-discussion on 43rd Standing Committee agenda	08.05.2018	WRPC, Mumbai
2	A meeting to discuss the Kotra Incidence on 23.04.2018	09.05.2018	WRPC, Mumbai
3	A meeting to discuss the issues of Champa-Kurukshetra HVDC	09.05.2018	WRPC, Mumbai
4	43rd Standing Committee on Power System Planning of WR	11.05.2018	PGCIL Vadodara
5	507th OCC meeting	15.05.2018	WRPC Mumbai
6	A meeting on settlement of wheeling charges between OPTCL and WR beneficiaries	18.05.2018	WRPC Mumbai

TCC/WRPC may like to note the same.

D-24 **Action Taken Report for MoM of 35th WRPC meeting (19-20 December, 2017)**

The action taken report in pursuance of MoM of 35th TCC/WRPC meeting held on 19th & 20th December 2017 is attached at **Annexure D.24.**

TCC/WRPC may like to note the same.

D-25 **Cyber Security Preparedness Monitoring**

CE(IT), CEA vide email dated 05.06.2018 intimated that in view of increasing incidents of cyber-attacks and threat to the integrated grid operation, all utilities need to monitor action being taken in regard to following points and report the status to respective Computer Emergency Response Teams (CERTs):

- Appointment of organization-wise Chief Information Security Officers and its status
- Identification of organization-wise Critical Infrastructure and its status
- Preparation of organization-wise Crisis Management Plan and its status
- Status of Cyber Security Mock Drill activity in coordination with CERT-In

  Status of Training / Workshops on Cyber Security organized / participated by Power Sector entities

  Status of action taken on CERT-In / NCIIPC advisories

- Quarterly action taken report may be submitted by each utility to Chief Information Security Officer (CISO) of Ministry of Power, i.e. Chief Engineer (IT), CEA with a copy to RPC Secretariat in the following format:

Quarterly Cyber Preparedness Monitoring Report

(Status as on:)

Sl. No.	State	Sector (Generation/ Transmission/ Distribution)	Utilities	Status of CISO Nomination	Status of Critical Infrastructure identified	Status of Crisis Management Plan prepared	Status of Cyber Security Mock Drill	Status of Trainings / Workshops organized / participated by Utility	Action taken on CERT-In / NCIIPC Advisories
1									
2									

Representative from CEA may like to make presentation on the same.

TCC/WRPC may like to note the same.

D-26 **Any Other Item with the permission of the Chair**

D-27 **Date and venue of next WRPC meeting**

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ANNEXURE B-1

भारतसरकार/Government of India
विद्युतमंत्रालय/Ministry of Power
केन्द्रीयविध्युतप्राधिकरण/Central Electricity Authority/
तापीयनिष्पादनमूल्यांकनएवंजलवायुपरिवर्तनप्रभाग
Thermal Performance Evaluation & Climate Change Division

Subject: Minutes of meeting held on 23.1.2018 regarding Incentive to Thermal Power Plants for early installation of pollution control Equipment.

Minutes of the meeting held on 23.1.2018 under the Chairmanship of Member (Thermal), CEA to discuss Incentive to Thermal Power Plants for early installation of pollution control Equipment are attached herewith for your information and necessary action please.

PD & HRM
13/2/18

Narender Singh
2/2/2018
(Narender Singh)
Chief Engineer

Member Secretary (ERPC/ WRPC/ SRPC/ NRPC)

No. CEA/Th/TPE&CC/ENV/50/2018/ 122 Date: 1.2.2018

Copy to:

Member (Thermal): For kind information please.

Chief Engineer (F&CA/ NPC/TPRM), CEA

सेवाभवन,आर.के. पुरम,नईदिल्ली-110066, टेलिफेक्स: 011-26105075 इमेल: directorcore@yahoo.comवैबसाईट: www.cea.nic.in
SewaBhawan, R.K.Puram, New Delhi-110066, Telefax: 011-26105075 E-mail: directorcore@yahoo.com Website: www.cea.nic.in

Minutes of the meeting held on 23.1.2018 under the Chairmanship of Member (Thermal), CEA to discuss Incentive to Thermal Power Plants (TPPs) for early installation of pollution control Equipment.

The list of participants is enclosed at Annexure.

Sh. P. D. Siwal, Member (Thermal), Central Electricity Authority welcomed all the participants. He informed that pollution control equipment needs to be installed in the existing TPPs as well as in the thermal plants, which are under construction. Various power generators have been raising their concern that the TPPs which install the pollution control equipment at earlier dates will be in a disadvantageous position as their ranking in Merit Order Despatch (MOD) will deteriorate due to increase in Variable Charges. They have been time and again requesting to incentivize the TPPs who install pollution control equipment early. As per the phasing plan submitted by CEA, ESP upgradation/ FGD installation has been planned from the year 2018 to 2022. It is felt that incentivizing early installation of pollution control equipment will motivate the power generators to complete the requisite installation in time or ahead of schedule. In order to avoid disadvantage to power plants in MOD due to installation there is a need to balance their interest/ incentivize them. This will also result in reduction in environmental pollution. This will be a temporary phenomenon till December 2022 by the time when all the TPPs would have installed pollution control equipment as per the phasing plan/ directives of CPCB.

Discussions regarding system to incentivize TPPs for early installation of pollution control equipment were held with representatives of Regional Power Committees, TPE&CC, TPRM, TPPD, F&CA Division of CEA, etc. The following points emerged after the discussion:

1. Priority in Scheduling of environmentally compliant TPPs. The following three options were discussed:

    a. For the purpose of MOD, two categories in TPPs may be created, one which are environmental norms compliant and the other TPPs which are non compliant to environmental norms. Priority in scheduling may be given to the TPPs which are environmentally compliant irrespective of their variable cost.

    b. The increased variable cost due to installation of FGD and other pollution control equipment may be subtracted from the tariff for MOD in respect of the plants installing pollution control equipment. The existing framework of scheduling priority, which is based on merit order, should continue. This is in order to ensure incentive to plants compliance with new environmental norms.

    c. EPO (Environment Power Obligation) may be introduced in line with RPO (Renewable Power Obligation) and it should be made mandatory for DISCOM to purchase at least say 10% power from plants which are norms compliant.

The finalized dispensation from above may be continued till December, 2022 only.

2. Excise & Custom duty/ GST may be exempted for pollution control equipment like FGD etc.

3. Present limit of 30% equity to be met by plants to be relaxed to 10%, this will enable plants to raise the fund comfortably and encourage for early installation of pollution control equipment.

4. NCEF collected through coal cess may be utilized for funding the utilities for installation of pollution control equipment.

5. The amount of coal cess may be reduced for TPPs complying with new environmental norms.

Member (Thermal) desired that RPCs should call meeting with DISCOM/ Generators in respect of their region to discuss the system to incentivize TPPs and submit the report by Feb'2018 end.

The meeting ended with vote of thanks.

List of Participants:

CEA:

1. Sh. Pradeep Jindal, Chief Engineer (NPC)
2. Sh. Narender Singh, Chief Engineer(TPE&CC)
3. Sh. Ajay Talegaonkar, Chief Enigneer(F&CA)
4. Sh. B.R. Alwani, Director (TPE&CC)
5. Sh. Rajeev Kumar, Director (TPRM)
6. Sh. Sanjay Jain, Director (TPE&CC)
7. Sh. B.S. Rajput, AGM (TPE&CC)
8. Sh. K.P. Madhu, Deputy Director
9. Sh. Rajesh Kumar, Deputy Director (TPE&CC)
10. Ms. Pooja Jain, Assistant Director-I (TPE&CC)
11. Ms. Rita Nagdeve, Assistant Director-II (TPE&CC)

Regional Power Committees:

1. Sh. M.A.K.P. Singh, Member Secretary (NRPC)
2. Sh. J. Bandyopadhyay, Member Secretary (ERPC)
3. Sh. Upendra Kumar, SE (NRPC)
4. Sh. H.K. Pandey, SE (NRPC)
5. Sh. Asit Singh, SE (SRPC)
6. Sh. J.K. Rathod, SE (WRPC)
7. Sh. L.K.S. Rathore, Deputy Director (WRPC)

ANNEXURE C.2

Ref. No.- CE(ENGG)/II/KAPS-SVR/ 199 DATE: 08 /02 /2018

SITE VISIT REPORT

Name of Site: 400kV & 220kV switchyard of Kakrapar Atomic Power Station, Kakrapar-Gujarat.

Date of Visit: 04/01/2018

Name of Visitor: 1) Mr. M. A. Prajapati (DE-Engineering), Corp. Office-GETCO, Vadodara
2) Mr. Sumit Khare (Dy. Manager), PGCIL-Vadodara.

Site In-charge present: 1) Mr. Samir Pathan (SOE), 400kV Switchyard, NPCIL-Kakrapar
2) Mr. B. M. Sharma (SOE), 400kV Switchyard, NPCIL-Kakrapar
3) Mr. R. G. Pathak (SOE), 220kV Switchyard, NPCIL-Kakrapar

Sub: Site visit report of 400kV & 220kV switchyard of Kakrapar Nuclear Power Station, Kakrapar-Gujarat.

Ref. Doc.: Email from CE(SLDC), Dt-02.01.2018

With reference to the above subject the site was jointly visited by M/s. GETCO-Vadodara & M/s. PGCIL-Vadodara to check site feasibility to accommodate new 01 No. of 400/220kV, 500MVA ICT to interconnect existing 220kV & 400kV switchyard on Dt-03.01.2018.

Following points were observed / discussed during the visit.

A. **220kV Switchyard:** (KAPP 1&2)

1. Existing Bus Bar Scheme: 1Main & Main cum Transfer Bus
2. Space available to accommodate 01 No. of 220kV bay (ICT-LV) in existing switchyard.
3. ICT-LV shall be terminated using 220kV power cable only.
4. It is not possible to accommodate proposed Control and relay panel in existing control room looking to space constraints. Hence, it is proposed to install panels in new yard kiosk and bay control shall be done by SCADA system. Therefore, SAS panel and HMI PC shall be installed in existing Control room.

B. **400kV Switchyard:** (KAPP 3&4)

1. Existing Bus Bar Scheme: One and Half Breaker Scheme
2. Only 1No. of spare bay is available to install new 400/220kV, 500MVA ICT, which is presently occupied by M/s. NPCIL for future 400kV S/C line bay.
3. Sufficient space is available in existing control room to accommodate proposed control and relay panel of ICT.
4. It is required to construct approach road for new ICT.

The above site was inspected primarily to accommodate new 1No. 400/220kV, 500MVA at 400kV & 220kV switchyards of KAPS. 400kV side ICT bay shall be accommodated only if M/s. NPCIL sacrifices occupied future 400kV S/C line bay.

However, upon confirmation from M/s. NPCIL, complete scope of work will be finalized after detail engineering of existing switchyard and protection system.

This is put up for information and further needful action in the matter please.

Sign of Visitor:

1) Mr. M. A. Prajapati (DE-Engineering), Corp. Office-GETCO, Vadodara. 8/2/18

2) Mr. Sumit Khare (Dy. Manager), PGCIL-Vadodara.

Through,

CE(Project)- GETCO, Vadodara

To,
CE(SLDC)-GETCO, Vadodara

Copy to:
GM (Project) – PGCIL, Vadodara.

ANNEXURE-C-3

WR

S. NO.	Developer	Name of Project	Sector	State	Region	Unit No	Total Capacity	DT-of COMMISSIONING (MM/DD/YYYY)	FGD Phasing Plan for Implementation (DD/MM/YYYY) (A)	Completion of Feasibility Study (B)	NIT issued (C)	Bid Opening (D)	Award (E)	Actual Commissiong EPC (F) (B) Actual commissioning shall be target date	Remarks
1	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	4	660	3/18/2017	31/12/2020						
2	NTPC	SOLAPUR	Central Sector	Maharashtra	WR	1	660	4/7/2017	31/12/2020						
3	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	4	500	6/20/2008	31/12/2021						
4	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	5	500	1/1/2009	31/12/2021						
5	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	3	660	1/8/2012	31/12/2021						
6	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prades	WR	7	500	3/3/1999	30/06/2021						
7	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prades	WR	8	500	2/26/2000	30/06/2021						
8	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	9	500	7/27/2006	30/09/2021						
9	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	10	500	3/8/2007	30/09/2021						
10	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prades	WR	11	500	6/14/2012	31/12/2021						
11	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Prades	WR	12	500	3/22/2013	31/12/2021						
12	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	1	200	2/28/1983	31/12/2022						
13	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	2	200	10/31/1983	31/12/2022						
14	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	3	200	3/17/1984	31/12/2022						
15	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	4	500	5/31/1987	31/12/2022						
16	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	5	500	3/25/1988	31/12/2022						
17	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	6	500	2/26/1989	31/12/2022						
18	NTPC	KORBA STPS	Central Sector	Chhatisgarh	WR	7	500	11/25/2010	31/12/2022						
19	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	1	660	10/1/2011	31/12/2022						
20	NTPC	SIPAT STPS	Central Sector	Chhatisgarh	WR	2	660	5/25/2012	31/12/2022						
21	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	1	210	10/10/1987	31/12/2022						
22	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	2	210	7/23/1988	31/12/2022						
23	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	3	210	2/3/1989	31/12/2022						
24	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	4	210	12/26/1989	31/12/2022						
25	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	5	210	3/31/1990	31/12/2022						
26	NTPC	VINDHYACHAL STPS	Central Sector	Madhya Pradesh	WR	6	210	2/1/1991	31/12/2022						
27	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	1	500	4/19/2012	31/12/2022						
28	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	2	500	3/29/2013	31/12/2022						
29	NTPC	MOUDA TPS	Central Sector	Maharashtra	WR	3	660	3/28/2016	31/12/2022						
30	NTPC & Sail	BHILAI TPS	Central Sector	Chhatisgarh	WR	1	250	4/20/2008	31/12/2022						
31	NTPC & Sail	BHILAI TPS	Central Sector	Chhatisgarh	WR	2	250	7/12/2009	31/12/2022						
32	CSEB	MARWA TPS	State Sector	Chhatisgarh	WR	1	500	3/30/2014	30/06/2021						
33	CSEB	MARWA TPS	State Sector	Chhatisgarh	WR	2	500	7/15/2016	31/03/2021						

34	CSPGCL	DSPM TPS	State Sector	Chhatisgarh	WR	1	250	3/30/2007	30/06/2021						
35	CSPGCL	DSPM TPS	State Sector	Chhatisgarh	WR	2	250	12/11/2007	30/09/2021						
36	CSPGCL	KORBA-WEST Ext. TPS	State Sector	Chhatisgarh	WR	5	500	3/22/2013	30/09/2021						
37	GSECL	GANDHI NAGAR TPS	State Sector	Gujarat	WR	3	210	3/20/1990	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
38	GSECL	GANDHI NAGAR TPS	State Sector	Gujarat	WR	4	210	7/20/1991	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
39	GSECL	GANDHI NAGAR TPS	State Sector	Gujarat	WR	5	210	3/17/1998	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
40	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	1	70	3/29/1990	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
41	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	2	70	3/25/1991	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
42	GSECL	KUTCH LIG. TPS	State Sector	Gujarat	WR	3	75	3/31/1997	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		Revised FGD phasong plan for implementation 31/12/2022
43	GSECL	UKAI TPS	State Sector	Gujarat	WR	3	200	1/21/1979	31/12/2021						Installation of FGD is not considered as it is to be phase out for installation of 800MW unit in place of Unit No. 1,2 & 3
44	GSECL	UKAI TPS	State Sector	Gujarat	WR	4	200	3/28/1979	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
45	GSECL	UKAI TPS	State Sector	Gujarat	WR	5	210	1/30/1985	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		Revised FGD phasong plan for implementation 31/12/2022
46	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	1	210	3/23/1982	31/12/2021						
47	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	2	210	1/15/1983	31/12/2021						It is under consideration for installation of 800MW unit either at Sikka,Gandhinagar or Wanakbori for which feasability sudy report has been intiated. After getting feasibility & DPD unit shall be retired & decommissioned /installation of FGD shall be decided.
48	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	3	210	3/15/1984	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
49	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	4	210	3/9/1986	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
50	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	5	210	9/23/1986	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
51	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	6	210	11/18/1987	31/12/2021	18-Sep	19-Mar	19-Aug	19-Dec		
52	GSECL	WANAKBORI TPS	State Sector	Gujarat	WR	7	210	12/31/1998	31/12/2021		20.09.2017	22.05.2018	18-Dec		Revised FGD phasong plan for implementation 31/12/2022
53	GSECL	SIKKA REP. TPS	State Sector	Gujarat	WR	3	250	3/29/2015	31/01/2022		20.09.2017	22.05.2018	18-Dec		
54	GSECL	SIKKA REP. TPS	State Sector	Gujarat	WR	4	250	9/25/2015	31/01/2022		20.09.2017	22.05.2018	18-Dec		
55	GSECL	UKAI TPS	State Sector	Gujarat	WR	6	500	3/5/2013	31/03/2022		20.09.2017	22.05.2018	18-Dec		Revised FGD phasong plan for implementation 31/12/2022
56	MPPGCL	AMARKANTAK EXT TPS	State Sector	Madhya Pradesh	WR	5	210	6/15/2008	31/03/2021						
57	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Pradesh	WR	1	210	3/26/1993	31/03/2021						
58	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Pradesh	WR	2	210	3/27/1993	31/03/2021						
59	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Pradesh	WR	3	210	2/28/1999	30/06/2021						

60	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Pradesh	WR	4	210	11/23/1999	30/06/2021						
61	MPPGCL	SANJAY GANDHI TPS	State Sector	Madhya Pradesh	WR	5	500	6/18/2007	31/03/2021						
62	MPPGCL	SATPURA TPS	State Sector	Madhya Pradesh	WR	10	250	3/22/2013	31/03/2021						
63	MPPGCL	SATPURA TPS	State Sector	Madhya Pradesh	WR	11	250	12/25/2013	31/03/2021						
64	MPPGCL	SHRI SINGHAJI TPP	State Sector	Madhya Prades	WR	1	600	11/18/2013	31/03/2021						
65	MPPGCL	SHRI SINGHAJI TPP	State Sector	Madhya Prades	WR	2	600	10/15/2014	31/03/2021						
66	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	9	500	3/21/2016	31/03/2020						
67	MAHAGENCO	KORADI TPS	State Sector	Maharashtra	WR	10	660	12/28/2016	31/12/2020						
68	MAHAGENCO	BHUSAWAL TPS	State Sector	Maharashtra	WR	3	210	9/18/1982	31/03/2021						
69	MAHAGENCO	BHUSAWAL TPS	State Sector	Maharashtra	WR	4	500	3/7/2012	31/03/2021						
70	MAHAGENCO	BHUSAWAL TPS	State Sector	Maharashtra	WR	5	500	3/30/2012	31/03/2021						
71	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	3	210	5/3/1985	31/03/2021						
72	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	4	210	3/8/1986	31/03/2021						
73	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	5	500	3/22/1991	31/03/2021						
74	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	6	500	3/11/1992	31/03/2021						
75	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	7	500	10/1/1997	31/03/2021						
76	MAHAGENCO	CHANDRAPUR STPS	State Sector	Maharashtra	WR	8	500	3/29/2015	31/03/2021						
77	MAHAGENCO	KHAPARKHEDA TPS	State Sector	Maharashtra	WR	1	210	3/26/1989	31/03/2021						
78	MAHAGENCO	KHAPARKHEDA TPS	State Sector	Maharashtra	WR	2	210	1/8/1990	31/03/2021						
79	MAHAGENCO	KHAPARKHEDA TPS	State Sector	Maharashtra	WR	3	210	5/31/2000	31/03/2021						
80	MAHAGENCO	KHAPARKHEDA TPS	State Sector	Maharashtra	WR	4	210	1/7/2001	31/03/2021						
81	MAHAGENCO	KHAPARKHEDA TPS	State Sector	Maharashtra	WR	5	500	8/5/2011	31/03/2021						
82	MAHAGENCO	KORADI TPS	State Sector	Maharashtra	WR	6	210	3/30/1982	31/03/2021						
83	MAHAGENCO	KORADI TPS	State Sector	Maharashtra	WR	7	210	1/13/1983	31/03/2021						
84	MAHAGENCO	KORADI TPS	State Sector	Maharashtra	WR	8	660	3/30/2015	31/03/2021						
85	MAHAGENCO	KORADI TPS	State Sector	Maharashtra	WR	9	660	3/15/2016	31/03/2021						
86	MAHAGENCO	NASIK TPS	State Sector	Maharashtra	WR	3	210	4/26/1979	31/03/2021						
87	MAHAGENCO	NASIK TPS	State Sector	Maharashtra	WR	4	210	7/10/1980	31/03/2021						
88	MAHAGENCO	NASIK TPS	State Sector	Maharashtra	WR	5	210	1/30/1981	31/03/2021						
89	MAHAGENCO	PARLI TPS	State Sector	Maharashtra	WR	4	210	3/26/1985	31/03/2021						
90	MAHAGENCO	PARLI TPS	State Sector	Maharashtra	WR	5	210	12/31/1987	31/03/2021						
91	MAHAGENCO	PARLI TPS	State Sector	Maharashtra	WR	6	250	2/16/2007	31/03/2021						
92	MAHAGENCO	PARLI TPS	State Sector	Maharashtra	WR	7	250	2/10/2010	31/03/2021						
93	MAHAGENCO	PARLI TPS	State Sector	Maharashtra	WR	8	250	3/30/2016	31/03/2021						
94	DB Power	BARADARHA TPS	Private Sector	Chhatisgarh	WR	2	600	3/24/2015	30/09/2020						
95	GMR	RAIKHEDA TPP	Private Sector	Chhatisgarh	WR	1	685	2/24/2015	30/06/2020						
96	GMR	RAIKHEDA TPP	Private Sector	Chhatisgarh	WR	2	685	3/28/2016	30/09/2020						
97	Maruti Power Limited	BANDAKHAR TPP	Private Sector	Chhatisgarh	WR	1	300	7/31/2015	31/03/2020						
98	SKS Power C	Binjkote TPP	Private Sector	Chhatisgarh	WR	1	300	4/25/2017	30/09/2020						
99	TRN Energy Private Ltd.	NAWAPARA TPP	Private Sector	Chhatisgarh	WR	2	300	4/18/2017	30/09/2020						

100	Bharat Aluminium Co. Ltd.	BALCO TPS	Private Sector	Chhatisgarh	WR	1	300	6/4/2015	30/09/2021						
101	Bharat Aluminium Co. Ltd.	BALCO TPS	Private Sector	Chhatisgarh	WR	2	300	3/24/2016	30/06/2021						
102	DB Power	BARADARHA TPS	Private Sector	Chhatisgarh	WR	1	600	2/23/2014	30/06/2021						
103	M/s Lanko Amarkantak Ltd,	PATHADI TPP	Private Sector	Chhatisgarh	WR	1	300	6/4/2009	31/03/2021						
104	M/s Lanko Amarkantak Ltd,	PATHADI TPP	Private Sector	Chhatisgarh	WR	2	300	3/25/2010	31/03/2021						
105	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	1	600	3/10/2014	31/03/2021						
106	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	2	600	3/30/2014	31/12/2021						
107	RKM Powergen Private Ltd.	UCHPINDA TPP	Private Sector	Chhatisgarh	WR	3	360	1/28/2016	31/12/2021						
108	KORBA-WEST TPS Pvt Ltd	AVANTHA BHANDAR	Private Sector	Chhatisgarh	WR	1	600	3/31/2014	31/03/2022						
109	KSK Mahanadi Power Co Ltd	AKALTARA TPS	Private Sector	Chhatisgarh	WR	1	600	8/13/2013	30/06/2022						
110	KSK Mahanadi Power Co Ltd	AKALTARA TPS	Private Sector	Chhatisgarh	WR	2	600	8/22/2014	31/03/2022						
111	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	1	250	9/2/2007	31/03/2022						
112	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	2	250	2/10/2008	31/03/2022						
113	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	3	250	3/6/2008	30/06/2022						
114	M/s O.P.Jindal	OP JINDAL TPS	Private Sector	Chhatisgarh	WR	4	250	6/17/2008	30/06/2022						
115	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	3	600	1/7/2015	31/03/2022						
116	M/s O.P.Jindal	TAMNAR TPP	Private Sector	Chhatisgarh	WR	4	600	3/28/2015	30/06/2022						
117	RKM Powergen Private Ltd.	UCHPINDA TPP	Private Sector	Chhatisgarh	WR	1	360	10/28/2015	31/03/2022						
118	Tata Power (CGPL)	MUNDRA UMTPP	Private Sector	Gujarat	WR	1	800	3/7/2012	30/06/2020						
119	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	1	600	1/4/2012	30/06/2021						
120	Essar Gujarat	SALAYA TPP	Private Sector	Gujarat	WR	2	600	6/15/2012	31/03/2021						
121	Tata Power (CGPL)	MUNDRA UMTPP	Private Sector	Gujarat	WR	2	800	7/30/2012	31/03/2021						
122	Tata Power (CGPL)	MUNDRA UMTPP	Private Sector	Gujarat	WR	3	800	10/27/2012	30/06/2021						
123	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	1	330	8/4/2009	31/12/2022						
124	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	2	330	3/17/2010	31/12/2022						
125	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	3	330	8/2/2010	30/09/2022						
126	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	4	330	12/20/2010	30/09/2022						
127	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	5	660	12/26/2010	30/06/2022						
128	Adani Power Ltd.	MUNDRA TPS	Private Sector	Gujarat	WR	6	660	7/20/2011	31/03/2022						

129	Tata Power (CGPL)	MUNDRA UMTPP	Private Sector	Gujarat	WR	4	800	1/21/2013	31/03/2022						
130	Tata Power (CGPL)	MUNDRA UMTPP	Private Sector	Gujarat	WR	5	800	3/22/2013	31/03/2022						
a	Torrent Power Generation Ltd,.	SABARMATI	Private Sector	Gujarat	WR	1	120	10/12/1978	31/12/2022						
132	Torrent Power Generation Ltd,.	SABARMATI	Private Sector	Gujarat	WR	2	121	12/31/1984	31/12/2022						
133	Torrent Power Generation Ltd,.	SABARMATI	Private Sector	Gujarat	WR	3	121	9/28/1988	31/12/2022						
134	ESSAR power	MAHAN TPP	Private Sector	Madhya Prades	WR	1	600	2/24/2013	31/12/2020						
135	Jaipraksh Power Venture Ltd	NIGRI TPP	Private Sector	Madhya Prades	WR	1	660	8/29/2014	30/06/2020						
136	Jaipraksh Power Venture Ltd	NIGRI TPP	Private Sector	Madhya Prades	WR	2	660	2/27/2015	30/09/2020						
137	Jhabua Power Ltd.	SEIONI TPP	Private Sector	Madhya Prades	WR	1	600	3/22/2016	31/03/2020						
138	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	1	660	5/30/2013	30/09/2021						
139	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	2	660	12/18/2013	30/06/2021						
140	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	5	660	8/24/2014	31/12/2021						
141	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	6	660	3/19/2015	30/09/2021						
142	MB Power	ANUPPUR TPP	Private Sector	Madhya Prades	WR	1	600	4/20/2015	31/03/2022						
143	MB Power	ANUPPUR TPP	Private Sector	Madhya Prades	WR	2	600	3/30/2016	30/06/2022						
144	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	3	660	5/21/2014	31/03/2022						
145	Reliance Power Ltd	SASAN UMTPP	Private Sector	Madhya Prades	WR	4	660	3/25/2014	31/03/2022						
146	TATA Power Co.	TROMBAY TPS	Private Sector	Maharashtra	WR	5	500	1/25/1984	31/03/2018						
147	Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	2	660	3/25/2013	31/12/2021						
148	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	3	660	6/10/2013	31/09/2021						
149	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	4	660	3/23/2014	31/06/2021						
150	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	5	660	9/25/2014	31/03/2021						
151	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	1	270	2/25/2014	31/03/2021						
152	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	2	270	2/15/2017	31/03/2021						
153	Vidarbha Industries Ltd	BUTIBORI TPP	Private Sector	Maharashtra	WR	1	300	8/17/2012	30/06/2021						
154	Vidarbha Industries Ltd	BUTIBORI TPP	Private Sector	Maharashtra	WR	2	300	3/19/2013	31/03/2021						

155	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	1	135	6/5/2010	30/09/2021							
156	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	2	135	10/10/2010	30/09/2021							
157	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	3	135	1/21/2011	31/12/2021							
158	Wardha P C P L	WARDHA WARORA TPP	Private Sector	Maharashtra	WR	4	135	4/30/2011	31/12/2021							
159	Adani Power Maharashtra Ltd	TIRORA TPS	Private Sector	Maharashtra	WR	1	660	9/11/2012	31/03/2022							
160	Dhariwal Infrastructure	DHARIWAL TPP	Private Sector	Maharashtra	WR	1	300	11/3/2013	31/03/2022							
161	Dhariwal Infrastructure	DHARIWAL TPP	Private Sector	Maharashtra	WR	2	300	5/28/2014	31/03/2022							
162	GMR emco ENERGY ltd	EMCO WARORA TPS	Private Sector	Maharashtra	WR	1	300	2/7/2013	31/03/2022							
163	GMR emco ENERGY ltd	EMCO WARORA TPS	Private Sector	Maharashtra	WR	2	300	8/27/2013	31/03/2022							
164	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	3	270	4/14/2017	31/12/2022							
165	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	4	270	5/19/2017	31/12/2022							
166	Ratan Power	NASIK (P) TPS	Private Sector	Maharashtra	WR	5	270	5/30/2017	31/12/2022							

Annexure – C.4

1. **Progress of downstream network whose terminating bays are implemented by POWERGRID**

A. Status of 220kV downstream network where Bays are ready.

Sl No	ISTS Substation	Voltage ratio in use	Status of Bays	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines As updated on WRPC TRM meeting 17.04.2018
1	Raipur (PG)	3x315MVA, 400/220 kV	2no Bays ready since 01.07.2011 (WRSS-6)	Raipur (PG) – Doma 220 kV D/c	2	Commissioned on 30.11.2017
2	Mapusa (PG)	3x315MVA, 400/220kV	2 nos Bays ready since : 01.11.2013	Mapusa – Cuncolin 220 kV D/c	2	Ant. DOCO Sep 2020. GED may expedite the commissioning and update the status
3	Pirana	2x315MVA, 400/220kV	2nos Bays ready since 19.03.15 (WRSS-6)	Pirana – Barjadi 220 kV D/c	2	LoI 23.03.2017. GETCO may expedite the commissioning and update the status.
4	Boisar	2x315 +500MVA, 400/220kV	1no Bays ready since 30.05.15	Boisar – Borivali 220 KV line S/c	1	Ant. DOCO June 2018. MSETCL may expedite and update the status.
5	Magarwada	2x315MVA, 400/220kV	2nos Bays ready since 03/11/14	Magarwada – Ringanwada 220 kV D/c	2	Commissioned in Nov 2017
6	Wardha	2x315MVA, 400/220kV	2 nos Bays ready since 01.02.2011	Wardha – Yavatmal 220kV D/C	2	MSETCL may expedite and update the status
7	Solapur	2x315 +1x500MVA, 400/220kV	2 nos Bays ready since 01.04.2011 & 2 nos Bays ready since 02.11.2015	Solapur – Bhale (MS) 220kV D/c Solapur – Narangwadi (MS) 220kV D/c	2 & 2	MSETCL may expedite and update the status
8	Damoh	1 x 500 MVA 400/220 kV	2 Nos of Bays ready since Nov '16	LILO of 2nd 220 kV Circuit of Damoh(MPPTCL) – Sagar 220 kV line at Damoh (PGCIL) 400 kV S/S (1km)	2	Charged 28.08.2017

Sl No	ISTS Substation	Voltage ratio in use	Status of Bays	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines As updated on WRPC TRM meeting 17.04.2018
9	Vadodara GIS	2 x 500 MVA, 400/220 kV	4 Nos bays Ready since May 2017	220 kV Venkatpura-Vadodara D/C Line 220 KV Jambua – Vadodara D/C Line	4	220 kV Venkatpura-Vadodara D/C Line charged 14.04.2018. 220 KV Jambua – Vadodara D/C Line planned for Jan 2019. GETCO may expedite and update the status.
10	Betul GIS	2x315 MVA, 400/220 kV	2 No Bays Ready since July 2017	Betul (PG) - Betul D/C 220 kV line (3 Km)	4	Betul (PG) - Betul D/C 220 kV line (3 Km) one ckt target date march 2019.(Dec 18 original) Targeted by Dec 2018 MPPTCL may expedite and update the status of both lines
			2 No Bays Ready since July 2017	LILO of Sarni - Pandhurna 220kV line at Betul GIS(PGCIL) 400 kV S/s (41 Km)		
11	Itarsi (PG)	1x500 MVA, 400/220 kV	2 Bays Ready since July 2017	LILO of 2nd 220kV circuit of Itarsi (MPPTCL) - Hoshangabad 220 kV line at Itarsi (PGCIL) 400kV S/s (Existing)	2	Commissioned in August 2017

B. 400 KV line bays implemented by POWERGRID

Sl No	ISTS Substation	Proposed Bays	Commissioning Schedule	Lines emanating from Substation	Remarks
1	Indore(PG)	2	July 2018	Indore(PG)-Ujjain 400 KV D/c line	MPPTCL may commission the line matching with the bays
2	Vadodara(PG)	2	Ready since May 2018	DGEN-Vadodara 400kV D/C line	DGENTPL(TBCB) has confirmed that they are not taking up implementation of the scheme. Future course of action to be decided.

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

S. No.	ISTS Substation	Proposed Bays	Commissioning Schedule	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines As updated on WRPC TRM meeting 17.04.2018
1	Morena 2x 315 MVA, 400/220 kV S/S (under TBCB implemented by Adani)	4	SCOD : 22.05.2018 Status : Ready since Feb 2018	i) LILO of one circuit of Malanpur – Mehgaon 220kV line at Morena 400/220 kV S/s (8Km from Loc. No.12). ii) Morena (Adani) - Sabalgarh 220kV D/C line (92Km) with LILO of one circuit of Morena - Sabalgarh 220kV line at Morena 220kV S/s of MPPTCL (0.5Km)	4	i)16.01.2018 ii)Jun 2018 target MPPTCL may expedite the commissioning and update status
2	Navi Mumbai 2 x 315, 400/220 kV	4	Bays ready since Mar'14 (WRSS-V)	LILO of Apta-Taloja and Apta-Kalwa section of the Apta-Taloja/Kalwa 220 KV D/c line at Navi Mumbai(PG)	4	MSETCL may expedite the commissioning and update the status
3	Indore (PG) 2x500 MVA, 400/220 kV	6	Jul'18 (WRSS-14)	Indore (PG) – Indore (MP) 220 kV D/c	2	4 bays targeted by Dec 2018. 2 Bays yet to be decided. MPPTCL may expedite the commissioning and update the status
				Indore (PG) – Ujjain (MP) 220 kV D/c	2	
				Future	2	
4	Parli (PG) 2x500 MVA, 400/220 kV	4	Jun/Jul'18 (WRSS-16)	LILO of Parli - Harngul 220 kV S/c at Parli(PG)	2	December 2018 Target. MSETCL may expedite the commissioning and update the status
				LILO of Parli-Osmanabad (MS) - 220 kV S/c at Parli (PG)	2	
5	Mapusa (PG) 3X315 MVA, 400/220	2	Jun/Jul'18 (WRSS-16)	Mapusa - Tuem 220kV D/c	2	Goa: Comml Bid open 11.04.2018. Target 3 years. GED may expedite the commissioning and update the status
6	Satna (PG) 1x500MVA, 400/220kV	2	2 Bays Commissioned in October 2017	LILO of one circuit of Satna (MPPTCL) - Chhatarpur 220 kV line at Satna (PGCIL) 400 kV S/s (3Km)	2	Line Charged on 23.11.2017.
7	Navsari 400/220kV 2x315MVA + 1x500MVA,	2	Ready since May 2018	Navsari – Bhestan 220kV D/c line	2	DGENTPL (TBCB) has confirmed that they are not taking up implementation of the scheme. Future course of action to be

S. No.	ISTS Substation	Proposed Bays	Commissioning Schedule	220kV Lines emanating from Substation	No of ckt	Status of 220kV lines As updated on WRPC TRM meeting 17.04.2018
						decided.
9	Rewa PS 3x500MVA, 400/220kV	6	ICT-I & II Charged on Mar'18 ICT III to be commissioned in September 2018	Rewa UMSPP – Rewa PS 220kV 3x D/C line	6	In Jun 2018, 2 lines are expected. One line in Dec 2018. MPPCL may match the line with the POWERGRID system and update the status.
10	Khandwa S/S 500MVA, 400/220kV	2	Jun '18 (WRSS-17)	Khandwa-Chamera 220 KV D/c line	2	Target by June 2018. MPPTCL may match the commissioning with POWERGRID system and update the status

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ANNEXURE C.6-1

MAHAVITARAN (TM)
Maharashtra State Electricity Distribution Co. Ltd.

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

Ref. No. MSEDCL/CE/PP/77th CCM/ / **Date:** 12 APR 2018

No 8085

To,

The Member Secretary,
Western Regional Power Committee,
F-3, MIDC, Andheri (E),
Mumbai 400 093.
Fax- 022 28370193

Sub: Agenda item for 75th Commercial Committee meeting of WRPC

Ref: 1. L.No. WRPC/Comml.-I/3/CCM-Inv./2018/3427 dtd 09.04.2018
2. MERC Order dtd 9.03.2018 in Case No 114 of 2016
3. MoM of special meeting held on 22nd February at WRPC

Sir,

It is requested to incorporate the following agenda items for 77th Commercial Committee meeting of WRPC.

1. Declaration of 132 KV Nepanagar (Madhya Pradesh) – Dharni (Maharashtra) line as Inter – state Transmission line (ISTS).

The 132 kV Nepanagar (MP) – Dharni (MS) line has been charged in radial mode and on this line power flow has been started from 16.02.2017 to MSEDCL. Vide letter no. WRLDC/SO-II/1719/2017/2794, dated 18.10.2017, WRLDC clarifies that the 132 kV Nepanagar (MP) – Dharni (MS) line is eligible for consideration as an ISTS line connecting two states.

Further as per CERC regulation for Sharing of Inter State Transmission Charges and Losses, the line has to be certified by WRPC as interstate line. Also For accounting and scheduling of central sector (ISGS) power to MSEDCL, it is necessary to install CTU's SEM meters at interface point at Nepanagar end and at Dharni end. Accordingly, PGCIL has installed CTU's SEM meters on 132 KV Nepanagar-Dharni line at Dharani end on 06.02.2018, and for installation at Nepanagar end of 132 KV Nepanagar-Dharni, MSEDCL vide letter under ref.1 has requested WRLDC to expedite the matter.

In view of this it is requested to certify the 132 KV Nepanagar-Dharni line as interstate line, so that scheduling of central sector (ISGS) power to MSEDCL is possible through this line.

2. Alternate/standby supply arrangement by Indian Railways when source of power (RGPPL) is Not available:

During 76th CCM meeting, as no visible progress in the direction of signing PSA between MSEDCL and Indian Railway, the committee opined to close this agenda item till any further updates are received from MSEDCL.

MERC in its Order dtd 9.03.2018, in Case no 114 of 2016 for the Petition of Maharashtra State Electricity Distribution Co. Ltd for a mechanism for recovery of charges on account of over-drawal by Indian Railways, Hon. Commission has noted and ruled as below:

15.8 The Temporary category and other tariffs are determined and approved by the Commission through Tariff Orders in respect of the Distribution Licensees after a due process of public consultation.

The levy of Demand Charges is intended to recover all or part of the fixed costs of the Licensees, and is applicable to all consumers. ***While these Demand Charges may vary from one consumer category or sub-category to another, there is prima facie no reason to discriminate in favour of the Indian Railways in the Demand Charge applicable to Temporary category supply, in terms of Section 62(3) of the EA, 2003.*** *However, Indian Railways is free to make its suggestions during the forthcoming Mid-Term Review proceedings in respect of MSEDCL.*

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15.10 In the absence of such a stand-by arrangement with MSEDCL or other entity, MSLDC shall take appropriate steps to curtail the drawal of Indian Railways and limit it to the availability of the Generator(s) contracted by it.

From the above, now MERC vide this Order has clarified that MSEDCL's temporary tariff is applicable for the Standby supply availed by Indian Railways, as agreed by them in special CCM meeting held on 22.02.2017 at WRPC to discuss alternate arrangement of power to Indian Railway.

Also in the absence of such a stand-by arrangement with MSEDCL or other entity, **MSLDC shall take appropriate steps to curtail the drawal of Indian Railways and limit it to the availability of the Generator(s) contracted by it.**

3. RTDA charges applicable to BARC facilities billed to MSEDCL by PGCIL in its bill for period from Apr-14 to Mar-17 :

PGCIL has billed RTDA charges amounting applicable to BARC facilities billed to MSEDCL if though BARC facility is no more consumer of MSEDCL and BARC Facilities got allocation from TAPS 3&4 from 23.08.2014. On enquiry to PGCIL, it is informed that they will take up this issue with WRPC.

4. Statement showing energy scheduled from contracted ISGS stations to beneficiaries at their State peripheries:

The beneficiaries of WR region pay the monthly energy bill payment based on energy as shown in monthly regional energy account prepared by WRPC. The state energy account considers the total energy injected / scheduled at state periphery as input to the State periphery for the respective utilities which includes ISGS stations also. Though this information can be gathered from WRPC site, but it will be beneficial to all constituents of WR region to have the Statement showing energy scheduled from contracted ISGS stations to beneficiaries at their respective state peripheries.

Yours Faithfully,

Chief Engineer (Power Purchase)
MSEDCL

Copy s.w.rs. to:

Director (Commercial), MSEDCL

ANNEXURE C.6-2

MAHAVITARAN (TM)
Maharashtra State Electricity Distribution Co. Ltd.

RPAD

5th floor, Prakashgad, Plot No.G-9, Bandra (East), Mumbai – 400 051 ☎ (O) 26474211
Email : cepp@mahadiscom.in, ceppmsedcl@gmail.com Website : www.mahadiscom.in
CIN = U40109MH2005SGC153645

Ref. No. MSEDCL/CE/PP/Nepanagar/ No 13596 **Date:** 01 JUN 2018

To,

The Member Secretary,
Western Regional Power Committee,
F-3, MIDC, Andheri (E),
Mumbai 400 093.
Fax- 022 28370193

Sub: Declaration of 220KV Nepanagar as interstate drawl point of Maharashtra for scheduling and energy accounting purpose.

Ref: MOM dated 29.05.2018 between PGCIL, MPPPTCL,MSETCL & MSEDCL

Sir,

The issue of declaration of 132 KV Nepanagar (M.P.) – Dharni (M.S.) line as an inter State Transmission Line (ISTS) has been discussed in 34th WRPC meeting and 42nd SCM wherein it was informed that this line is natural ISTS line. This issue was also deliberated in 77th WRPC's CCM meeting. It was requested to expedite installation of CTU meter to 132 KV Nepanagar-Dharni Line at 220 KV Nepanagar Substation

Accordingly, the installation of CTU meter on 132 KV Nepanagar-Dharni Line was proceeded. The CTU meter at Dharni end was installed on 06.02.2018 and at Nepanagar end on 29.05.2018. We are thankfull to for your kind support to complete the meter installation process.

In view of above, it is requested to include 220 KV Nepanagar substation as inter state drawl point of Maharashtra for energy accounting and scheduling purpose, at earliest.

Thanks and regards,

KBharat

Chief Engineer (Power Purchase)
MSEDCL

Copy s.w.rs. to:
The Director (Comm), MSEDCL.

Copy f.w.cs. to:
Chief Engineer, STU, MSETCL
Chief Engineer, SLDC, MSETCL
General Manager, WRLDC, Mumbai.
Superintending Engineer, LM Cell, MSEDCL, Kalwa.

Email

ANNEXURE- C.6-3

MADHYA PRADESH POWER TRANSMISSION COMPANY LIMITED
STATE LOAD DESPATCH CENTRE, NAYAGAON, RAMPUR, JABALPUR
Telephone: (0761) 2970089 Fax: (0761) 2664343/2970119 e-mail sldcmpjbp@gmail.com
Corporate office: Madhya Pradesh Power Transmission Co Ltd., Block No.2, Shakti Bhawan, Rampur, Jabalpur 482008, CIN-U40109MP2001SGC014880, Email-mdtransco.nic.co.in

No.07-05/RPC-14/ 150 | Jabalpur, dtd: 29.05.2018

To

The Executive Director
Western Regional Load Despatch Centre
F-3, MIDC Area, Marol, Andheri(East)
Mumbai-400093.

Email- wrsemdata@posoco.in
vivek.pandey@posoco.in

Sub: Installation of SEM on 132 KV Nepanagar-Dharani line at Nepanagar end by PGCIL.

Dear Sir,

Special Energy Meters, Main & Check are being installed on 132 KV Nepanagar-Dharani line at Nepanagar end by PGCIL on 29th May 2018 afternoon. It is to mention that this line has not been designated as a ISTS line by the competent authority or agency so far. Thus the flow on this line shall be treated as radial power from MP to Maharashtra and accordingly DSM charges under Intra State ABT against power drawal by Maharashtra through this line, shall be computed by the MP SLDC.

This is for further needful please.

Chief Engineer,
SLDC, MPPTCL, Jabalpur.

Copy to –
1. The Member Secretary, WRPC, F-3, MIDC Area, Andheri (E), Mumbai-400093.
2. The Chief Engineer (Plng. & Design), M.P. Power Transmission Co. Ltd., Jabalpur.

SE (Comml.)
SE (Opn) 31/5/2018

EE Comml. 07/06

प. क्ष. वि. स. मुंबई /WRPC
आवक संख्या /Inward No. 826
दिनांक /Date: 01/06/18

ANNEXURE D-1.1

MADHYA PRADESH POWER TRANSMISSION CO. LTD.

(A wholly owned Govt. of Madhya Pradesh Undertaking)
CIN: U40109MP2001SGC014880
Block No.2, Shakti Bhawan, Rampur, Jabalpur (MP) 482008, Tel.:(0761) 270-2132, 2242,
Fax No.: (0761) 2660908, e-mail: ceps321@yahoo.com/ce.pnd@mptransco.nic.in

No. 04-02/PSP-20/ 282 Jabalpur, Date: 6.2.18

To,

Shri A.Balan
Member Secretary,
Western Region Power Committee (WRPC),
F-3, MIDC Area, Andheri (East),
Mumbai – 400093

Fax No.: 022-28370193
Email : ms-wrpc@nic.in

Sub: Regarding approval of deemed Inter-state/ Natural Inter-state line of MP State.

CERC has issued order on 25.04.2013 against Petition no.-15/Suo-Motu/2012 in the matter of determination of tariff of the inter-state transmission lines connecting two states and following 9 nos. EHV lines of Madhya Pradesh state has been approved as inter-state transmission lines for computation of Point of Connection(PoC) charges & losses under CERC Regulation 2010:

Sl No	Name of ISTS line	Voltage (kV)	Connecting States	Connecting Regions
1	Malanpur – Auraiya 220kV line	220	MP-UP	WR-NR
2	Mehgaon – Auraiya 220kV line	220	MP-UP	WR-NR
3	Badod – Kota 220kV line	220	MP-Rajasthan	WR-NR
4	Badod – Modak 220kV line	220	MP-Rajasthan	WR-NR
5	Pandhurna – Kalmeshwar 220kV line	220	MP-Maharashtra	-
6	Amarkantak – Kotmikala 220kV line-1	220	MP-CG	-
7	Amarkantak – Kotmikala 220kV line-2	220	MP-CG	-
8	Rajgarh - Sardar Sarovar 400kV line-1	400	MP-Gujrat	-
9	Rajgarh - Sardar Sarovar 400kV line-2	400	MP-Gujrat	-

Based on the above, MPPTCL has filed a petition no. 217/TT/2013 before CERC for determination of yearly transmission charges for the above 9 Nos. lines of MPPTCL for the control period 2009-2014. CERC has approved the yearly transmission charges for the above lines vide their order 15.10.2015.

प. क्ष. वि. स. मुंबई /WRPC
आवक संख्या /Inward No. 342
दिनांक /Date: 20/02/18

SE (Comml.) 19/2/2018

EE (Comml.) 19/02
Pl. provide a copy to undersigned.

Subsequently, SE(Comml.), WRPC vide letter no. WRPC/Comml-I/Corr/2016/1041 dated 07.06.2016 has intimated that in the 31st WRPC meeting 400kV Seoni(MP) – Bhilai(CG) was recommended to be considered as deemed ISTS line for the purpose of computation of PoC charges and also mention that this line is Natural ISTS line and so approved under PoC without certification of WRPC.

MPPTCL has also filed a petition no. 87/TT/2017 before CERC for determination of yearly transmission charges for the 2 Nos. lines i.e. Seoni – Sarni 400kV S/C line and Seoni-Bhilai 400kV S/C line upto MP Border of MPPTCL for the control period 2009-2014. Similarly, a petition no. 88/TT/2017 is also filed before CERC for determination of yearly transmission charges for the aforemention 11 Nos. lines of MPPTCL for the control period 2014-2019. CERC has issued order on 19.12.2017 against Petition no.-88/2017 in the matter of determination of yearly transmission charges for the aforemention 11 Nos. lines of MPPTCL for the control period 2014-2019.

In context to above, it is to intimate that NRPC vide letter no. NRPC/OPR/116/03/2016/10451-54 dated 09.11.2016 have approved 132kV S/C Khandar –Sheopur line as natural Inter-State line and accordingly, Rajasthan Vidyut Prasaran Nigam Ltd. (RVPNL) has also filed petition no. 26/TT/2017 before CERC for determination of point of connection charges of their inter-state lines. A copy of the letter dated 09.11.2016 of Member Secretary, NRPC, New Delhi is enclosed herewith for your kind reference.

In view of above and in reference with the NRPC above approval letter, WRPC is requested to consider the following EHV line of Madhya Pradesh state as natural inter-state line and approval in this respect may please be accorded so that MPPTCL may file the petition before CERC for determination of point of connection charges:

Sl No	Name of ISTS line	Voltage (kV)	Connecting States
1	Sheopur - Khander 132kV line	132	MP-Rajasthan
2	Neemuch – Nimbahera 132kV line	132	MP-Rajasthan
3	Gandhi Sagar – Rana Pratap Sagar 132kV line-1	132	MP-Rajasthan
4	Gandhi Sagar – Rana Pratap Sagar 132kV line-2	132	MP-Rajasthan
5	Seoni - Pench HEP 132kV line-1	132	MP-Maharashtra
6	Seoni - Pench HEP 132kV line-2	132	MP-Maharashtra

7	Balaghat – Dongargarh 132kV line-1	132	MP-CG
8	Balaghat/Bhanegaon – Dhamdha 132kV line-2	132	MP-CG
9	Kotma – Manendragarh 132kV line-1	132	MP-CG
10	Kotma – Manendragarh 132kV line-2	132	MP-CG
11	Morwa – Beena (Rihand) 132kV line	132	MP-UP
12	Morwa – Anpara 132kV line	132	MP-UP
13	Bina – Rajghat HEP 132kV line	132	MP-UP
14	Pichhore – Rajghat HEP 132kV line	132	MP-UP
15	Pichhore – Matatila HEP 66kV line	66	MP-UP

It is requested that the approval of the WRPC for the aforementioned inter-state lines for consideration as deemed ISTS lines may kindly be forwarded at the earliest.

Chief Engineer (Plg. & Design)
MPPTCL-Jabalpur

Copy to:
1. The ED(CRA), MPPTCL, Jabalpur.
2. The Chief Engineer (SLDC), MPPTCL, Jabalpur.
3. Staff Officer, O/o Managing Director, MPPTCL, Jabalpur

ANNEXURE D.1-2

FAX copy

MADHYA PRDAESH POWER TRANSMISSION CO. LTD.

(A wholly owned Govt of Madhya Pradesh Undertaking)
CIN: U40109MP2001SGC014660
Block No.2, Shakti Bhawan,Rampur, Jabalpur (MP)-482008 Tel : (0761) 2702132,2242
Fax No.:(0761) 2660908 e-mail: cegs321@yahoo.com/ce.pnd@mptransco.nic.in

No. 04-02/PSS/ 970 Jabalpur, Date: 3.5.18

To,

The Member Secretary/
Superintendng Engineer(Comml.)
Western Regional Power Committee,
F-3., MIDC Area, Andheri (E),
MUMBAI-400093.

Fax No.022-28370193

Sub: Comments on issues discussed during 77th Coordination Committee meeting of WRPC held on 20th April-2018.

The 77th meeting of Commercial Committee of the WRPC was held on 20th April-2018 at WRPC H.Q., Mumbai. The meeting was attended by Shri Rajiv Kumar Datta, Sr. General Manager(Commercial), MPPMCL, Jabalpur. As informed by him following issues on Item No.4 and Item No.9 of Part "C" of the Agenda during the meeting :-

Item No.4: Declaration of 132kV Nepanagar (Madhya Pradesh) - Dharni (Maharashtra) line as Inter-state Transmission line (ISTS).

During discussions of Item No.4, it was pointed out by PGCIL and Maharashtra that in-charge of Nepanager Substation has not allowed for installation of energy meter at Nepanagar end. The forum desired to know the reasons and authority to do so. Officer of WRPC pointed out that earlier both MP and Maharashtra was agreed to keep the line away from ISTS status. Maharashtra opined that when meter will be installed at Nepanagar, then only interstate flow of power can be measured at ISTS status shall be decided.

Item No.9: Approval of deemed Inter-state/Natural Interstate line of MP and Gujrat states.

During discussions of Item No.9, it was conveyed that the lines proposed by MPPTCL are natural ISTS lines and no need to certify the same from WRPC arises. The forum was of the opinion that MPPTCL should approach the appropriate commission for grant of tariff.

2/ In context to above in reference to Item No.4 of the Agenda, it is to inform that there is no central sector power flow on Nepanagar-Dharni line from MP State to Maharashtra. Therefore, status of this line can not be considered as ISTS line for installation of meters by PGCIL at Nepanagar. An ABT compliant inter-phase meters and check meters bearing Sl.No.MPCS9866 & XDS12309 respectively along with separate 132kV metering CTs and PTs (Details enclosed) has already been installed

on Nepanagar-Dharni 132kV line at Nepanagar end and the reading of this meter is being submitted to SLDC/WRLDC on regular basis for Regional Energy Accounting.

3/ In regard to Item No.9 of the Agenda, it is to inform that in order to file the petition before CERC, certification of WRPC for all the Inter-state lines as natural ISTS lines shall be necessary. Once these lines are certified as natural ISTS lines by WRPC, MPPTCL shall approach CERC for approval of tariff for these lines.

4/ The comments of MPPTCL may kindly be incorporated in the minutes of the meeting.

Addl.Chief Engineer (Plg. & Design)
O/o Chief Engineer(P&D)
MPPTCL:Jabalpur

Copy to :

1. The Executive Director(CRA), MPPTCL, Jabalpur.
2. The Chief General Manager(Regulatory), MPPMCL, Jabalpur.
3. The Chief Engineer (SLDC), MPPTCL, Jabalpur.
4. The Addl. Chief Engineer(P&D) O/o C.E.(P&D), MPPTCL, Jabalpur.

CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 10/MP/2018

Coram:
Shri A.K. Singhal, Member
Shri A.S. Bakshi, Member
Dr. M. K. Iyer, Member

Date of Order: 19th of January, 2018

In the matter of

Petition under Section 79 (1) (c) (f) of the Electricity Act, 2003.

And
In the matter of

Essar Power M.P. Limited
Essar House,
11th Floor, 11 KK Marg, Opp Racecourse,
Mahalaxmi, Mumbai-400 034 ..... **Petitioner**

Versus

1. Central Transmission Utility
   B-9, Qutab Institutional Area,
   Katwaria Saria,
   New Delhi-110 016

2. Western Regional Power Committee
   F-3, MIDC Area, Marol,
   Opp SEEPZ, Central Road,
   Andheri (East), Mumbai-400 093.

3. Essar Power Transmission Company Limited
   Lower Ground Floor, Hotel Treebo Conclave Riviera,
   A-20, Kailash Colony, New Delhi-110 048

4. Central Electricity Authority
   Sewa Bhawan, R.K.Puram,
   New Delhi-110 066

……Respondents

The following were present:

Shri Sanjay Sen, Senior Advocate for the Petitioner
Shri Alok Shanker, Advocate for the Petitioner
Ms. Shruti Verma, EPMPL
Ms. M. Gupta, EPMPL

Shri Swapnil Verma, PGCIL
Ms. Joyti Prasad, PGCIL
Shri P.S.Das, PGCIL

ORDER

The Petitioner, Essar Power MP Limited, has filed the present petition pursuant to the direction given in 35th WRPC meeting held on 20.12.2017 at Jabalpur to the Petitioner to approach the Commission for seeking direction on continuation of LILO of 400 kV D/C Vindhyachal-Korba Transmission Line at Mahan TPS. The Petitioner has made the following prayers:

> "(a) Admit the present petition;
>
> (b) In view of WRPC direction to approach the Hon`ble CERC immediately for getting further direction on the issue of continuation/discontinuation of interim LILO arrangement of 400 k V Vindhyachal-Korba circuit beyond 20.1.2018, it is prayed that the Hon`ble Commission may pass appropriate orders in the matter;
>
> (c) Direct the appropriate authority to declare that the LILO of the Vindhyachal-Korba D/C line (which is ISTS) at Mahan as a permanent element in light of the above mentioned technical requirements;
>
> (d) Pending decision of the WRPC direction CTU to not take any coercive steps for opening the LILO;
>
> (e) Pass such other and further orders/directions as the Hon`ble Commission may deem appropriate in the facts and circumstances of the case."

2. The Petitioner, a subsidiary of Essar Power Ltd., is setting up a 1200 MW (2X600 MW) thermal power plant at district Singrauli in the State of Madhya Pradesh. The Petitioner has a long term Power Purchase Agreement with MPPMCL for 150 MW and 5% net power under MoU route. The Petitioner has entered into Long Term Power Purchase Agreement with Essar Steel for supply of 450 MW of power for a period of 12 years. According to the Petitioner, power from the generating station is to be evacuated through the 400 kV D/C Mahan-Sipat Transmission Line terminating at WR Pooling Station at Bilaspur. This transmission

line is being executed by Essar Power Transmission Company Limited (EPTCL), a group company of the Petitioner after being granted an inter-State Transmission Licence by the Commission on 29.4.2008 to develop the following transmission lines and the sub-stations:

a) 400 kV D/c Mhan-Sipat along with associated bays;

b) LILO of 400 kV Vindhyachal Korba at Mahan;

c) 400 kV D/c Gandhar Hazira line along with associated bays and

d) 400/220 kV substation at Hazira

3. The Petitioner has submitted that out of the above four elements, three have been commissioned and are already in operation. Only 400 kV D/C Mahan-Sipat line with associated bays is yet to be completed. The Petitioner has submitted that it has been making diligent efforts to expedite the commissioning of the transmission line in all respects. As a result of delay in the commissioning of the second unit, interest burden of second unit is piling up.

4. The Petitioner has submitted that EPTCL has assured the Petitioner that the tower erection works would be completed by second week of January and stringing works would be completed by Mid March 2018 and inspection, testing and commissioning shall be completed by the end of March 2018 subject to assumption that there will be no hold up in completing the remaining tower and stringing works.

5. The Petitioner has submitted that issue with regards the LILO at Mahan was discussed in the 42nd meeting of the Standing Committee of the Power Systems Planning for Western Region held on 17.11.2017. The Petitioner has submitted that the status of works on the Mahan-Sipat transmission line was reviewed on

20.12.2017 and WPRC while allowing the use of the LILO till 20.1.2018 directed the Petitioner to approach the Commission for seeking permission to use the interim LILO arrangement after 20.1.2018. Accordingly, the Petitioner has sought a direction in this petition to WRPC to continue interim LILO arrangement of 400 kV Vindhyachal Korba circuit beyond 20.1.2018.

6. During the hearing of the petition, learned senior counsel for the Petitioner submitted that time be granted till 31.3.2018 by which time the Petitioner expects that the subject transmission line would be put under commercial operation.

Analysis and Decision:

7. We have considered the submissions of the learned senior counsel for the Petitioner. The Petitioner has filed the present petition for seeking direction to CTU and to WRPC for continuation of LILO of 400 kV D/C Vindhyachal-Korba transmission line at Mahan TPS pursuant to decision in 35th WRPC meeting held on 20.12.2017. Member-Secretary, WRPC vide its letter dated 22.12.2017 conveyed the decision of 35th meeting held on 20.12.2017 regarding interim LILO arrangement of 400 kV Vindhyachal-Korba transmission line. Relevant portion of the said letter is extracted as under:

> "This is to inform that in 35th WRPC meeting, which was held on 2012.2017 at Jabalpur (MP), matter regarding extension of interim LILO arrangement of 400 k V Vindhyachal-Korba circuit-I for evacuation of power by M/s Essasr Power M.P.Ltd., 2x600 MW ("EMMPL") was discussed in detail and the following decisions were taken:
>
> (1) One month time (i.e till 20.01.2018) is given to M/s Essar Power M.P. Ltd. and M/s Essar Power M.P. Ltd. is directed to approach Hon`ble CERC immediately for getting further direction on the issue of continuation/disconnection of interim LILO arrangement of 400 kV Vindhyapchal-Korba circuit-I beyond 20.01.2018.
>
> (2) The Status quo of the said interim LILO arrangement of 400 kV Vindhyachal-Korba circuit-I shall be maintained till 20.01.2018.

The above decisions are hereby conveyed to all stakeholders for information and for further necessary action at their end."

8. According to the Petitioner, execution of works is progressing at good pace and the line is expected to be completed by March 2018. The Petitioner has also stated that the LILO on Circuit 1 of the Vindhyachal- Korba D/C Line at Mahan is not an interim LILO but is a permanent LILO and is required for reliable operation of both the Vindhyachal-Korba D/C Line and Essar Mahan Generating Station. CEA and CTU in a meeting Chaired by Member (PS) CEA held on 28.6.2017 have concluded that LILO is required to be retained even after commissioning of the Mahan-Sipat Line.

9. CEA in the meeting held on 5.1.2018, reviewed the progress of transmission line and directed the Petitioner to commission the transmission line before the end of March, 2018. Relevant portion of the minutes of meeting held on 5.1.2018 is extracted as under:

"2. Representative of EPTC updated the present status of Mahan-Sipat Transmission Line as given below:

Tower foundation/Erection:

a. All the foundations have been completed
b. Out of total towers of 942, Balance to complete-9 no.
c. Out of 9,5 tower erection gangs are working at 3 different tower locations (68 F, 219 and 5B) and will start the work at other 2 location from tomorrow at 2D/0 and 10A/6
d. * * *

Stringing:

a. Total stringing involved is 337 km
b. At present balance stringing is about 67 about.
c. 6 km under progress.
d. Stringing section with TSE:

i. 5 TSE machines are already deployed and are in operation but the manpower deployment is to be augmented to expedite the progress.

ii. Manpower in 1st and 2 TSE is ok

e. Stringing section with Manual gangs:

i. 1st gang-currently doing repaid and restoration. Will continue work on the repaid works.
ii. 2ns gang-currently working at Korba
iii. 3rd gang-Currently working at EPMPL plant gantry.
iv. 4th gang-Gang reached at site and will be fully operation by 6th Jan.
v. 5th gang-arrived at Waidhan and they will start working from 6th Jan.

2. EPTCL informed that they are actively coordinating with the local administration to quickly resolve the ROW issues being encountered at every location repeatedly at the time of foundation, erection, insulator hoisting and stringing and releasing compensation very fast. The district collector Singrauli has agreed to provide full time police team of 15 members. Police assistance is being regularly obtained in Wadraf Nagar tehsil of Chhattisgarh.

* * * * *

11. With regard to PLCC, EPTCL informed that they had taken up the matter for clearance for PLCC frequency allocation for line protection and communication with Ministry of Communication and requested CEA also to expedite the matter. CEA agreed to look into the issue.

12. Chief Engineer (PSPM), CEA noted the speeding up of progress in the months of November and December, 2017. Taking note of RoW challenges in the area, CEA requested EPTCL to intensify efforts and synergy with a view to ensuring that the line is commissioned positively before the end of March 2018."

10. Keeping in view the decision in the minutes of the meeting in CEA held on 5.1.2018, we direct the Petitioner to ensure completion of the Mahan-Sipat line by 31.3.2018. Till that time, *status quo* shall be maintained. If the transmission line is not commissioned by the Petitioner on or before 31.3.2018, CTU shall take immediate necessary action for disconnection of the LILO arrangement with effect from 1.4.2018.

11. The Petitioner is directed to submit the fortnightly progress report of the execution of transmission line.

12. The Petitioner has also prayed to direct appropriate authority to declare that the LILO of the Vindhyachal-Korba D/C line at Mahan as a permanent element. In this order, we are concerned with the completion of 400 kV D/C Mahan-Sipat transmission line by 31.3.2018 failing which the LILO shall be opened by CTU on

1.4.2018. In case, CTU wants to continue with the LILO beyond 31.3.2018, CTU shall approach the Commission well before 31.3.2018 with proper justification.

13. The Petition is disposed of in terms of the above directions.

Sd/-	Sd/-	Sd/-
(Dr. M. K. Iyer)	**(A. S. Bakshi)**	**(A.K. Singhal)**
Member	**Member**	**Member**

COURT-II
IN THE APPELLATE TRIBUNAL FOR ELECTRICITY
(Appellate Jurisdiction)

ORDER DFR NO. 1052 OF 2018 ON THE FILE OF THE APPELLATE TRIBUNAL FOR ELECTRICITY, NEW DELHI

Dated: **27th March, 2018**

Present: **Hon'ble Mr. Justice N.K. Patil, Judicial Member**
Hon'ble Mr. S.D. Dubey, Technical Member

In the matter of:

Essar Power M.P. Limited
Essar House,
11th Floor, 11 KK Marg, Opp. Racecourse,
Mahalaxmi Mumbai-400 034
Maharashtra …… Appellant(s)

Versus

1. **Central Electricity Regulatory Commission**
   Through The Secretary
   3rd & 4th Floor, Chanderlok Building,
   36, Janpath,
   New Delhi-110 001

2. **Central Transmission Utility**
   Through The COO
   B-9, Qutab Institutional Area, Katwaria Sarai,
   New Delhi-110 016
   Also at: Saudamini, Plot No.2, Sector-29,
   Near IFFCO Chowk, Gurgaon
   Haryana - 122 001

3. **Western Regional Power Committee**
   Through The Member Secretary
   F-3, MIDC Area, Marol, Opp. SEEPZ, Central Road,
   Andheri (East)
   Mumbai-400 093

4. **Essar Power Transmission Company Limited**
   Through The Vice President
   Lower Ground Floor,
   Hotel Treebo Conclave Riviera
   A-20, Kailash Colony
   New Delhi-110 048

5. **Central Electricity Authority**
   Through The Member (Power Systems)
   Sewa Bhawan, R.K. Puram, Sector-1,

New Delhi-110 066 …… Respondents

Counsel for the Appellant(s)	:	Mr. Sudhir Nandrajog, Sr. Ad. Mr. Alok Shankar Ms. Nayantara Pande Mr. Sandeep P Sahay Ms. Shruti Verma for EPMPL (Rep.)
Counsel for the Respondent(s)	:	Ms. Sanjana Dua for Ms. Suparna Srivastava for R-2 Mr. Kumar Mihir for R-4

O R D E R

1. With the consent of the learned counsel appearing for the both the parties, the matter was taken up for final disposal.

2. The Appellant herein, questioning the legality and validity of the Impugned Order dated 19.01.2018 passed in Petition No. 10/MP/2018 on the file of the Central Electricity Regulatory Commission, New Delhi and filed this Appeal, being DFR No. 1052 of 2018 seeking following reliefs:

(a) Set aside the impugned order dated 19.01.2018 passed by the Respondent Commission to the extent it directs opening of the LILO on S/C at Mahan on Vindhyanchal Korba D/C Line.

(b) Declare that the LILO on S/C at Mahan on Vindhyachal Korba D/C Line is a permanent element and cannot be disturbed.

(c) Pass such other order as this Hon'ble Tribunal may deem necessary in the interest of justice and equity.

3. The Appellant has presented this Appeal for considering the following substantive questions of law:

(a) Whether CERC ignored its earlier order in 30/MP/2014 by failing to recognize the LILO at Mahan as a permanent element and directing its disconnection?

(b) Whether CERC could have directed opening of the LILO at Mahan despite being made aware of the system requirements?

(c) Whether it is desirable and/or necessary to shut-down an efficient and ready generating station in peak summer months when power demands across the country would be peaking?

(d) Whether an asset developed by a transmission licensee after incurring significant cost and effort can be disallowed from being put in use?

4. The learned senior counsel, Mr. Sudhir Nandrajog, appearing for the Appellant and learned counsel, Mr Kumar Mihir, appearing for the fourth Respondent, at the outset, submitted that, they have filed undertaking affidavits on behalf of the Appellant and the fourth Respondent dated 26.03.2018. The same may kindly be taken on record and the instant appeal, being DFR No. 1052 of 2018 on the file of the Appellate Tribunal for Electricity, New Delhi may be disposed of in terms of the statement made in the aforementioned undertaking affidavits in the interest of justice and equity.

5. They undertake to carry out the works as expeditiously as possible and to ensure that the Mahan-Sipat Line is commissioned at the earliest but not later than 30.06.2018.

6. So far it relates to continue the LILO on S/C at Mahan on Vindhyanchal Korba D/C Line, the same is kept open.

7. The learned counsel, Ms. Sanjana Dua representing the learned counsel Ms. Suparna Srivastava, appearing for the second Respondent, on instruction, submitted that, the statements made by the learned senior counsel appearing for the Appellant and the learned

counsel appearing for the fourth Respondent in their undertaking affidavits dated 26.03.2018, may be placed on record and the instant appeal, being DFR No. 1052 of 2018, may be disposed of in the reasons stated therein modifying the Order impugned dated 19.01.2018 passed in Petition No. 10/MP/2018 on the file of the Central Electricity Regulatory Commission, New Delhi extending the time for completion of the aforementioned works till 30.06.2018.

8. We have heard the learned senior counsel appearing for the Appellant and the learned counsel appearing for the Respondent Nos. 2 and 4. Other respondents served unrepresented.

9. The undertaking affidavit filed on behalf of Essar Power M.P. Limited, Appellant herein, read as follows:

> ***"UNDERTAKING ON BEHALF OF APPELLANT IN TERMS OF ORDER DATED 26.3.2018***
>
> *I Shruti Verma, W/o Hemant Kumar aged around 39 years working as Legal Advisor in the office of the Appellant Company, currently at A-430 Lower Ground Floor, Defence Colony- 110024, do hereby state as under:*
>
> *1. That I am the authorised representative of the Appellant and am well aware of the facts and circumstances of the present case and am therefore competent to affirm the present affidavit.*
>
> *2. That this Hon'ble Tribunal during the hearing on 26.03.2018 directed the Appellant to furnish an affidavit of undertaking that the Mahan-Sipat Line shall be completed by Essar Power Transmission Company (hereafter "EPTCL") at the earliest and not later than 30.06.2018.*
>
> *3. That the Appellant owns and operates a 2 × 600 MW generating stations at Mahan. EPMPL has with significant investment completed construction of the Unit-II of the Power Plant. The Second Unit has been stranded only because of the load restriction on the LILO (600 MW). EPMPL has genuine interest to get the Mahan-Sipat Line completed at the earliest so that the Second Unit of the Power*

Plant can be put to use. Accordingly, EPMPL is doing everything possible within its means to help EPTCL complete the construction of the Mahan-Sipat Line.

4. That the completion of the line is being delayed due to severe resistance from the land owners leading to idling of many gangs deployed on the site. The details of right of way issues on the site have been placed on record in the appeal and are not being repeated herein for the sake of brevity.

5. That EPMPL has been informed that despite severe resistance being faced at site, EPTCL and its contractors are making progress every day. This has been possible due to extraordinary deployment at the site. It is submitted that more than 450 people have been deployed at the site.

6. That, as per the direction of this Hon'ble Tribunal during the hearing on 26.03.2018, EPMPL undertakes to ensure that the works continue as fast as possible and the Mahan-Sipat Line is commissioned at the earliest but not later than 30.06.2018.

7. That the interim arrangement through the LILO should be continued as existing at present even beyond the deadline of 31.3.2018, as directed by the CERC and the appellant should be entitled to evacuate the power through the present LILO arrangement.

DEPONENT

VERIFICATION:

That the contents of the above affidavit from paragraph 1 to 7 are true and correct and nothing stated therein is false and nothing material has been concealed therefrom.

Verified on 26th day of March, 2018 at Delhi.

DEPONENT"

10. The undertaking affidavit filed on behalf of Essar Power Transmission Company Limited, fourth Respondent herein, read as follows:

"UNDERTAKING ON BEHALF OF RESPONDENT NO. 4 – ESSAR POWER TRANSMISSION COMPANY LIMITED

I Sandeep Sahay, S/o Santosh B Sahay aged 44 years, resident of Flat No 101, Building M1, Riddhi Garden Complex, Film City Road, Malad East, Mumbai- 400097, presently at New Delhi do hereby state as under:

1. That I am the authorised representative of the Respondent No. 4 and am well aware of the facts and circumstances of the present case and am therefore competent to affirm the present affidavit.

2. That this Hon'ble Tribunal during the hearing on 26.03.2018 directed the Respondent No. 4 to furnish an undertaking to the effect that it shall complete the Mahan-Sipat Line at the earliest but not later than 30.06.2018.

3. I state that the Respondent No. 4 has already completed majority of the work involved and presently only approximately stringing of 40 km (out of 337 kms) is left to be completed which is taking time due to various Right of Way issues. Further Respondent No. 4 has invested a substantial amount of money in completion of the Mahan-Sipat Line and is doing everything possible within its means to complete the construction of the same.

4. That, as submitted above the completion of the line is being impeded due to severe encumbrance being encountered from the land owners. The details of right of way issues on the site have already been placed on record by way of the Appeal [pages 20-28 of appeal paper book] and are not being repeated herein for the sake of brevity.

5. I state that despite severe resistance being faced at site by EPTCL and its contractors, regular progress is being made which is evident from the following:

	Foundation (Total - 942 Nos)	*Towers (Total - 942 Nos)*	*Stringing (Total -337 kms)*
Status as in July, 2017	*938 -completed 4- balance*	*909- completed 33 – balance*	*197 completed 140 balance*
Status as on date	*942 completed*	*942 completed*	*297 completed 40 km balance*

6. I state that, as on date, more than 450 people have been deployed on the site and the Respondent No. 4 is also negotiating with the land owners for settling the Right of Way issues.

7. That as per the direction of this Hon'ble Tribunal, Respondent No. 4 undertakes to carry out the works as expeditiously as possible and to ensure that the Mahan-Sipat Line is commissioned at the earliest but not later than 30.06.2018.

DEPONENT

VERIFICATION:

That the contents of the above affidavit from paragraph 1 to 7 are true and correct and nothing stated therein is false and nothing material has been concealed therefrom.

Verified on 26th day of March, 2018 at Delhi.

DEPONENT"

11. In the light of the submissions made by the learned counsel appearing the Appellant and the learned counsel appearing for the Respondent Nos. 1 & 4 and the statement made in the undertaking affidavits filed on behalf of the Appellant and the fourth Respondent, as stated above, and for the reasons stated therein, we hereby modify the Impugned Order dated 19.01.2018 passed in Petition No. 10/MP/2018 on the file of the Central Electricity Regulatory Commission, New Delhi extending the time for commissioning of Mahan-Sipat Line as expeditiously as possible at any rate within a period upto 30.06.2018 without fail. It is needless to clarify that no further extension will be entertained.

11. Regarding prayer (b) i.e. Declare that the LILO on S/C at Mahan on Vindhyachal Korba D/C Line is a permanent element and cannot be disturbed, the liberty has been reserved to the Appellant to redress their grievance before the appropriate Legal Forum.

12. With these observations, the instant appeal, being DFR No. 1052 of 2018, filed by the Appellant stands disposed of.

(S.D. Dubey)
Technical Member

(Justice N.K. Patil)
Judicial Member

js/vt

ANNEXURE D.5-1

FREQUENCY PARTICULARS OF WESTERN REGION FOR THE PERIOD

DECEMBER 2017 TO APRIL 2018

Sr.No.	PARTICULARS	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
1	**MAXIMUM FREQUENCY (Hz)**					
1.1	Integrated over an hour	50.13	50.07	50.06	50.08	50.08
1.2	Instantaneous	50.27	50.29	50.21	50.25	50.21
2	**MINIMUM FREQUENCY (Hz)**					
2.1	Integrated over an hour	49.84	49.83	49.86	49.85	49.81
2.2	Instantaneous	49.70	49.62	49.70	49.68	49.62
3	**AVERAGE FREQUENCY (Hz)**	49.98	49.98	49.98	49.97	49.97
4	**NUMBER OF TIMES FREQUENCY TOUCHED**					
4.1	48.6 Hz	0	0	0	0	0
4.2	48.8 Hz	0	0	0	0	0
4.3	51.0 Hz	0	0	0	0	0
5	**PERCENTAGE TIME WHEN FREQUENCY WAS**					
5.1	Above 50.05 Hz	13.28	10.92	10.06	7.72	7.63
5.2	***Between 49.9 Hz & 50.05 Hz***	73.86	77.94	80.25	79.29	79.57
5.3	Below 49.9 Hz	12.86	11.15	9.69	12.99	12.80

ANNEXURE - D.5-2

POWER SUPPLY POSITION IN WR FOR PERIOD FROM DECEMBER 2017 TO APRIL 2018 (IN EX-BUS MW)

Details	Chhattisgarh					Gujarat					Madhya Pradesh					Maharashtra				
	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Availability (MW)	3202	3223	3387	3706	3645	14664	14021	14246	14782	15005	12301	12165	11444	9765	8589	19956	21065	21164	22422	23207
Unrestricted demand (MW)	3202	3440	3390	3706	3658	14723	14031	14252	14820	15016	12338	12199	11444	9786	8591	19971	21073	21172	22486	23306
Deficit(-)/Surplus(+) in MW	0	-217	-3	0	-13	-59	-10	-6	-38	-11	-37	-34	0	-21	-2	-15	-8	-8	-64	-99
Deficit(-)/Surplus(+) in %	0.00	-6.31	-0.09	0.00	-0.36	-0.40	-0.07	-0.04	-0.26	-0.07	-0.30	-0.28	0.00	-0.21	-0.02	-0.08	-0.04	-0.04	-0.28	-0.42

POWER SUPPLY POSITION IN WR FOR PERIOD FROM DECEMBER 2017 TO APRIL 2018 (IN EX-BUS MW)

Details	Goa					Daman & Diu					Dadra & Nagar Haveli					Western Region				
	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Availability (MW)	490	522	486	521	562	362	339	353	350	347	766	774	774	776	778	49635	50085	48691	48924	50434
Unrestricted demand (MW)	515	523	486	522	562	362	339	353	350	347	766	774	774	776	778	49806	50477	48797	49031	50654
Deficit(-)/Surplus(+) in MW	-25	-1	0	-1	0	0	0	0	0	0	0	0	0	0	0	-171	-392	-106	-107	-220
Deficit(-)/Surplus(+) in %	-4.85	-0.19	0.00	-0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.34	-0.78	-0.22	-0.22	-0.43

POWER SUPPLY POSITION IN WR FOR PERIOD FROM DECEMBER 2017 TO APRIL 2018 (IN MUs) EX-BUS

Details	Chhattisgarh					Gujarat					Madhya Pradesh					Maharashtra				
	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Availability (MUs)	1928	2060	1816	2319	2302	9198	9165	8473	9898	10021	7081	6820	5497	5736	5490	12264	12430	11561	13836	14289
Unrestricted Requirement (MUs)	1929	2063	1817	2319	2303	9210	9165	8473	9898	10021	7081	6820	5497	5736	5490	12266	12430	11561	13836	14289
Deficit(-)/Surplus(+) in MUs	-1	-3	-1	0	-1	-12	0	0	0	0	0	0	0	0	0	-2	0	0	0	0
Deficit(-)/Surplus(+) in %	-0.05	-0.15	-0.06	0.00	-0.04	-0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	0.00	0.00	0.00

POWER SUPPLY POSITION IN WR FOR PERIOD FROM DECEMBER 2017 TO APRIL 2018 (IN MUs) EX-BUS

Details	Goa					Daman & Diu					Dadra & Nagar Haveli					Western Region				
	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18
Availability (MUs)	339	340	318	376	388	214	215	199	222	217	533	535	492	534	527	31862	31861	28654	33264	33372
Unrestricted Requirement (MUs)	342	340	318	376	388	214	215	199	222	217	533	535	492	534	527	31878	31864	28655	33264	33374
Deficit(-)/Surplus(+) : in MUs	-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-16	-3	-1	0	-2
Deficit(-)/Surplus(+) : in %	-0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.05	-0.01	0.00	0.00	-0.01

VOLTAGE PROFILE FOR THE PERIOD OF DECEMBER 2017 TO APRIL 2018

ANNEXURE -D.5-3

	भोपाल		खंडवा		इटारसी		दमोह		नागदा		इंदौर		ग्वालियर		रायपुर		रायगढ़	
MONTH	Bhopal		Khandwa		Itarsi		Damoh		Nagda		Indorer		Gwalior		Raipur		Raigarh	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV	
	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Dec-17	424	399	428	402	419	392	427	403	426	396	423	396	419	392	427	413	429	416
Jan-18	424	400	426	401	416	394	427	398	425	399	420	398	416	393	426	410	427	408
Feb-18	425	400	426	394	418	393	428	401	423	402	422	391	418	389	426	409	425	412
Mar-18	421	398	423	406	414	395	425	405	422	400	419	398	417	391	424	408	426	410
Apr-18	417	396	427	407	417	396	424	402	422	401	421	401	419	390	424	407	425	411

	भिलाई		वर्धा		धुले		परली		बोईसर		कलवा		कराड		असोज		देहगाम	
MONTH	Bhilai		Wardha		Dhule		Parli		Boisar		Kalwa		Karad		Asoj		Dehgam	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV	
	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Dec-17	426	381	429	409	439	406	430	398	429	403	437	403	431	407	421	400	435	386
Jan-18	425	407	427	410	437	382	430	394	430	397	439	396	431	405	422	400	435	385
Feb-18	423	404	427	411	437	402	432	398	429	397	438	401	429	405	419	398	434	407
Mar-18	421	404	426	410	434	404	427	397	429	393	434	395	427	401	421	396	434	405
Apr-18	421	400	427	409	433	407	425	396	420	394	430	394	427	399	417	394	429	382

	कासोर		जेतपुर		अमरेली		वापी		मापुसा		कला		मगरवाड़ा		हज़ीरा		बीना		इंदौर	
MONTH	Kasor		Jetpur		Amreli		Vapi		Mapusa		Kala		Magarwada		Hazira		**Bina**		**Indore**	
	400kV		400kV		400kV		400kV		400kV		400kV		400kV		400kV		765Kv		765Kv	
	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम	अधिकतम	न्युनतम
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Dec-17	426	410	421	394	427	392	429	400	432	394	427	398	430	403	423	383	797	749	797	747
Jan-18	426	383	415	397	422	402	430	394	431	387	426	391	432	399	428	387	794	755	796	747
Feb-18	421	394	414	398	421	404	428	392	433	395	425	391	428	398	420	392	799	756	796	750
Mar-18	423	404	419	396	424	397	432	396	428	387	430	393	434	396	427	388	790	758	792	751
Apr-18	421	405	416	396	422	394	421	396	428	385	419	390	423	397	422	396	792	754	789	749

	सासन		सतना		तमनार		कोटरा		वडोदरा		दुर्ग		ग्वालियर		सिपत		सियोनि		वर्धा	
MONTH	Sasan		Satna		Tamnar		Kotra		Vadodara		Durg		Gwalior		**Sipat**		**Seoni**		**Wardha**	
	765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv		765Kv	
	अधिकतम	न्युनतम	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
Dec-17	778	741	790	748	805	739	807	781	802	758	809	763	804	758	776	754	796	757	805	751
Jan-18	777	753	787	751	802	777	803	778	802	759	805	757	801	744	772	751	792	757	804	759
Feb-18	780	754	791	750	804	735	804	769	800	758	812	751	805	757	772	754	796	757	804	761
Mar-18	776	757	782	752	804	780	805	782	796	752	809	760	796	760	772	752	793	760	802	761
Apr-18	777	754	785	748	805	766	806	765	794	754	813	777	797	751	773	752	793	760	806	761

Annexure-D.5-4

Status of Reactors

Sl. No.	400 kV Sub/Stn.	Size (MVAr)	Implementing agency	Expected date of commissioning
1	Nanded	125	MSETCL	September – 2018
2	Kolhapur	125	MSETCL	September – 2018
3	Akola	125	MSETCL	August – 2018
4	ISP	125	NHDC	Sept – 2018 expected (Tendering done)
5	Satpura-ISP Line Rx(at Satpura end)	50	MPPGCL	Dec-2018
6	Bus Reactor at New Parli(PG)	330	PGCIL	Commissioned on 24.04.2018
7	Bus Reactor at Dhariwal	80	DIL	Commissioned on 23.05.2018

Planning of additional shunt reactors in south Maharashtra – shunt reactors are planned under phase- II by MSETCL. Proposed 125 MVAR Bus reactors are at following 400 KV substations:-

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

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ANNEXURE -D.6

ANTICIPATED POWER SCENARIO IN WR FOR PERIOD FROM JULY 2018 TO SEPTEMBER 2018 (IN MW)(EX-BUS)

Details	CHATTISHGARH			GUJARAT			MADHYA PRADESH			MAHARASHTRA		
	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18
Unrestricted demand (MW)	4005	4200	4230	14440	14648	15485	9530	9800	10300	19600	19400	20200
Availability (MW)	4145	4300	4250	14445	14660	15500	10416	10540	11248	20573	20700	20858
Deficit(-)/Surplus(+)												
(i) MW	140	100	20	5	13	16	886	740	948	973	1300	658
(ii) %	3.38	2.33	0.47	0.03	0.09	0.10	8.50	7.02	8.43	4.73	6.28	3.15

Details	GOA			DD			DNH			WESTERN REGION		
	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18
Unrestricted demand (MW)	505	520	540	320	335	340	810	810	810	49896	50403	52605
Availability (MW)	517	540	550	336	343	342	840	825	845	52504	53811	55787
Deficit(-)/Surplus(+)												
(i) MW	12	20	10	16	8	2	30	15	35	2607	3409	3183
(ii) %	2.38	3.70	1.82	4.80	2.39	0.51	3.58	1.82	4.19	4.97	6.33	5.71

ANTICIPATED POWER SCENARIO IN WR FOR PERIOD FROM JULY 2018 TO SEPTEMBER 2018 (IN MUs)(EX-BUS)

Details	CHATTISHGARH			GUJARAT			MADHYA PRADESH			MAHARASHTRA		
	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18
Unrestricted Requirement (MUs)	2300	2380	2400	8241	8194	9181	5750	6100	6500	14000	14200	13800
Availability (MUs)	2350	2400	2410	8370	8272	9291	5875	6221	6609	14256	14689	14040
Deficit(-)/Surplus(+)												
(i) MUs	50	20	10	129	78	110	125	121	109	256	489	240
(ii) %	2.13	0.83	0.41	1.54	0.94	1.19	2.13	1.94	1.65	1.79	3.33	1.71

Details	GOA			DD			DNH			WESTERN REGION		
	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18	Jul-18	Aug-18	Sep-18
Unrestricted Requirement (MUs)	310	310	325	205	207	210	527	550	531	32240	32777	33506
Availability (MUs)	316	315	331	210	215	212	547	570	550	32942	33672	34135
Deficit(-)/Surplus(+)												
(i) MUs	6	5	6	5	8	2	20	20	19	702	896	629
(ii) %	1.92	1.59	1.74	2.45	3.51	1.03	3.60	3.51	3.51	2.13	2.66	1.84

ANNEXURE-D.7

Status of Generating Units in WR

The status regarding Generating units, commissioned /expected to be commissioned during the current year 2018-19 is as below:

Name of the Power Projects	**Unit No.**	**Capacity (MW)**	**Date of Commissioning /Schedule Date**
Gujarat			
NIL			
Chhattisgarh			
NIL			
Maharashtra			
NIL			
Madhya Pradesh			
Essar Power MP Ltd(Mahan)	2	600	Synchronized on 03.08.2017
Central sector/IPP			
KSK	5	600	December – 2018
RKM	4	360	July 2018
NTPC Lara	1	800	Oct 2018
NTPC Solapur	2	660	Oct 2018
NTPC Gadarwada	1	800	July-18
NTPC Gadarwada	2	800	Mar-19

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ANNEXURE D.8

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093
F-3, MIDC Area, Andheri (East), Mumbai - 400 093

सत्यमेव जयते

आई एस ओ ः 9001-2008
ISO : 9001-2008

दूरभाष Phone: 022- 28250004, 28221681; 28200194; 28200195; फैक्स Fax : 022 – 28370193
Website : www.wrpc.nic.in E-mail : comml-wrpc@nic.in

संख्या : पक्षेविस /वाणिज्यिक –I / कार्यवृत्त /2017/ दिनांक : 07.06.2018
No. : WRPC/Comml.-I/ Minutes/2018 /

सेवा में / To

As per List (सूची के अनुसार)

विषय : 76वीं वाणिज्यिक समिति की बैठक का कार्यवृत्त ।
Sub : Minutes of the 1st meeting of subgroup on Five Minutes Scheduling and Accounting.

महोदय / Sir,

इस पत्र के साथ दिनांक **22।02।2018** को 11:00 बजे, कान्फ्रेंस हाल, प. क्षे. वि. स, एमआइडीसी मरोल, अंधेरी पूर्व, मुंबई में हुई, पांच मिनट शेड्यूलिंग पर उपसमूह की पहली बैठक का कार्य वृत्त आपकी सूचना एवं आवश्यक कार्रवाई हेतु संलग्न है।

Please find enclosed herewith Minutes of the 1st meeting of subgroup on Five minutes scheduling held on 22.02.2018 at 11:00 Hrs at WRPC Secretariat, Mumbai. This is for your information and necessary action.

The Minutes of the meeting is available on website www.wrpc.nic.in, same may please be downloaded.

भवदीय / Yours' faithfully,

07/06/18

(जे.के. राठौड़./**J. K. Rathod**)
अधीक्षण अभियंता (वाणिज्यिक) / Superintending Engineer (Comml.)

Mailing list:

1. Chairman & Managing Director M.P. Paschim Kshetra Vidyut Vitran Company Ltd. (MP PaschimKVVNL),GPH Compus, Polo Ground, Indore (MP) 452003, Ph :0731-2421414, 2423300, 2424234(Fax).
2. Chairman & Managing Director, Paschim Gujarat Vij Company Ltd. (PGVCL), Paschim Gujarat Vij Sewa Sadan, Off Nana Mava Road, Laxinagar, Rajkot(Gujarat) 360004, Fax -: 0281-2366077.
3. Chairman & Managing Director, M.P. Madhya Kshetra Vidut Vitran Company Ltd. (MP Madhya KWNL), Govindpura, Bhopal (MP) 462023, Ph :0755- 3588315(F).
4. Chairman & Managing Director, Madhya Gujarat Vij Company Ltd. (MGVCL), 5th Floor Sardar Patel Vidyut Bhavan, Race Course, Vadodara (Gujarat) 390007, Ph *:0265-2339148,2356824/2340692* 2338280(Fax).
5. Chairman & Managing Director, M.P. Poorvi Kshetra Vidut Vitran Company Ltd.. (MP Poorvi KVVNL), Block No.7, Shakti Bhawan, Rampur, Jabalpur (MP) 482008, Ph :0761- *2661795, 2663987/2666070(F).*
6. Chairman & Managing Director, Chhattisgarh State Power Distribution Company Ltd, Vidyut Seva Bhawan, D aganiya, P. 0.- Sunder Nagar, Raipur (Chhattisgarh) 492013, Ph :0771- 2574200 Fax 4066566.
7. CMD, Gujarat Urja Vikas Nigam Limited, Sardar Patel Vidyut Bhavan, Race Course, Vadodara 390007 Gujarat, India .Phone: *0265-2310582/83/84/85/86*, Fax: 0265-2337918/2338164.
8. Chairman & Managing Director, Torrent Power Ltd, Torrent House, Ashram Road, Ahmedabad (Gujarat) 380001, Ph *:079-26587651/26586388/26580048*, 079-26582100 (Fax).
9. Chairman & Managing Director, Reliance Energy Ltd. (REL), Electricity House, Santacruz(*E)* Mumbai (Maharashtra) Ph :022-30099999, 30327000.
10. Chairman, Maharastra State Electricity Distribution Company Limited(MSEDCL), Prakashgad, Plot G 9, 4th floor, Sandra (E), Mumbai - 400051, Ph *:022-26474644/26478672*, 22650741(Fax).
11. Chairman, Brihan Mumbai Electric Supply & Transport Undertaking (BEST), BEST Bhawan, BEST Marg, Mumbai (Maharashtra) 400001, Ph 022-22831950 *1 22799566/22840739(F).*
12. Chief Engineer (Electrical), Electricity Department, Vidyut Bhawan, Government of GAO, Panaji (Goa) 403001, Ph :0832-2224680/2426986 (Fax)/Mob:09822126667.
13. Chairman & Managing Director, Tata Power, Bombay House, 24, Homi Mody Street, Mumbai (Maharashtra) 400001, Ph:022-66658888,66658833/ 66658877(F).
14. Executive Director (Finance), Gujarat Urja Vikas Nigam Ltd., Vadodara-390 007. Fax: 0265-2344543.
15. Chief Engineer (LD), Gujarat Energy Transmission Corpn. Ltd., Vadodara- 390 021.

16. Chief General Manager (Cornml), MP Power Management Co.Ltd., Jabalpur-482008. Fax:0761-2664749.
17. Chief Engineer(LD), M P Power Transmission Company Ltd.,SLDC, Jabalpur 482008. Fax:0761-2661884.
18. Chief Engineer (Comml), CSPDCL, Raipur - 492 013, Fax: 0771-5066942.
19. Chief Engineer (LD), Chhattisgarh State Power Transmission Co. Ltd .• Bhilai-490 024.
20. Chief Engineer (PP), Maharashtra State Electricity Distribution Co. Ltd., Mumbai-400 051. Fax: 022-26475012.
21. Chief Engineer(LD),State Load Despatch Centre, MSETCL, New Mumbai - 400 708. Fax:022-27601769
22. Executive Engineer, Electricity Department, Daman-396 210. Fax: 0260-2250889.
23. Executive Engineer (Elect), Electricity Department, Silvassa-396 230. Fax:0260-*2642338/2361787*.
24. General Manager (Cornml), NTPC Ltd., New Delhi-Il0 003. Fax: 011-24364606.
25. Executive Director(Comml), PGCIL, Gurgaon, Haryana-122 001. Fax- 0124-2571760-61.
26. Executive Director, POSOCO, WRLDC, Mumbai-400 093. Fax: 022-28202630.
27. DGM Finance, CGPL, UMPP Mundra, Kutch-370 435 .
28. Director, Jaypee Bina Thermal Power Plant, village sirchopi, Agasod P.O. Bina-470113 Distt. Sagar(MP)
29. Vice-President, ACB India ltd. 7th floor, Corporate house, Ambience tower, National highway Gurgaon-122001 Haryana.
30. Ms. D B Power Ltd., 3rd floor, Naman corporate link, C-31, G-block, BKC Bandra eastMumbai-400051. Fax: 096-99610110.
31. Managing Director, Chhattisgarh State Power Gen. Co.Ltd.,P.O.: Sunder Nagar, Danganiya, Raipur.-492 013. 0771-2262741
32. Managing Director, Gujarat State Electricity Corp. Ltd. Sardar Patel Vidyut Bhawan, Race Course, Vadodara.-390 007. Fax: 0265-2338152 Gen.2337918, 0265-2344734
33. Chairman & Managing Director, M.P.Power Generatioin Company Ltd., Shakti Bhavan, Vidyut Nagar, Rampur, Jabalpur.-482 008. Fax 0761-266 5661.
34. Managing Director, Maharashtra State Power Gen. Co. Ltd., Prakashgad, Plot No G-9, Bandra (East), Mumbai.-400 051. Fax: 26471060, 26581400.

Minutes of the meeting of group on 5 minutes scheduling held on 22.02.2018 at WRPC, Mumbai.

A meeting of group on 5-minutes scheduling was held on 22.02.2018 at WRPC, Mumbai. The list of participants is enclosed at **Annexure-I**.

MS, WRPC welcomed all the participants of the group. He stated that Forum of Regulators (FOR) in its eleventh meeting of the "Technical Committee for Implementation of Frame work on Renewable at the State Level" held at Chennai, it was decided to form a Sub-Group to examine the various aspects of migrating from 15-minute to 5-minute scheduling, metering, accounting and settlement at the inter-state level to facilitate large scale integration of Renewables to the grid.

Further he stated that three meetings of the sub-group constituted by the FOR technical Committee were held at NLDC, New-Delhi. Based on those three meetings, NLDC has prepared a report of Sub-Group on Introduction of Five Minute Scheduling, Metering, Accounting and Settlement in Indian Electricity Market in January 2018. He requested all the members to submit their point-wise comments, so that the WRPC can be informed of consolidated views of WR constituents and related developments.

SE, WRPC requested representatives to present their views. The presentations from the representatives are at **Annexure-II**.

1. NTPC

i) NTPC representative stated that top most priority is to be given to AGC:

a) Implementation of AGC which is long overdue & we are lagging in comparison to most of the power systems in the world, therefore AGC should get priority and cover as many machines as possible. This should start on war-footing.
b) More and more machines of CGS, IPPs, and State Gencos are to be included under the ambit of AGC.
c) Load Despatch Centre (LDC) should be empowered with sufficient secondary control reserves for success of AGC.

d) After gaining experience in frequency control through AGC, the need for rule change in the form of narrowing down the dispatch & settlement period may be studied and taken up suitably.

ii) As regards to migrating from 15-minute to 5-minute scheduling system, he further stated that:

a) Huge capital investment as well as time is required.

b) As there is no automatic/online control of fuel quantity based on its quality, there is inherent delay of around 5 minutes in coal stations. Therefore manual intervention is also required.

c) More accurate demand/load forecasting is needed.

d) Frequent changes in Schedules: A frequent change (i.e. every 5-minute) in schedule will make generation control very difficult. Changes in schedule introduced in consecutive five-minute blocks will lead to deviations in more than one consecutive block.

e) Un-Requisitioned Surplus (URS) power trading will pose challenges in meeting the schedule when schedule from Power Exchange (PX) will be added to normal schedule. Ramping up /down in such short period may not be possible.

f) More discussion needed on "Gate Closure" & method of schedule revision.

g) More complications in handling 288 time blocks of 5-minute each.

h) DSM violation / Zero crossing rule violation will be more—very difficult to maintain Scheduled Generation (SG) with manual control if SG varies in every 5 min.

i) There will be an impact on life of the major equipment, because of increase in cyclic operations leads to increase in thermal stresses.

j) Adhering to schedule changes: This will be difficult considering the fact that there is an inherent latent time gap for boilers for effecting changes in steam flow vis-a-vis fuel input changes. The load gradient thereafter, though known to the operator, also depends on fuel quality which cannot be estimated on real time / online basis. In the present condition, adjustments in coal flow during the latter part of a block helps to fine tune the

generation to the schedule given. A five minute time block is too less to correct the generation to the desired level in case of over/under generation.

k) For super critical units as the temperature variations are frequent may lead to frequent tripping of units on the special protection.
l) Due to cyclic operation there will be more shaft vibration and also the life of capital equipment may get reduced significantly. It may also lead to problems in boiler feed pump and it may further lead to fatigue failures of components in generation station.
m) NTPC stations are stable in operation in the range of 80 to 100% of loading. Operation outside this range will lead to flame instability and boiler trip.

2. Gujarat

SLDC Gujarat representative stated that the Operational challenges in migrating to 5 Minutes scheduling are as follows:

a) The associated inputs required to be changed viz. RE forecasting, DISCOM load forecasting.
b) More numbers of Agriculture groups (AG) are required to be formed in order to align with the five minutes load forecasting as presently, AG have 15 minute schedule.
c) As there is no past 5 Minutes data with DISCOM, hence they may find difficulty in 5 minutes load forecasting. So that there will be more deviations in DSM too.
d) In case of any short/momentary eventualities, presently generator has about one time block of 15 minute to mitigate the schedule. Whereas, in case of 5 minute time blocks, there are more chances that generator falls under DSM limit violation.
e) Appropriate regulatory changes are also required to be done particularly those are based on time blocks viz. effect of revision, change of sign of sustained deviation, DSM computation etc.
f) Migrating to 5 minutes is feasible, but requires manpower and up gradation in both Hardware and Software.
g) Merchant plants are deviating around + or – 500 MW due to which there is a violation in state DSM.

3. Maharashtra

Maharashtra SLDC expressed the following views on 5 minutes scheduling and energy accounting:

a) Presently UI Bill settlement mechanism (FBSM - Final Balancing and Settlement Mechanism) of Maharashtra state is based on MERC's order on 15-minute scheduling and energy accounting. So changing to 5 minute scheduling and energy accounting needs regulation from MERC and consent of all stake holders of Maharashtra state such as MAHAGENCO, MSETCL, MSEDCL, RELIANCE, TATA, BEST, RAILWAY, SERENE and IPPs.
b) Presently for calculation of UI bill around 1157 intra state meter and 67 inter-state meter data is used on 15 minute basis. To make the changes for 5-minute, rebuilding of structure required scheduling and billing software, meter data integration.
c) Requirement & rebuilding of infrastructure, MERC order, consent from STU and all stakeholder and budget allocation.
d) Views of Generators and DISCOMS are prime in this regard as ramp up and down are recurrently required.
e) Generation is difficult to match with frequently changing load due to 5-minute scheduling.
f) Prior assessment of generator is required whether generators are capable of 5 minutes generation and whether DISCOMS are able to manage their loads at 5 minutes and are they able to forecast at 5 minutes.
g) As Maharashtra is RE rich state, accurate forecasting of demand and RE over a period of 5 minutes is required.
h) RRF - Renewable Regulatory Fund regulation is not applicable on RE. There should be certain commercial implication on RE. RE visibility should be there.
i) Open access regulation to be changed for embedded consumer.
j) DSM limits to be liberal in terms of pricing & capping.

4. Madhya Pradesh

Representative from MP SLDC stated that:

a) Migrating to 5 minutes is feasible, but requires manpower and up gradation in both Hardware and Software.
b) Due to overdrawl/underdrawl on account of 5-minute scheduling, ADMS will also operate frequently.
c) AMR metering to be implemented in states also.
d) Simultaneous replacement of meters both at state and central level would be difficult.

5. Chhattisgarh

Representative from Chhattisgarh SLDC stated that:

a) Prepare a system for 5 minutes but migrate to 10 minutes and consider the feedback from Generators and then migrate to 5 minutes later on.
b) Decisions of DISCOMs (users) are based on overdrawl/underdrawl and system operators are based on frequency.
c) Many CPPs are with unpredictable injection pattern (i.e. with deviation of 0 to 150 MW) and this would further lead to deviation by DISCOM. This also leads to deviation in LGB-Load Generation Balance.

6. DB Power

DB Power representative stated the following:

a) There is no visible gain as compared to 15 minutes Scheduling.
b) The 5 minute is too short period for Generator's response. The normal change is about 50 MW/15 minute (refer 6.5.14 of Grid Code). This would call for frequent changes in unit Load and leading to the following:
    - Increase in thermal stress due to frequent variation in load.
    - Frequent boiler tube leakage.
c) Typical Bilateral and IEX intra-day market trades are based on hourly requirement irrespective of present 15 minutes Scheduling intervals. If this is reduced to 5 Minutes,

the thermal unit will not be able to respond to this large change in 5 minutes; thus increasing the deviations in each time block.

d) DisCom has to forecast the demand in 288 Time blocks and the accuracy of forecasts is necessary otherwise the DSM violations are more.
e) Solar mission and thrust on renewables may add 1,50,000 MW capacity in the grid, which poorly respond to frequency and ramp up and ramp down. Entire responsibility of frequency control would fall on thermal and hydro stations. Under these conditions, it is not clear how grid would behave under 5 min ABT Scheduling.
f) Monitoring on 5 minutes basis for either generator or Purchaser is itself a tedious task.
g) All SEMs will have to be recalibrated for this change without any specific advantage.
h) The professionals should judge tangible benefits of 5 minutes ABT scheduling, before adopting this change.
i) Consider cost optimization and safety benefits, rather than mathematical optimization.
j) DisComs need further investment if the benefits of better grid operation are to be passed on to the retail and industrial consumers. What is investment required by DisComs nation-wide?
k) If we enact such regulations, all Generators and DisComs can be accused of violations.
l) Due to surplus unused capacity in the grid, we have found faster generation response to frequency and grid flow in last 5 years.

7. Summary of discussions

After taking feedback from all the participants, Member Secretary, WRPC concluded the session by making the following remarks:

a) Members in general opinioned that Primary and Secondary controls of generation should be strictly implemented before making any changes in the existing scheduling mechanism. To start with, AGC should be implemented for CGS, state Gencos, and IPPs. If AGC serves the purpose, then there may not be any necessity for changing the existing scheduling mechanism.
b) Generators and DISCOMs expressed difficulties (such as boiler response, flame failure, fatigue failure, boiler tripping, etc.) in many aspects to maintain their actual injection/drawl close to their schedules in the 5-minute time frame.

c) As the proposed 5-minute scheduling mechanism requires fast response, the existing manual control of generation may not be suitable for fast response.
d) In RE-rich state it would be difficult for DISCOMs and SLDCs to absorb the deviation due to intermittent RE integration, since RE generators are not penalized for deviations.
e) For forecasting, detailed guidelines covering various aspects are required.
f) Some members expressed that it is feasible to switch over to 5-minute scheduling provided hardware/software is upgraded and additional manpower is deployed. Capacity building at various levels is required.
g) Precise load forecasting, RE generation forecasting, and weather forecasting are essential for switching over to 5-minute scheduling.
h) Some members expressed that:
    - As for as possible, existing meters are modified to support 5-minute recording.
    - Replacement of existing meters, if required, should be done in phased manner by CTU.
    - Meter replacement activity may take around 1½ – 2 years time.

After concluding remarks of MS, WRPC, meeting ended with thanks to the Chair.

*****

Encl:
a) Annexure-I (List of participants)
b) Annexure-II (Presentations)

Annexure-1

List of Participants for 5-minutes scheduling group meeting held on 22.02.2018 at WRPC, Mumbai						
	Name	Designation	Organisation	e-mail	Mobile No.	signature
1	Vinod Agarwal	EE	SLDC, CG RAIPUR	vinod.iim.alumni@gmail.com	9300040007	[signature]
2	Ambika Jaiswal	AM	DB Power Ltd.	ambika.jaiswaldbpower.in	9650807207	[signature]
3	Sanjay Jadhav	Sr. Dy GM	DB Power	sanjay.jadhav@dbpower.in	9769190360	[signature]
4	~~Vijay J. Motavar~~	~~Ex. Engr.~~	~~MGVCL~~	sales@dbpower.in		[signature]
5	Vijay J. Motavar	E.E.	MGVCL	v.motavar@mgvcl.com	9925208102	[signature]
6	K. C Mishra	DGM(O)	MPMKVV CL DAbn	Plm.mpcz@gmail.com	9406902007	[signature]
7	Mangesh W. Fulane	Add. EE	SLDC Kalwa Maharashtra	Fulanem@gmail.com	9619892011	[signature]
8	AMBARISH MODHA	GM (AP)	TORRENT POWER LTD.	ambarishmodha@torrentpower.com	9227416176	[signature]
9	K.K. Parbhakar	CE	MP-SLDC	kkparbhakar@yahoo.co.in	9425805267	[signature]
10	Ashok Nikose	SE(DCC)	MPPKVVCo.Ltd Jabalpur	under_ld@yahoo.co.in	9425805932	[signature]
11	J. K. Rathod	SE	WRPC	-	-	[signature]
12	A. Balan	MS	WRPC	ms-wrpc@nic.in	9483540528	[signature]
13	D-N. Gawali	E'E	WRPC	comml-wrpc@nic.in	9930666785	[signature]
14	PRABAL MUNDLE	AGM	NTPC	pmundle@ntpc.co.in	9650991402	[signature]
15	P. Sreenivas	GM	NTPC, Mumbai	psreenivas@ntpc.co.in	9004677573	[signature]
16	Arun Narayan	GM	NTPC (Coml)	[illegible]	900449906	[signature]
17	S. K. Singh	GM	NHPC Ltd.	[illegible]	8544425093	[signature]
18	B. A Gandhi	EE	GSECL Vadodara	effi_gen@gebmail.com	9925210270	[signature]

S.No.	Name	Designation	Organisation	e-mail	Mobile No.	signature
19	Santosh Kumar Takhele	AGM(OS)	NTPC Ltd. Mumbai	Sktakhele@ntpc.co.in	9004472114	
20	A. H. RIZVI	Addl CE	MPPGCL	ahrizvi82@gmail.com	9425808515	
21	Brijesh kumar Maravi	E.E.	MPPGCL JBP	brijesh.maravi@gmail.com gcc.mppgcl@gmail.com	9425806537	
22	ANURAG MISRA	EE	MPSLDC	anuragmisra22@gmail.com	9425805223	
23	J. D. Trivedi	DE	SLDC Gujarat	impl.sldc@gmail.com	9925212843	
24	N. N. Sheikh	EE	SLDC Gujarat	sldceebt@gmail.com	9925212938	
25	A. U. Bulbule	SE(LM)	MSEDCL	selmkalwa@gmail.com	9833383882	22/02/2018
26	S. S. Patil	EE(LM)	〃	〃	9833980221	
27	Athawale B. C.	Ex. Engr.	MSPGCL	balirao.athawale62@gmail.com	8879770754	
28	Vikas Mundotia	AD-I (C)	WRPC	comml-wrpc@nic.in	9011022577	
29	H C HARCHANDANI	AGM(C)	NTPC	Harchandani@ntpc.co.in	9424204157	
30						
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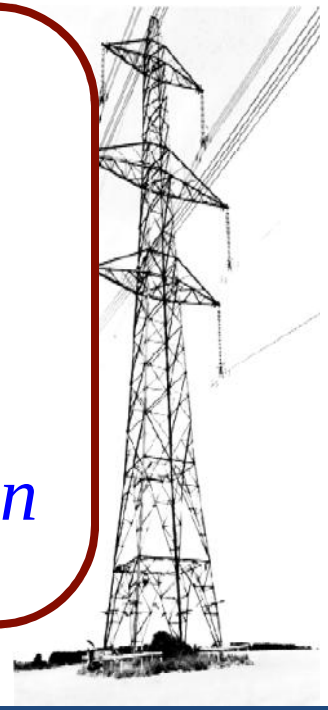
"Objective of the discussion "

Frequency at 50 Hz

~Flexible, Reliable, Sustainable, Efficient & Eco-friendly Power Generation providing Security & Stability to the Grid in view of large scale integration of Volatile RE sources~



5-min Scheduling & Settlement

By

NTPC Limited





Objective *~Flexible, Reliable, Sustainable, Efficient & Eco-friendly Power Generation providing Security & Stability to the Grid in view of large scale integration of Volatile RE sources~*

Frequency Control:

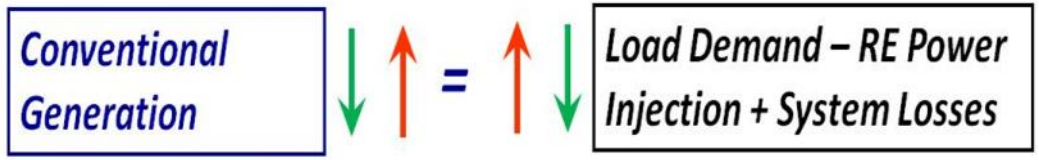
Maintaining grid frequency very close to reference frequency of 50 Hz by

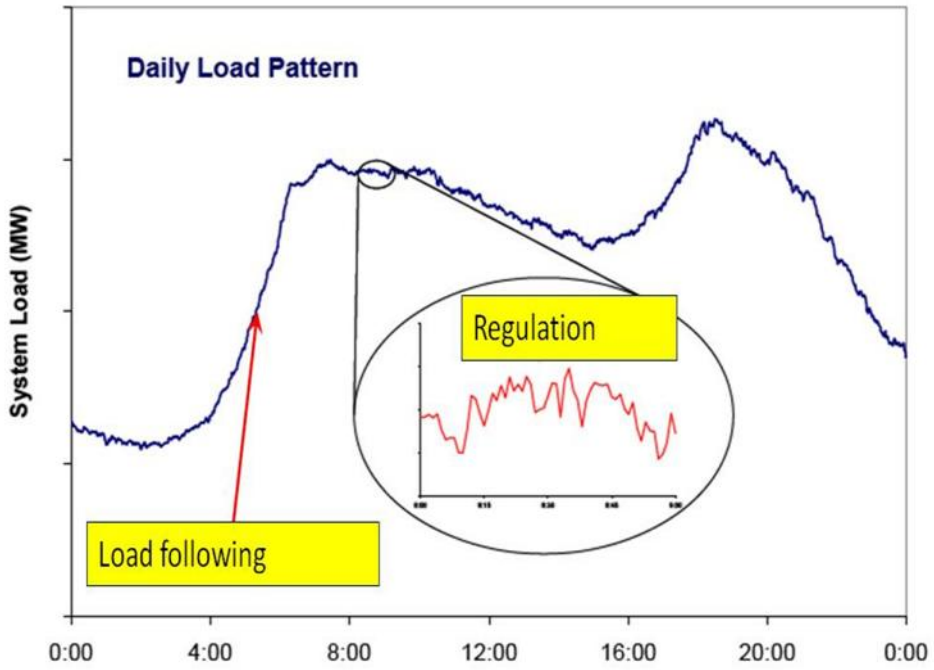
a) Load following & b) Regulation

Increasing Variability of "Net / Residual Load" with large scale RES integration

Action priority wise:

- Real time control of Generation by Automatic Generation Control-**AGC**.
- More accurate forecasting is needed.
- Manual: despatch instructions.





Control actions: *First thing First*

Top most priority is to be given to AGC.

- Implementation of AGC which is long over due & we are lagging in comparison to most of the power systems in the world, should get priority and cover as many machines as possible. This should start on war footing.
- More and more machines of CGS, IPPs, State Gencos are to be included under the ambit of AGC.
- LDCs should be empowered with Sufficient secondary control reserves for success of AGC.

After gaining experience in frequency control through AGC, the need for rule change in the form of narrowing down the dispatch & settlement period may be studied and taken up suitably.

15 min to 30 min scheduling & settlement is in practice in most of the countries including EU where the penetration of Wind (most uncertain & variable source of generation) is maximum >40%.

5 min scheduling & settlement:

- Why priority is given to 5 min scheduling in India where even after 175GW (mostly solar which is predictable in nature) addition of RE, share of RE gen will be ***17-18% from current level of 4-5%?***

- Why Not 1 min?

- Costs of five minute settlement ?–Cost benefit analysis may please be discussed.

Difficulties envisaged:

- DSM violation / Zero crossing rule violation will be more—very difficult to maintain SG with ***manual control*** if SG varies in every 5 min.

  Adhering to schedule changes: This will be difficult considering the fact that there is an inherent latent time gap for boilers for effecting changes in steam flow vis a vis fuel input changes. The load gradient thereafter, though known to the operator, also depends on fuel quality which cannot be estimated on real time / online basis. In the present condition, adjustments in coal flow during the latter part of a block helps to fine tune the generation to the schedule given. A five minute time block is too less to correct the generation to the desired level in case of over/under generation.

Difficulties envisaged:

- **Frequent changes in Schedules:** A frequent change in schedule will make generation control very difficult. Changes in schedule introduced in consecutive five minute blocks will lead to deviations in more than one consecutive blocks.

- URS power trading will pose challenges in meeting the schedule when schedule from PX will be added to normal schedule. Ramping up /down in such short period may not be possible.

- More discussion needed on "***Gate Closure***" & method of schedule revision.

- More complications in handling 288 time blocks.

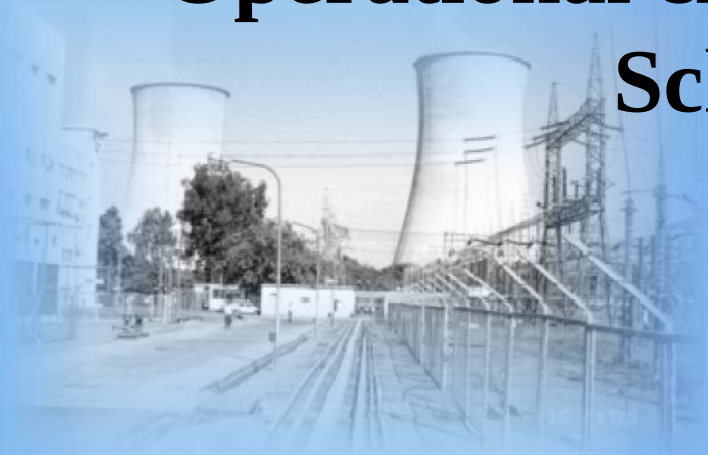
THANK YOU

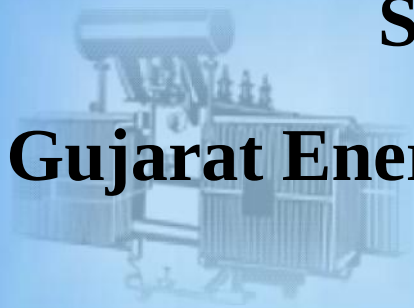
NTPC Limited

(A Government of India Enterprise)

www.ntpc.co.in

Operational challenges- 5 Minutes Scheduling





State Load Despatch Centre

Gujarat Energy Transmission Corporation Limited

[An ISO 9001 : 2008 Company]

Challenges

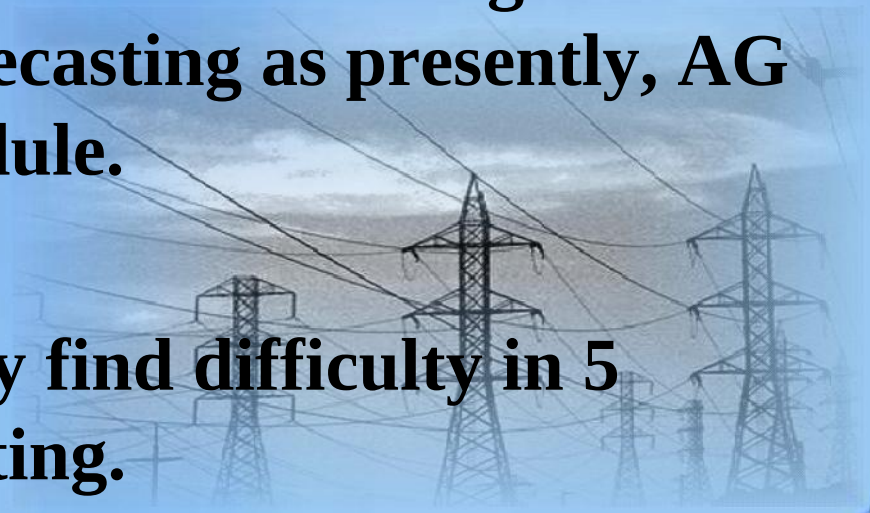
- OPERATIONAL
- DAILY SCHEDULING
- METERING

Operation/Daily scheduling challenges

- **All the associated inputs are required to be changed. Viz. RE forecasting, DISCOM load forecasting.**

- **More numbers of Agriculture groups (AG) are required to be formed in order to align with the five minutes load forecasting as presently, AG have 15 minute schedule.**

- **Hence, DISCOM may find difficulty in 5 minutes load forecasting.**



Operation/Daily scheduling challenges

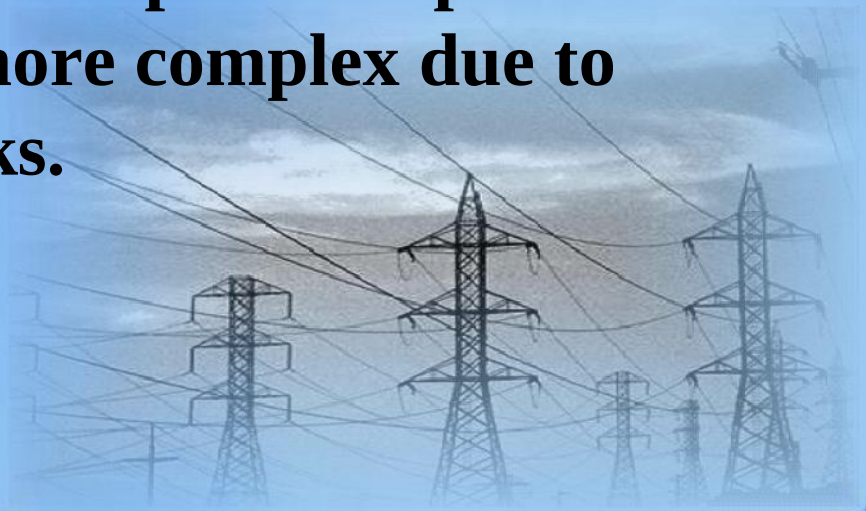
- **In case of any short/momentary eventualities, presently generator has about one time block of 15 minute to mitigate the schedule. Whereas, in case of 5 minute time blocks, there are more chances that generator falls under DSM limit violation.**

- **Appropriate regulatory changes are also required to be done particularly those are based on time blocks. Viz. effect of revision, change of sign of sustained deviation, DSM computation etc.**

Operation/Daily scheduling challenges

- **Number of pick up/back down of the generator during the day will be increased. That may affect the life of the generators.**

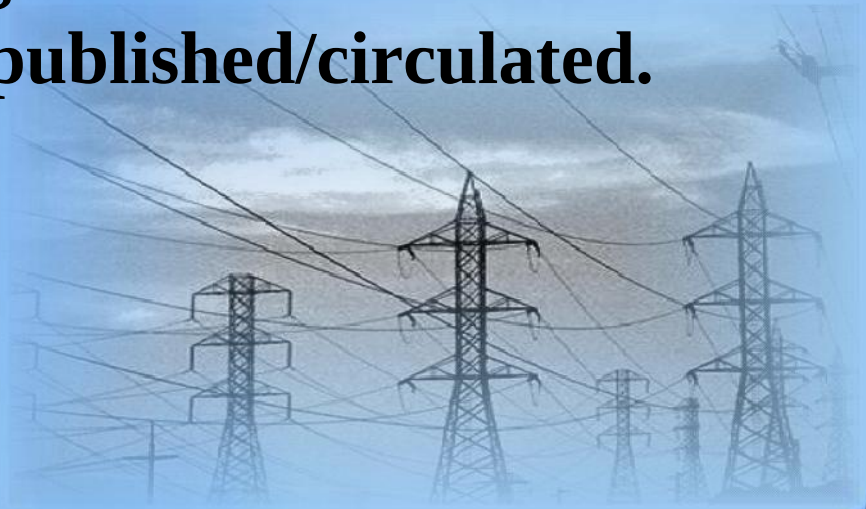
- **Number of scheduling revisions during the day will be increased and computation process also becomes somewhat more complex due to increase of time blocks.**



Metering

- **Technological-Regulatory challenges are already identified/discussed.**

- **Recently, FOR-Sub-Group report on Introduction of Five Minutes scheduling, metering, Accounting and Settlement in Indian electricity Market is published/circulated.**




Thank you !!!
SUN
WIND
EARTH
WATER

^

5 min ABT Scheduling in Indian Grid
- Generator's Perspective

Sanjay Jadhav – Sr. Dy. General Manager
D B Power Limited

At WRPC Meeting 22.02.2018

History of UI & DSM

Previous paradigm of ABT	Latest Paradigm of ABT
ABT was intended for frequency control and grid stability	• Intended for frequency control and grid stability • ABT enables Open Access in Inter-State Transmission
Gaming is Violation of Limits of +5% in a TB and +1% in day	Gaming is Mis-declaration of DC for commercial gain
Enables Merit Order Despatch	Public disclosure of schedule enables Merit Order Despatch
UI as a penalty for frequency control	DSM is a settlement mechanism. Additional DSM for higher penalty, for undesirable injection and drawal
Some generators & DisComs used the ABT for sale and buy of power without scheduling.	• Frequency should be 50 Hz. • Limited earning opportunity
Predominantly LT schedules	• LT, ST & PX Schedules
Intentional under-declaration was discouraged by +5% & +1 % limits for misuse of UI	• Over injection above +12% of schedule is priced at Cap rate NIL Rs./ kWh

Difficulties faced by GenCo and DisComs

- No visible gain as comapred to 15 Mts. Scheduling
- The 5 min is too short a period for Generator's response. The normal change is about 50 MW/15 minute (refer 6.5.14 of Grid Code). This would call for frequent changes in unit Load.
  - Increase in thermal stress due to frequent variation in load
  - May lead to frequent boiler tube leakage
- Typical Bilateral and IEX intra day market trades are based on hourly requirement irrespective of present 15 Mts. Scheduling interval. If this is reduced to 5 Minutes, the thermal unit will not be able to respond to this large change in 5 Min.; thus increasing the deviations in each time block.

^

Difficulties faced by GenCo and DisComs

- Can DisComs really forecast the demand in 384 TBs? What is accuracy of forecasts? Is it really required?
- Does 5 min scheduling really adds value in better grid discipline?
- Solar mission and thrust on renewables may add 150000 MW capacity in the grid, which poorly respond to frequency and ramp up and ramp down. Entire responsibility of frequency control would fall on thermal and hydro GenCos. Under these conditions, how grid would behave under 5 min ABT Scheduling?
- Monitoring on 5 Min. basis for either generator or Purchaser is in itself a tedious task
- All SEMs will have to be recalibrated for this change without any specific advantage.

^

Challenges of 5% ABT scheduling

- The professionals should judge tangible benefits of 5 min ABT scheduling, before this adopting this change
- Look for cost optimization and safety benefits, rather than mathematical optimization
- DisComs need further investment if the benefits of better grid operation are to be passed on to the retail and industrial consumers. What is investment required by DisComs nation-wide?
- If we enact such regulations, all Generators and DisComs can be accused of violations.
- Due to surplus unused capacity in the grid, we have found faster generation response to frequency and grid flow in last 5 years. But if “Make in India” curtails the surplus capacity gap, how grid will behave under 5 min ABT scheduling.

^

References

- CERC ABT order 04.01.2000
- CERC (UI Charges & RM) Regulations, 2009
- CERC (DSM & RM) Regulations, 2014
- WRPC CCM 76th meeting dated 23.10.2017
- WRPC letter dated 02.11.2017


Thank You

ANNEXURE D.9-1

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093
F-3, MIDC Area, Andheri (East), Mumbai - 400 093
दूरभाष Phone: 022-28221681, 2820 0194, 95, 96 फैक्स Fax: 022-2837 0193
Website: www.wrpc.gov.in E-mail: comml-wrpc@nic.in

आई एस / आई एस ओ :
9001-2008
IS/ISO: 9001-2008

No. WRPC/Comml-I/corr / 2017 / 694 **Date: 22.1.2018**

To,

(सूची के अनुसार / As per list).

महोदय /Sir,

Sub: MoM of the Special meeting on preparation of compensation for partial loading in respect of gas based generating stations held on 15.12.2017 at WRPC - Reg.

Please find enclosed herewith a copy of MoM of **Special meeting on preparation of compensation statement for partial loading in respect of gas based generating stations held on 15.12.2017 at WRPC, Mumbai.**

The Minutes of the meeting is available on website www.wrpc.gov.in, the same may please be downloaded.

Thanking you.

भवदीय/ Yours faithfully,

(J.K.Rathod) 22/01/18

अधीक्षण अभियंता (वाणिज्य) / Superintending Engineer (Comml)

Mailing list:

1. Executive Director (Finance), Gujarat Urja Vikas Nigam Ltd., Vadodara-390 007. Fax: 0265-2344543.
2. Chief Engineer (LD), Gujarat Energy Transmission Corpn. Ltd., Vadodara- 390 021
3. Chief General Manager (Comml), MP Power Management Co.Ltd., Jabalpur-482 008. Fax: 0761-2664749.
4. Chief Engineer (LD), M P Power Transmission Company Ltd.,SLDC, Jabalpur 482 008. Fax: 0761-2661884
5. Chief Engineer (Comml), Chhattisgarh State Power Distribution Co. Ltd., Raipur – 492 013. Fax: 0771-5066942
6. Chief Engineer (LD), Chhattisgarh State Power Transmission Co. Ltd., Bhilai-490 024.
7. Chief Engineer (PP), Maharashtra State Electricity Distribution Co. Ltd., Mumbai-400 051. Fax: 022-26475012.
8. Chief Engineer (LD), State Load Despatch Centre, MSETCL, New Mumbai - 400 708. Fax: 022-27601769
9. Chief Electrical Engineer, Panjim, Goa-403 001. Fax: 0832-2222354
10. Executive Engineer, Electricity Department, Daman-396 210. Fax: 0260-2250889
11. Executive Engineer (Elect), Electricity Department, Silvassa-396 230. Fax:0260-2642338/236/787
12. General Manager (Comml), NTPC Ltd., New Delhi-110 003. Fax: 011-24364606
13. Regional Executive Director (West), NTPC Ltd., Mumbai-400 093. Fax- 28259345
14. Executive Director, POSOCO, WRLDC, Mumbai-400 093. Fax: 022-28202630
15. Addl. Chief Engineer (R & C), Gujarat Energy Trans. Corpn. Ltd., Vadodara-390 007
16. Chief Engineer (Trans. O&M), MSETCL, Mumbai-400 051
17. Member Secretary, Northern Regional Power Committee, New Delhi 110 016
18. Member Secretary, Southern Regional Power Committee, Bangalore 560 009
19. Member Secretary, Eastern Regional Power Committee, Kolkata-700 033
20. Member Secretary, North Eastern Regional Power Committee, Shillong 793 303
21. Chief Engineer (GM), Central Electricity Authority, New Delhi –110 066.

Minutes of Special meeting held on 15.12.17 at W.R.P.C, Mumbai.

Sh. J. K. Rathod, S.E. (C), WRPC welcomed the participants to the special meeting. The list of participants is attached at Annex-1.

SE(C), WRPC informed that a discussion was held between NTPC WRHQ Commercial group and Member Secretary WRPC on 11/12/2017 on Compensation mechanism for gas based generating stations implementation in WR. In the discussions it was suggested that a special meeting among WRPC and NTPC officials be held to deliberate on issues being faced on compensation mechanism for gas based stations.

The participants discussed various aspects pertaining to the issue and following are the brief of the discussion:

1. NTPC informed WRPC that OEMs have provided Heat Balance Diagrams (HBD) in respect of new machines for 100% and 80% loading. The characteristic curves of Kawas and Gandhar have not been provided by OEM for degraded SHR and APC.

2. NTPC further informed that as SHR and APC figures are not given by OEM for Full module/ half module operation for any of the gas stations, the same has been worked out on "Actuals" as is recorded in real time operation over the years. Both HBD and degradation curves are to be interpreted together to arrive at SHR and APC figures at various loadings.

3. In view of the information provided by NTPC at serial no 1 and 2, it was agreed as a way forward that NTPC shall provide the degraded curves for SHR and APC based on HBD and actual observed values in the tables as mentioned at Sl. No. 2 to WRPC for preparation of compensation statement of Gas stations.
4. It was also agreed the observed data provided as per serial no 2 can be verified by WRPC/Beneficiaries of the stations .

The meeting ended with a vote of thanks.

****

22/01/18

Meeting with NTPC. (15/12/17

Annex 1

List of Participants for Special meeting to discuss Compensation Data for Gas Stations held on 15.12.2017 at WRPC, Mumbai						
	Name	Designation	Organisation	e-mail	Mobile No.	signature
1	SANDEEP GUPTA	AGM(OS)	NTPC LTD	sandeepgupta@ntpc.co.in	9650994688	
2	ANIL NAUTIYAL	GM(OS)	NTPC Ltd	anilnautiyal@ntpc.co.in	9004497012	
3	P A Pande	AGM(C)	NTPC Ltd	pravin.ntpc@gmail.com	9004496010	
4	S BALASUBRAMANYA	AGM	NTPC Ltd	SBALASUBRAMANYA@ntpc.co.in	9429408129	
5	HARISH AMETA	Dy. Mgr.	NTPC Ltd	harishameta@ntpc.co.in	9408705061	
6	VIJAY PRAKASH MISRA	DGM	NTPC Ltd.	vpmishra@ntpc.co.in	9004497240	
7	D.N. Gawali	E.E	WRPC	Comml-wrpc@nic.in	7738666765	
8	J. K. RATHOD	S.E.	WRPC	"	"	
9						
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11						
12						
13						
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15						
16						
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18						

Gandhar

ANNEXURE D.9-2

Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism

Observations Witnessed by

1. **WRPC**
2. **MSEDCL**
3. **GUVNL**
4. **MPPMCL**
5. **NTPC**

Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism

Full Module Check - 15th mar18 with GT# 1,2 & 3 and STG

%Loading	Load Set Point Time	Reading Time	Gross Gen (MW)	Export (MW) as per SEM'S meters	Gas Consumption SCM	Gas GCV (Kcal/SCM)	Colony Load - MW	Heat Rate KCAL/Kwh	APC(%)	Ambient Temp
55	16:00	17:15 to 17:30	358.91	348.48	87198.72	9435.84	0.16	2292.5	2.86	37.31
65	17:35	18:15 to 18:30	429.06	417.84	97688.62	9586.01	0.20	2182.6	2.57	36.22
75	18.35	19:15 to 19:30	493.06	480.88	108883.68	9529.58	0.35	2104.5	2.40	33.30
85	19:35	20:15 to 20:30	559.10	547.76	121573.51	9579.74	0.35	2083.1	1.97	33.41

J. K. RATHOD
S. E.
WRPC

16/3/2018
(SANDEEP GUPTA)
AGM (OS-GT/RLC)
(CHARIMATH)
NTPC
MTDC

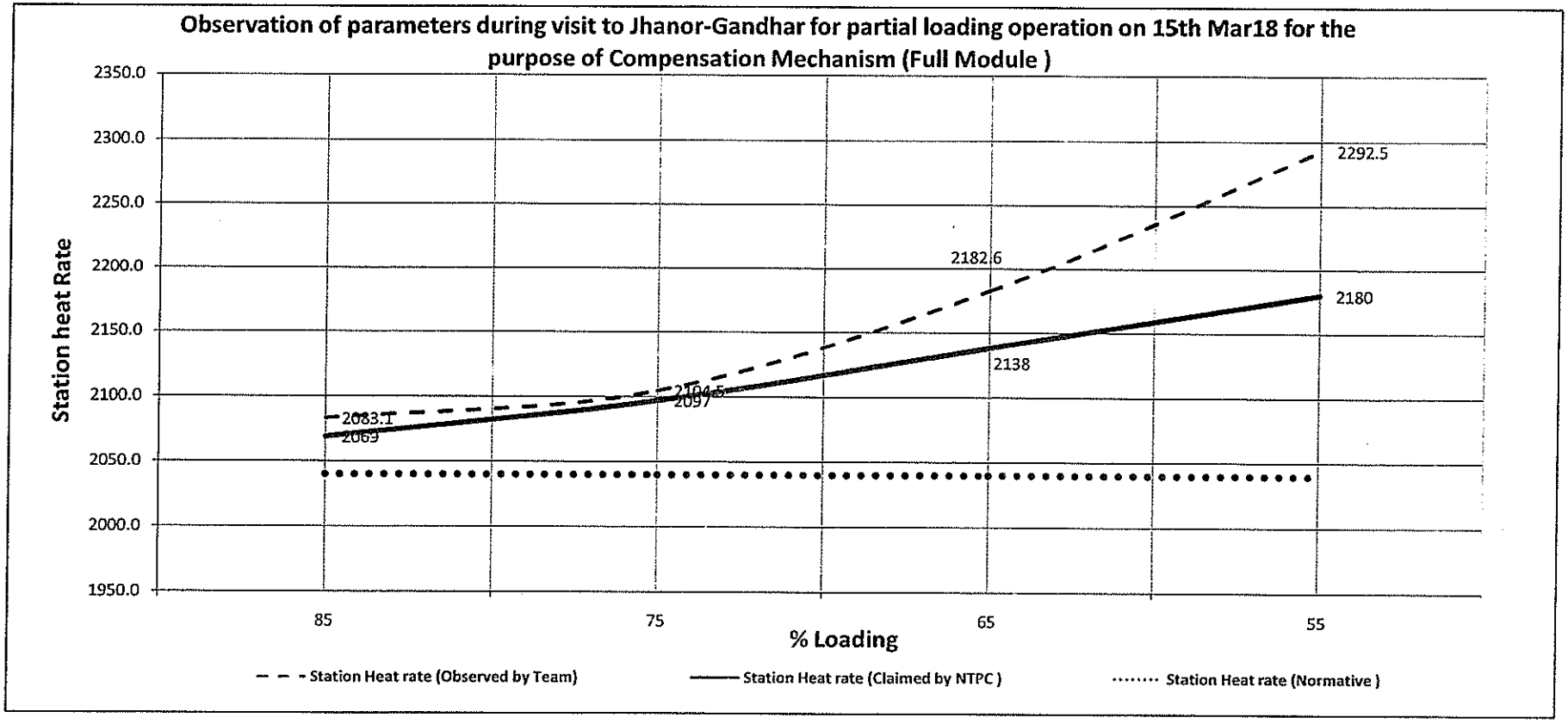
Pramod Chandhary
MPPMCL

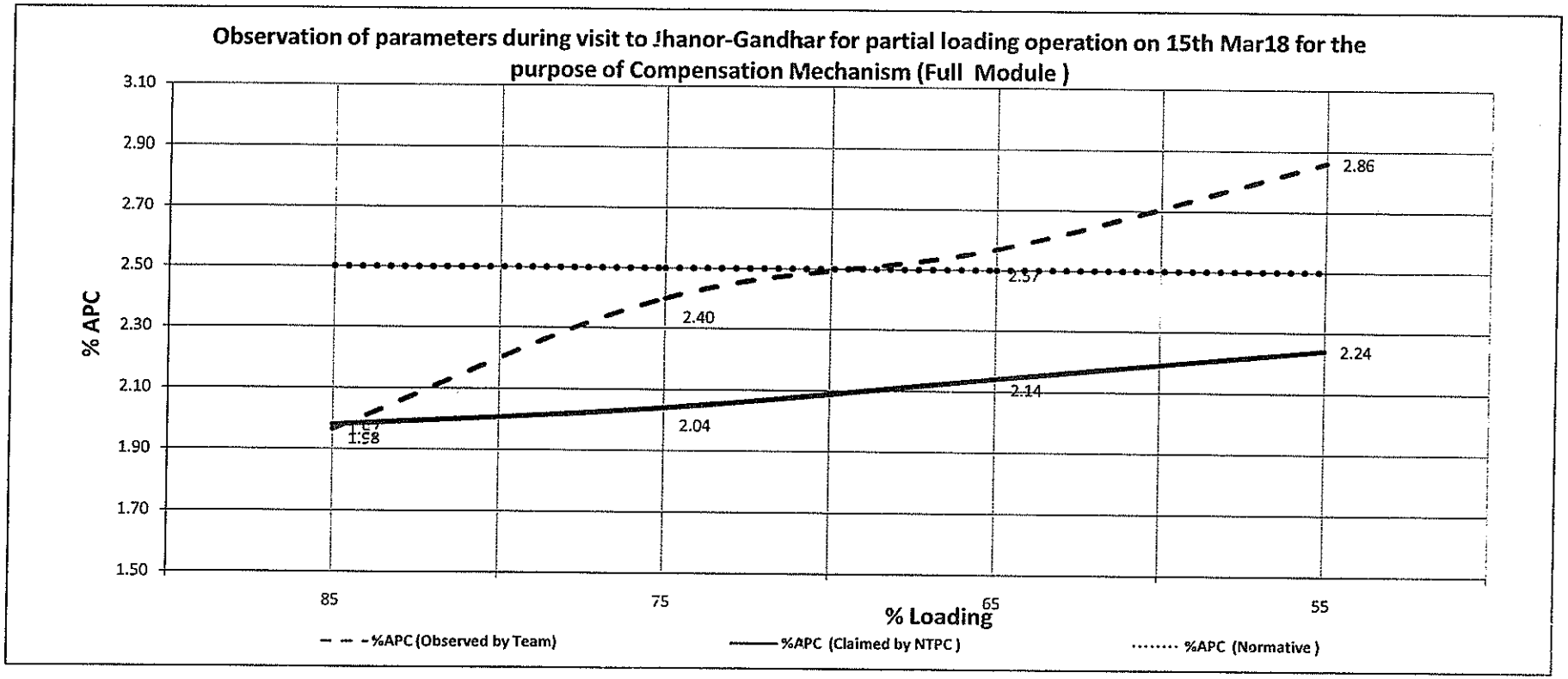
GUVNL (S.K.Nair)

P.S. Patil
EE (LM)
MSEDCL

Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Full Module)			
% Loading	Station Heat rate (Observed by Team)	Station Heat rate (Claimed by NTPC)	Station Heat rate (Normative)
85	2083.1	2069	2040
75	2104.5	2097	2040
65	2182.6	2138	2040
55	2292.5	2180	2040

% Loading	%APC (Observed by Team)	%APC (Claimed by NTPC)	%APC (Normative)
85	1.97	1.98	2.50
75	2.40	2.04	2.50
65	2.57	2.14	2.50
55	2.86	2.24	2.50


Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Full Module)
Station heat Rate
2350.0
2300.0
2250.0
2200.0
2150.0
2100.0
2050.0
2000.0
1950.0
2292.5
2182.6
2180
2138
2104.5
2097
2083.1
2069
85
75
65
55
% Loading
Station Heat rate (Observed by Team)
Station Heat rate (Claimed by NTPC)
Station Heat rate (Normative)


Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Full Module)
3.10
2.90
2.70
2.50
2.30
2.10
1.90
1.70
1.50
% APC
2.86
2.57
2.40
2.24
2.14
2.04
1.58
85
75
65
55
% Loading
%APC (Observed by Team)
%APC (Claimed by NTPC)
%APC (Normative)

Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism

Half Module Check - 15th mar18 with GT# 1 & 2 and STG

	Load Set Point Time	Reading Time	Gross Gen (MW)	Export (MW) as per SEMS meters	Gas Consumption SCM	Gas GCV (Kcal/SCM)	Colony Load - MW	Heat Rate KCAL/Kwh	APC(%)	Ambient Temp
85	10.05	10:30 to 10:45	366.59	356.96	81588.98	9479.01	0.24	2109.65	2.56	27.7
75	11.05	11:30 to 11:45	329.22	319.76	73364.15	9526.38	0.24	2122.91	2.80	30.9
65	12:50	13:15 to 13:30	282.62	273.76	66233.18	9421.60	0.22	2207.96	3.06	33.9
55	13:50	14:15 to 14:30	238.59	229.20	58517.11	9426.81	0.16	2312.02	3.87	34.1

J. K. RATHOD
S.E., WRPC

16/3/2018
(SANDEEP GUPTA)
TAMCOS-GT/REE)
MTPL

Pramod Chavdhary
MPPMCL

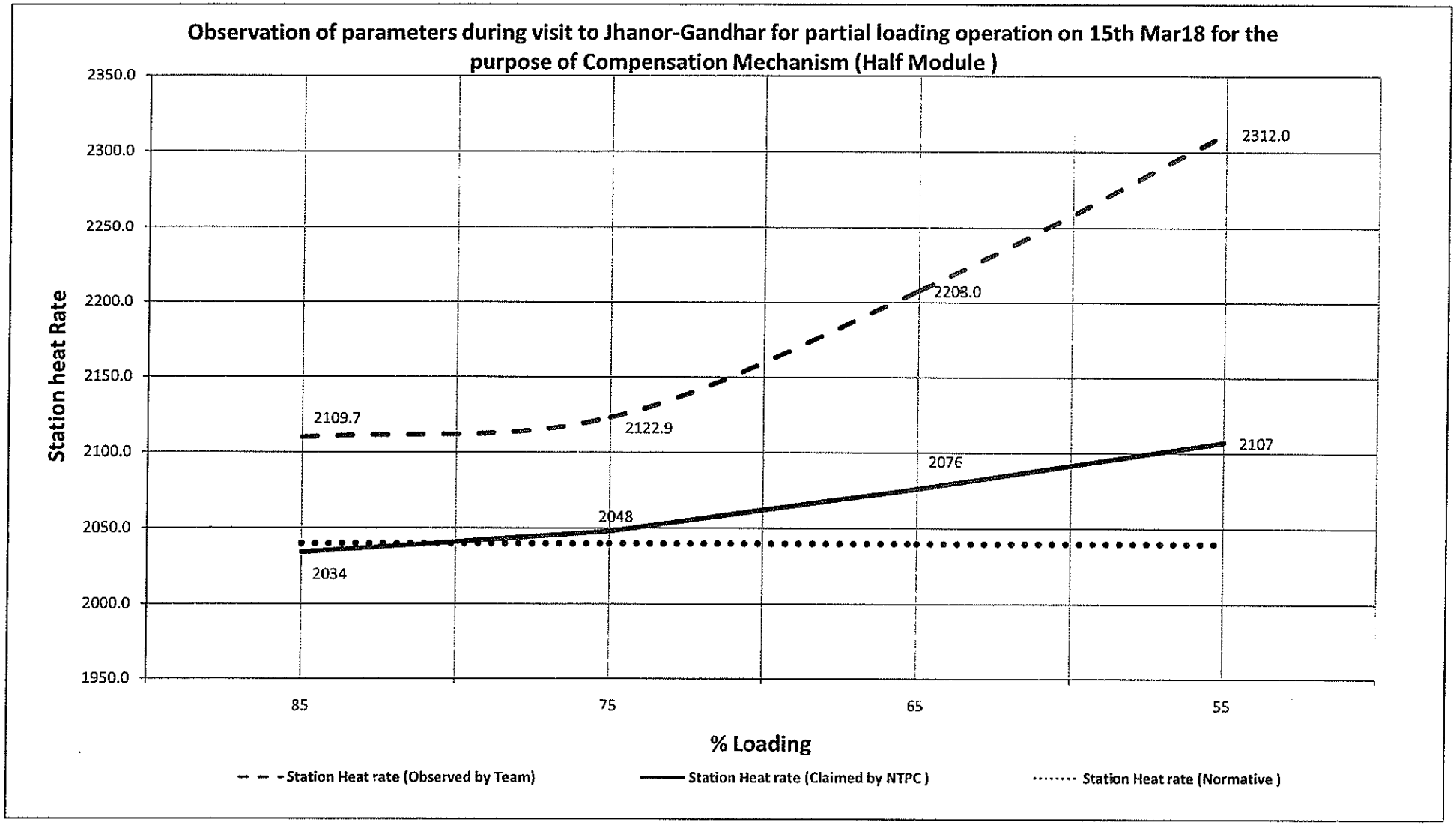
(S. K. Nair)
(GUVNL)

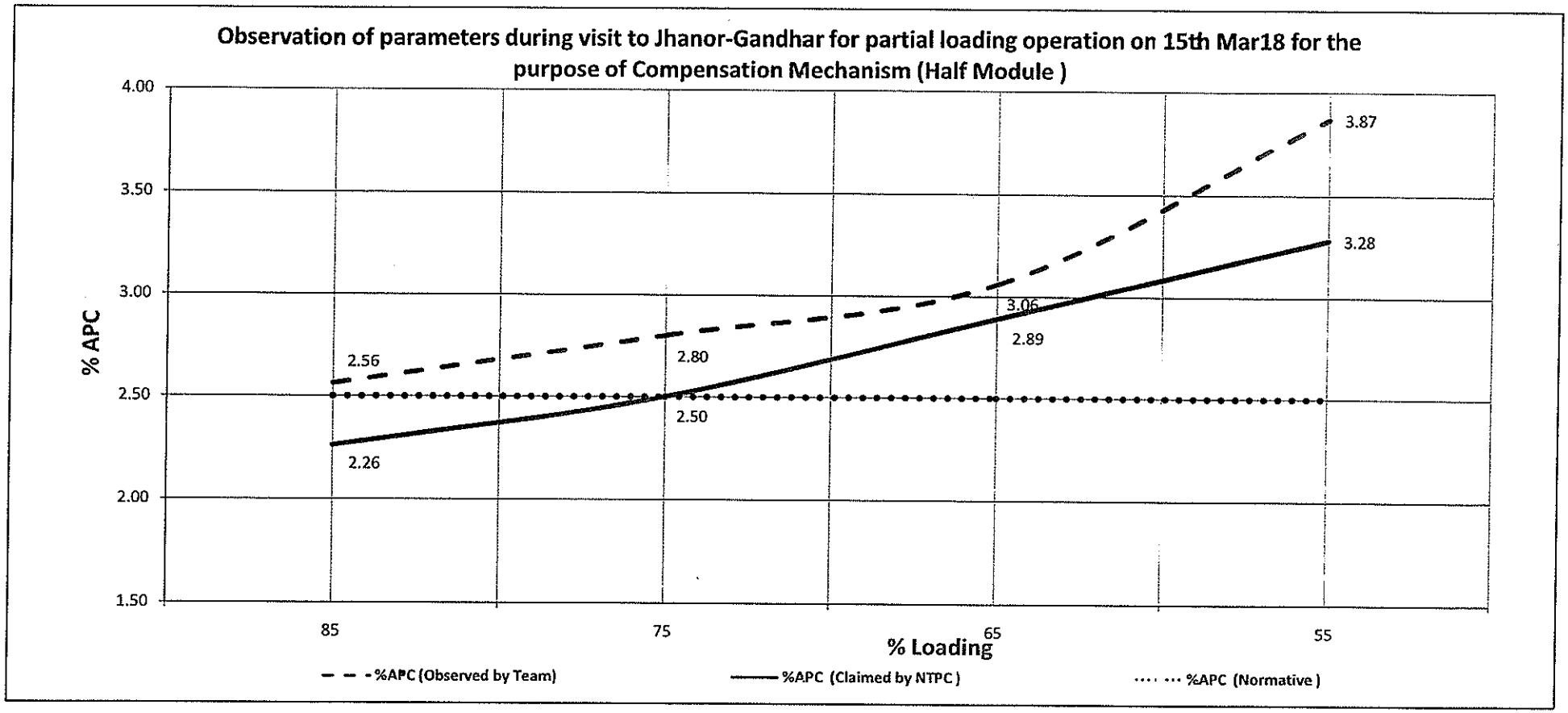
S. S. Patil
EE (LM)
MSEDCL

(CHAIRMAN)
MTPC

Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Half Module)			
% Loading	Station Heat rate (Observed by Team)	Station Heat rate (Claimed by NTPC)	Station Heat rate (Normative)
85	2109.7	2034	2040
75	2122.9	2048	2040
65	2208.0	2076	2040
55	2312.0	2107	2040

% Loading	%APC (Observed by Team)	%APC (Claimed by NTPC)	%APC (Normative)
85	2.56	2.26	2.50
75	2.80	2.50	2.50
65	3.06	2.89	2.50
55	3.87	3.28	2.50


Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Half Module)
Station heat Rate
2350.0
2300.0
2250.0
2200.0
2150.0
2100.0
2050.0
2000.0
1950.0
2312.0
2208.0
2109.7
2122.9
2107
2076
2048
2034
85
75
65
55
% Loading
Station Heat rate (Observed by Team)
Station Heat rate (Claimed by NTPC)
Station Heat rate (Normative)


Observation of parameters during visit to Jhanor-Gandhar for partial loading operation on 15th Mar18 for the purpose of Compensation Mechanism (Half Module)
4.00
3.50
3.00
2.50
2.00
1.50
% APC
85
75
65
55
% Loading
3.87
3.28
3.06
2.89
2.80
2.56
2.50
2.26
- - - %APC (Observed by Team)
——— %APC (Claimed by NTPC)
···· ··· %APC (Normative)

Observation of parameters during visit to Kawas for partial loading Operation on 8th & 9th March 2018 for the purpose of Compensation Mechanism

Test Witnessed by

1. WRPC
2. MSEDCL
3. GUVNL
4. MPPMCL
5. NTPC

Observation of parameters during visit to Kawas for partial loading Operation on 08.03.2018 for the purpose of Compensation Mechanism

FULL Module CHECK 08.03.2018 with GT1A,GT1B & ST1C

Loading %	Load set point time	Reading Block starting Time	Gen MW (as per C&I Transducers)	Export MW (as per SEM Meters)	GAIL Gas (SCM)	GCV(Kcal/scm)	Colony (MW)	Variav (MW)	Heat rate(actual)	APC% (actual)	Ambient Temp(Celcius)
100	11:45	12:30	317.08	309.84	65836	9520.4502	0.239	0.5028	1976.72	2.37	33.55
85	13:00	14:00	265.66	259.656	56510	9522.2138	0.215	0.5028	2025.51	2.37	35.84
75	14:30	15:30	241.78	236.208	52360	9517.5537	0.21	0.5017	2061.15	2.42	36.03
65	16:00	17:00	214.63	207.192	48054	9528.1445	0.185	0.5017	2133.28	3.61	37.38
55	17:30	18:30	182.95	175.728	43355	9546.1523	0.24	0.4984	2262.23	4.09	29.4

J.K. RATHOD, S.E.
WRPC

8/3/2018
(SANDEEP CUPTA)
AGM(OS-GT&REC)
NTPC

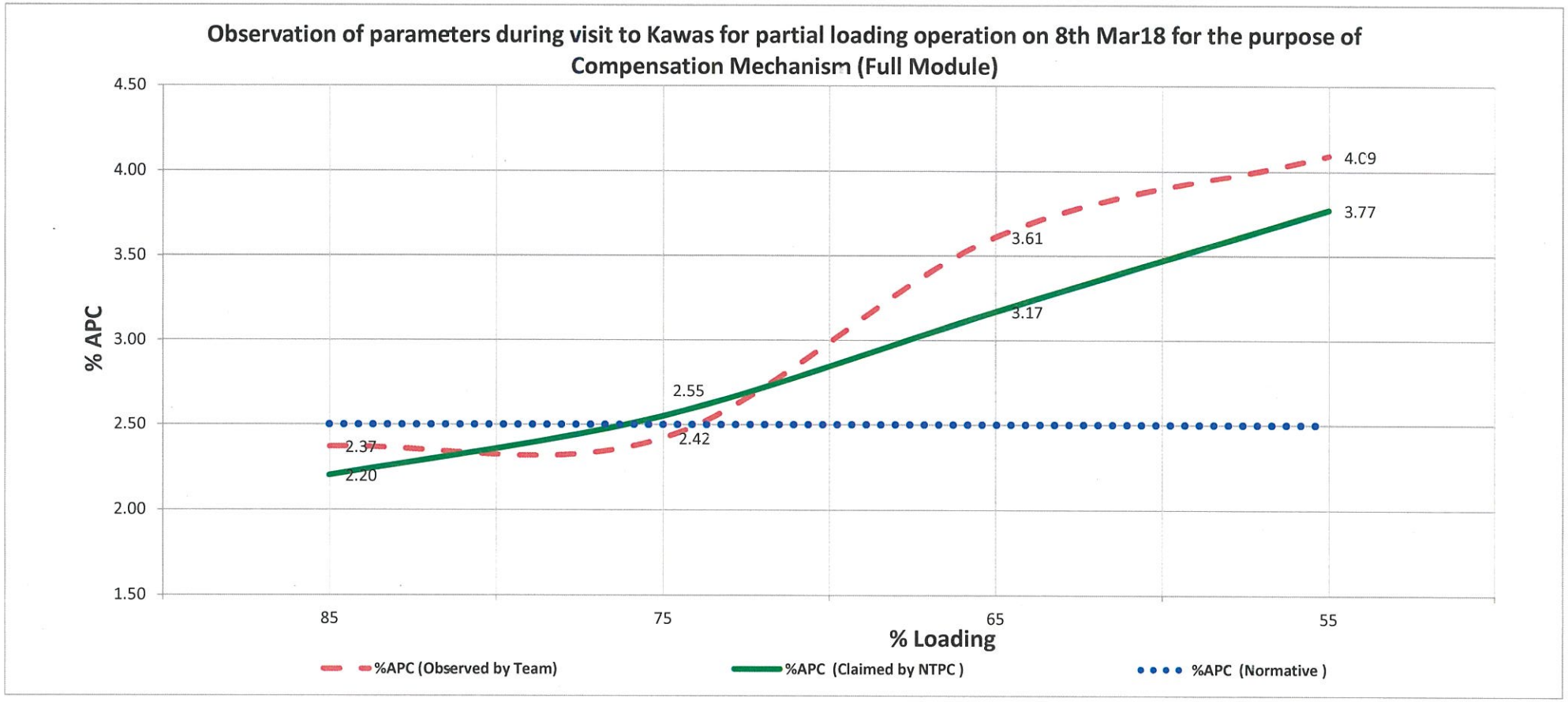
R.V. Saxena
AGM (Comml)
MPPMCL

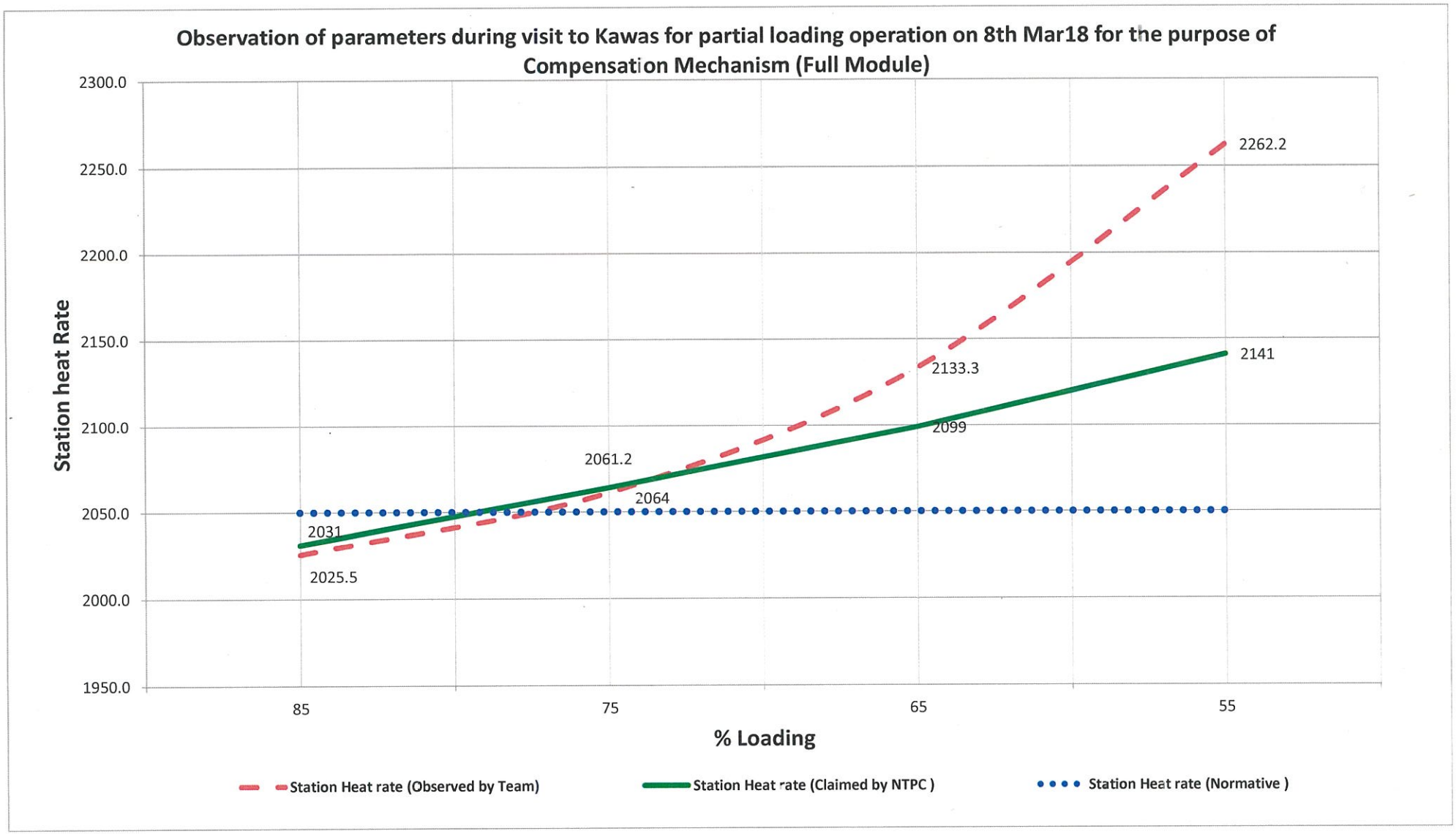
K.H. Chudasama
GUVNL

S.S. Patil
EE(Elect)
08.03.18
MSEDCL

Observation of parameters during visit to Kawas for partial loading operation on 8th Mar18 for the purpose of Compensation Mechanism (Full Module)			
% Loading	Station Heat rate (Observed by Team)	Station Heat rate (Claimed by NTPC)	Station Heat rate (Normative)
85	2025.5	2031	2050
75	2061.2	2064	2050
65	2133.3	2099	2050
55	2262.2	2141	2050

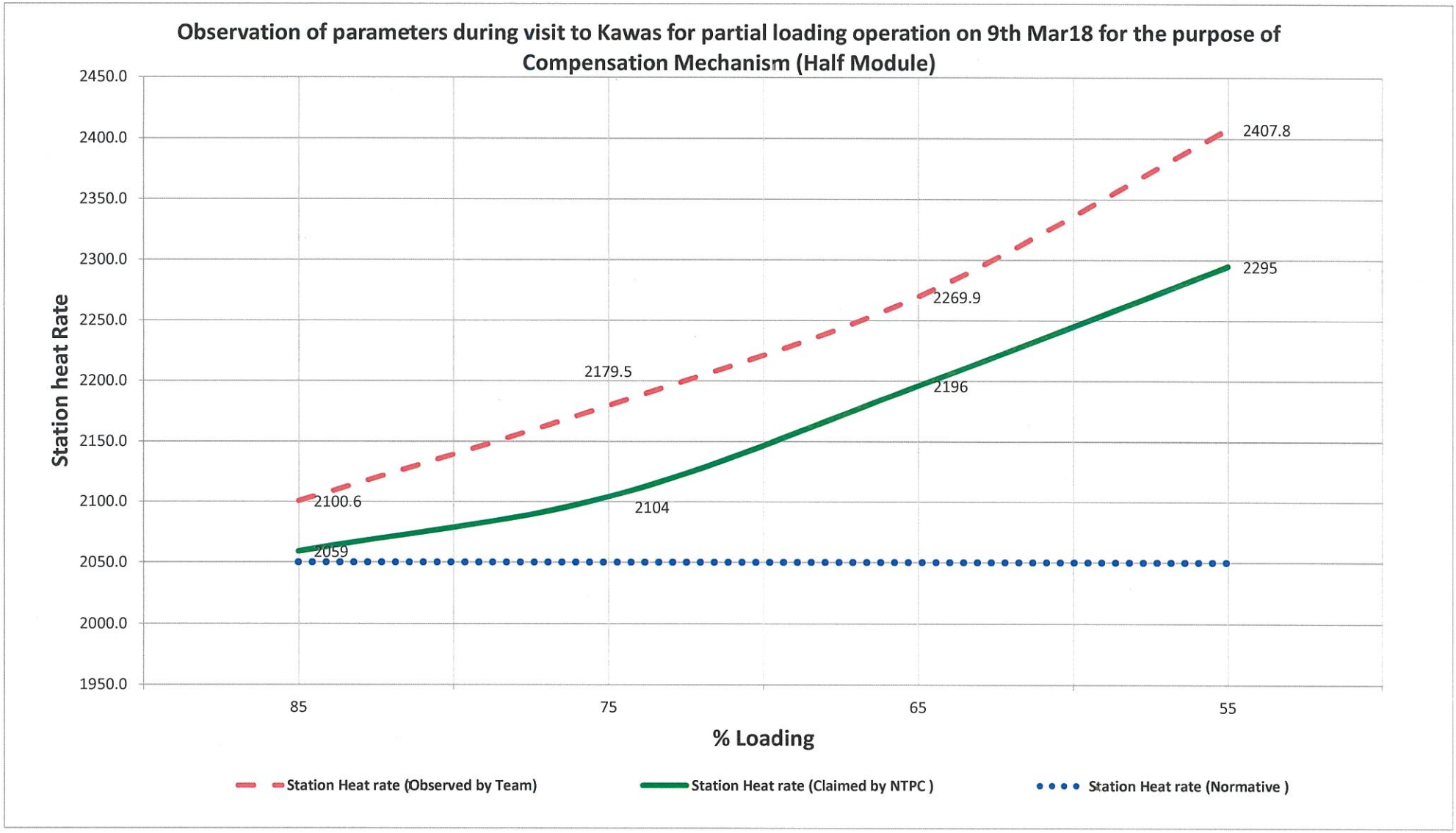
% Loading	%APC (Observed by Team)	%APC (Claimed by NTPC)	%APC (Normative)
85	2.37	2.20	2.50
75	2.42	2.55	2.50
65	3.61	3.17	2.50
55	4.09	3.77	2.50

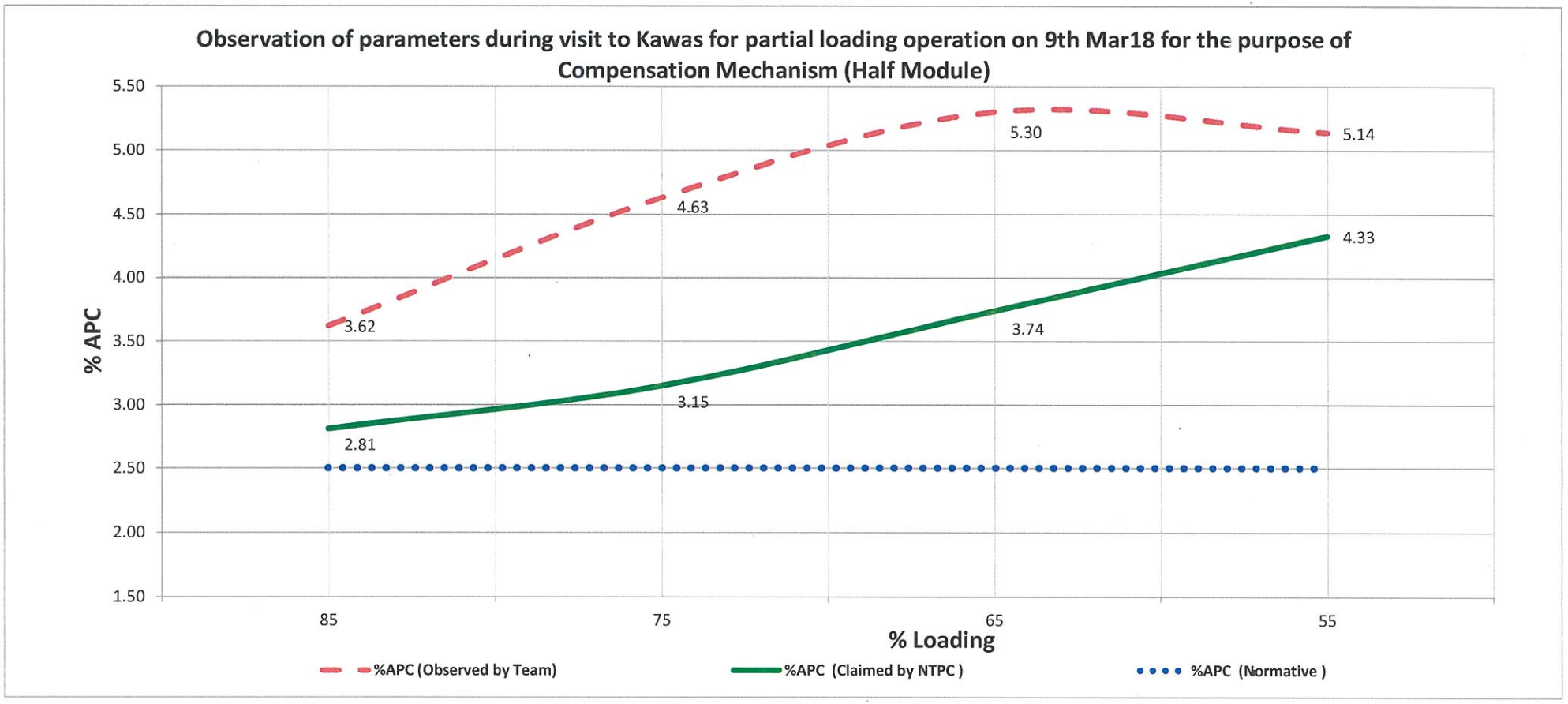

Observation of parameters during visit to Kawas for partial loading operation on 8th Mar18 for the purpose of Compensation Mechanism (Full Module)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
% APC
85
75
65
55
% Loading
4.09
3.77
3.61
3.17
2.55
2.42
2.37
2.20
%APC (Observed by Team)
%APC (Claimed by NTPC)
%APC (Normative)


Observation of parameters during visit to Kawas for partial loading operation on 8th Mar18 for the purpose of Compensation Mechanism (Full Module)
Station heat Rate
2300.0
2250.0
2200.0
2150.0
2100.0
2050.0
2000.0
1950.0
85
75
65
55
% Loading
2262.2
2133.3
2141
2099
2061.2
2064
2031
2025.5
Station Heat rate (Observed by Team)
Station Heat rate (Claimed by NTPC)
Station Heat rate (Normative)

Observation of parameters during visit to Kawas for partial loading operation on 9th Mar18 for the purpose of Compensation Mechanism (Half Module)			
% Loading	Station Heat rate (Observed by Team)	Station Heat rate (Claimed by NTPC)	Station Heat rate (Normative)
85	2100.6	2059	2050
75	2179.5	2104	2050
65	2269.9	2196	2050
55	2407.8	2295	2050

% Loading	%APC (Observed by Team)	%APC (Claimed by NTPC)	%APC (Normative)
85	3.62	2.81	2.50
75	4.63	3.15	2.50
65	5.30	3.74	2.50
55	5.14	4.33	2.50


Observation of parameters during visit to Kawas for partial loading operation on 9th Mar18 for the purpose of Compensation Mechanism (Half Module)
Station heat Rate
2450.0
2400.0
2350.0
2300.0
2250.0
2200.0
2150.0
2100.0
2050.0
2000.0
1950.0
2407.8
2295
2269.9
2179.5
2196
2100.6
2104
2059
85
75
65
55
% Loading
Station Heat rate (Observed by Team)
Station Heat rate (Claimed by NTPC)
Station Heat rate (Normative)


Observation of parameters during visit to Kawas for partial loading operation on 9th Mar18 for the purpose of Compensation Mechanism (Half Module)
% APC
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
85
75
65
55
% Loading
3.62
4.63
5.30
5.14
2.81
3.15
3.74
4.33
%APC (Observed by Team)
%APC (Claimed by NTPC)
%APC (Normative)

ANNEXURE D.9-3

GUJARAT URJA VIKAS NIGAM LIMITED

Sardar Patel Vidyut Bhavan, Race Course, Vadodara 390007

Tele. No. : 0265-2310582 to 86 (PBX) Fax : 0265-2344543, 2337918	Ref. No.: GUVNL : GM (Comm.): 474 Date : 23/04/2018

To
Member Secretary
Western Region Power Committee
F-3, MIDC Area
Andheri (East)
Mumbai 400 093 Fax no: 022 - 2837 0193

Sub: Compensation to NTPC for partial loading of Kawas and Jhanor stations.

Sir,

This has reference to the discussions regarding partial loading compensation for Kawas and Gandhar Gas Power Plant during the 77th Commercial Committee Meeting held on 20.04.2018. The representatives of Maharashtra, Madhya Pradesh and Gujarat were of the view that NTPC is not having the characteristic curve provided by manufacturer as stated by Hon'ble CERC at Clause 4.1 (v) of Annexure-II of CERC order dated 5.05.2017. Moreover the tests for varying load conditions conducted at Kawas and Jhanor power plants were only for 1 day. Therefore, NTPC may approach Hon'ble CERC with the test results & data and seek approval for the compensation mechanism for the gas based stations. Further, WRPC sought views from beneficiaries regarding grant of interim relief to NTPC.

In this regard it is to state that the matter was discussed at length, GUVNL is of the view that interim payment cannot be paid to NTPC as the matter needs prudence check and approval by Hon'ble CERC.

Thanking You,

Yours faithfully,

(K. P. Jangid)
General Manager (Comm.)

MAHAVITARAN
Maharashtra State Electricity Distribution Co Ltd

Maharashtra State Electricity Distribution Co. Ltd.
Prakashgad, Plot No.G-9, Bandra (East), Mumbai – 400 051
☎ (P) 26476843, (O) 26474211 / 26472131, Fax- 26475012, Website: www.mahadiscom.in

Ref. No: MC 9724 DATE: 27 APR 2018

To,
Superintending Engineer (Comml.)
Western Regional Power Committee
F-3, MIDC Area, Andheri (East), Mumbai - 400 093

Subject: MSEDCL' say on NTPC's Agenda point raised in 77th CCM meeting regarding Partial Loading compensation for Kawas and Gandhar Gas Power Plant.

Reference:
1. No. : WRPC/Comml.-I/CCM/Agenda/2018I 3792- Date: 16.04.2018
2. No. WRPC/Comml-I/corr I 2017 I 634- Date: 22.1.2018
3. Discussion in CCM Meeting Dated 20.04.2018

Dear Sir,

This is in connection with issue raised by NTPC in 77th CCM meeting held on 20.04.2018 at WRPC. The NTPC requested to release of accounts for partial loading compensation for gas stations in WR. In this regard, forum requested to all beneficiaries to submit its say. MSEDCL's say on this issue is as under:

Hon'ble CERC vide notification No. L-1/18/2010-CERC dated 06.04.2016 issued 4th amendment in IEGC. The relevant clause of the amendment is as follows -

"In case of gas based Central Generating Station or inter-State Generating Station, compensation shall be decided based on the characteristic curve provided by the manufacturer *and after prudence check of the actual operating parameters of Station Heat Rate, Auxiliary Energy Consumption, etc."*

Further Hon'ble CERC in its order in case No. No. L-1/219/2017-CERC issued on 5th May 2017 has given approval of the detailed procedure for taking unit(s) under Reserve Shut Down and Mechanism for Compensation for Degradation of Heat Rate, Aux Compensation and Secondary Fuel Consumption, due to Part Load Operation and Multiple Start/Stop of Units . In this regard, in respect of compensation to Gas based Central Generating Station or inter-State Generating Station, it is mentioned as under :

"For Gas based generating stations, degraded SHR and AEC shall be decided based

on the characteristic curve provided by manufacturer. If the characteristic curve is not provided for the entire range of the operating range i.e. up to 55% of module rating, then the extrapolation of the curve provided by the manufacturer shall be done to extend the curve up to 55% of module loading. "

However NTPC in its meeting dated 15.12.2017 informed WRPC that OEMs have provided Heat Balance Diagrams (HBD) in respect of new machines for 100% and 80% loading. The characteristic curves of Kawas and Gandhar have not been provided by OEM for degraded SHR and APC. NTPC further informed that as SHR and APC figures are not given by OEM for Full module/ half module operation for any of the gas stations, the same has been worked out on "Actuals" as is recorded in real time operation over the years. Both HBD and degradation curves are to be interpreted together to arrive at SHR and APC figures at various loadings.

It is also observed regarding SHR & APC claimed by NTPC that correction facto has been applied on value of observed. Hence it can be seen that value of SHR & APC are not taken as per guidelines issued by Hon'ble Commission i.e from characteristic curves provided by OEM. Hence it is requested that NTPC should approach Hon'ble commission for deciding compensation mechanism for part loading of Gas based station. Further as regards to interim arrangement of providing compensation to gas based station till decision of Hon'ble commission is concerned in this matter , it is respectfully submitted that compensation mechanism shall worked out only after Hon'ble Commission issue order on NTPC's petition in view of above cited issues regarding compensation claimed by NTPC for gas based Thermal station.

It is requested to record above say in minutes of meeting of CCM held on 20.04.2018.

With Regards

Yours Faithfully

KBharat

Chief Engineer (Power Purchase)

Copy S.w.r.to:

Director (Commercial), MSEDCL, Mumbai

एनटीपीसी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)

पश्चिम क्षेत्र-१ मुख्यालय
WESTERN REGION -1 HEADQUARTER

Ref No: WR-1HQ/Comml/WRPC/

To,
Member Secretary,
Western Region Power Committee,
F-3, MIDC, Marol, Andheri (E),
Mumbai-400093

Date: 27.04.2018

Sub: SUBMISSION OF COMMENTS AS PER DISCUSSIONS in CCM meeting on 20.04.2018 ON PARTIAL LOADING COMPENSATION FOR GAS STATIONS

Dear Sir,

Please refer to commercial committee meeting held on 20.04.2018 at Mumbai. It was decided that NTPC and all stake holders shall submit the comments on the partial load compensation for Gas Stations within a week.

In line with above NTPC comments on above subject are enclosed for necessary action at your end, as per the enclosure.

Regards,

Yours sincerely,
Anil Nautiyal 27.04.2018
(Anil Nautiyal)
GM (Comml)

Encl: Comments

समृद्धि वेंचर पार्क, द्वितीय तल, एम.आई.डी.सी., मरोल, अंधेरी (पूर्व), मुंबई - 400 093. टेलिफोन - 022-2831 0213 / 15 फैक्स : 91-022-2825 9331
Samruddhi Venture Park, 2nd Floor, MIDC, Marol, Andheri (E), Mumbai - 400 093. Tel: 022-2831 0213 / 15 Fax : 91-022-2825 9331
पंजीकृत कार्यालय : एनटीपीसी भवन,स्कोप काम्पलैक्स, 7 इन्स्टीट्यूशनल एरिया, लोधी रोड, नई दिल्ली - 110 003.
कॉर्पोरेट पहचान संख्या : L40101DL1975GOI007966 टेलि : 011-2436 0100, फैक्स : 011- 2436 1018 ईमेल ntpccc@ntpc.co.in वेबसाईट : www.ntpc.co.in
Registered Office : NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodi Road, New Delhi-110 003
CORPORATE IDENTIFICATION NUMBER : L40101DL1975GOI007966 Tel. 011-2436 0100, Fax:011- 24361018 Email : ntpccc@ntpc.co.in Website : www.ntpc.co.in

NTPC Comments on Implementation of Compensation Mechanism in Western Region

- In regards to the compensation mechanism for Gas based Generating stations, the Clause 6.3(B) of IEGC 4th amendment regulations provides as under:

Quote

"3(iv) In case of gas based Central Generating Station or inter-State Generating Station, compensation shall be decided based on the characteristic curve provided by the manufacturer and after prudence check of the actual operating parameters of Station Heat Rate, Auxiliary Consumption, etc."

(7) The RPCs shall work out a mechanism for compensation for station heat rate and auxiliary energy consumption for low unit loading on monthly basis in terms of energy charges and compensation for secondary fuel oil consumption over and above the norm of 0.5 ml/kWH for additional start- ups in excess of 7 start –ups, in consultation with generators and beneficiaries at RPC forum and its sharing by the beneficiaries."

Unquote

- Subsequently, CERC vide its order dated 05.05.2017 approved the detailed procedure for taking unit(s) under Reserve Shut Down and Mechanism for Compensation for Degradation of Heat Rate, Aux Compensation and Secondary Fuel Consumption, due to Part Load Operation and Multiple Start/Stop of Units, making it effective from 15.5.2017. As per clause 4.1(v) in Appendix-II of this order, the mechanism of compensation for Gas stations has been provided as below:

Quote

"For Gas based generating stations, degraded SHR and AEC shall be decided based on the characteristic curve provided by manufacturer. If the characteristic curve is not provided for the entire range of the operating range i.e. up to 55% of module rating, then the extrapolation of the curve provided by the manufacturer shall be done to extend the curve up to 55% of module loading."

Unquote

- In view of the above regulatory provisions, NTPC submitted the compensation data in line with characteristic curves for degradation of Station Heat Rate (SHR) and Auxiliary energy Consumption (AEC) at different loading, as supplied by Original Equipment Manufacturer (OEM) for Jhanor Gandhar GPS and Kawas GPS.

- NTPC informed WRPC on 15/12/2017 that OEMs have provided Heat Balance Diagrams (HBD) in respect of new machines for 100% and 80% loading along with performance degradation curves for Kawas and Gandhar. These machines have now already run for more than 20 years.

- It was also explained that since SHR and APC figures are not given by OEM for half module or part module operation for any of the gas stations, the same has been worked out on "Actuals" based on parameters recorded in real time operation over the years. This was done as per discussions with NRPC while finalizing the methodology for working out Compensation Procedure for NTPC Gas Stations of Northern Region. Both HBD and degradation curves are to be interpreted together to arrive at SHR and APC figures at various loadings. Accordingly, tables for part load compensations of SHR and APC were submitted.

- NTPC has provided the degraded curves for SHR and APC based on HBD and actual observed values pertaining to Kawas and Gandhar to WRPC for preparation of compensation statement. Similar documents are already submitted to NRPC w.r.t. NR stations of NTPC.

- Subsequently, for the verification of degradation parameters submitted by NTPC, a committee comprising the representatives of RPC, NTPC, MP, Maharashtra and Gujarat was constituted by WRPC to visit both the Gas stations and study the degradation in SHR and AEC on different loading of the machines. The committee visited Gandhar GPS on 8th & 9th March'18 and Kawas GPS on 15th & 16th of March'18. On the basis of this study, the observed data was superimposed on the characteristic curves submitted by NTPC for both the stations. The curves prepared by committee comprising the representatives of RPC, NTPC, MP, Maharashtra and Gujarat clearly show that the values/curves prepared by NTPC are better than the values/curve prepared by the committee. The report of the committee has also been circulated by WRPC to the beneficiaries.

- Based on this study by the committee, NTPC approached WRPC vide letter dated 26.3.2018 for issuance of compensation account pertaining to Gandhar and Kawas GPS.

- The agenda was tabled by WRPC in 77th Commercial Committee Meeting held in Mumbai on 20th April 2018. During the discussion, NTPC requested to adopt & agree upon any of the curves available with the forum. It was also requested to the forum to roll out the mechanism and agree upon the interim payment for the compensation pertaining to these stations, subject to the outcome of the matter as per the provisions at Para-5 of the Hon'ble Commission's order dated 5th May 2017 in the matter of approval of detailed procedure for Reserve Shut-down and mechanism for compensation for degradation in SHR, AEC & SFC, due to part Load operations and multiple Start/stop of units.

- The forum may further appreciate that NTPC gas stations are deprived of getting any compensation due to low part load operations from the date of 4th Amendment in Indian electricity Grid Code Regulations, wherein the

technical minimum loading has been defined @ 55% of Installed capacity of the unit/machine.

- Accordingly, it is requested that all the constituents may agree upon for adopting either of the characteristic curves, as proposed by NTPC or as prepared by the committee and also to start interim payment of the compensation to NTPC, which is due since 15th of May 2017.

ANNEXURE- D.10

Declaration of Transmission elements into commercial operation by ISTS licensees

PGCIL vide email dated 11.04.18 has intimated the list of transmission elements into commercial operation for the period from 01.05.2017 to 22.03.2018.

Sl. No.	Asset	Project	DOCO
1	Solapur(POWERGRID)-Kolhapur(MSETCL)	Establishment of Fibre Optic Communication System in Western Region under Master Communication Plan	01-May-17
2	Kolhapur(MSETCL)-Kolhapur(POWERGRID)		
3	Seoni(POWERGRID)-Bina(POWERGRID)(Part Line)		
4	Betul(POWERGRID)-Khandwa(POWERGRID)	Establishment of Fibre Optic Communication System in Western Region under Master Communication Plan(Additional Requirement)	01-May-17
5	Mauda(NTPC)-Wardha (POWERGRID)	Establishment of Fibre Optic Communication System in Western Region under Master Communication Plan (Additional Requirement)	01-Sep-17
6	Wardha (POWERGRID)-Aurangabad (POWERGRID)	Establishment of Fibre Optic Communication System in Western Region under Master Communication Plan	01-Sep-17
7	Mauda (NTPC)-Betul (POWERGRID)		
8	Installation of 1x250MVA, 400/220/33kV ICT-I at Bhadrawati HVDC Back-to-Back station	Installation of Transformer &Procurement of Spare Converter Transformer for B'wati HVDC BTB Station	08-Sep-17
9	Pole-II of ±800kV, Champa & Kurukshetra HVDC Terminals alongwith associated bays .(1x1500MW HVDC Terminals at Champa & Kurukshetra)	WR-NR HVDC Interconnector for IPP Projects in Chhattisgarh	16-Sep-17
10	765kV 2nos.330MVAr Switchable Line Reactors charged as Bus Reactors alongwith associated bays at Dharamjaigarh 765/400kV for 765kV D/c Jharsuguda-Dharamjaigarh Line-2	Common System Associated With East Coast Energy Pvt Limited and NCC Power Projects Limited LTOA Generation Projects in	21-Sep-17

		Srikakulam Area Part-B	
11	Solapur(NTPC)-Solapur(Powerrid) 400kV D/c (Quad) line alongwith associated bays at Solapur(PG)	Transmission System for Solapur STPP(2x660MW) Part-A	01-Oct-17
12	LILO of both circuits of Mundra UMPP – Limbdi 400kV D/C (triple snowbird) line along with 4 nos. 400kV line bays at Bachau SS.	Transmission System Strengthening associated with Mundra UMPP (Part A)	30-Oct-17
13	500 MVA, 400/220 kV ICT (ICT # III) along with associated bays and 2 nos. 220 kV line bays at Satna SS (220 kV PGCIL-Chhatarpur line & 220 kV Satna –PGCIL IV line (MPPTCL))	Western Region System Strengthening Scheme – XVI	27-Nov-17
14	400 kV Birsinghpur - Damoh	Establishment of Fibre Optic Communication System under Master Communication Plan in Western Region	30-Nov-17
15	400 kV LILO of Itarsi - Dhule at Khandwa		
16	400 kV Dehgam - Ranchodpura		
17	400kV Vindhyachal NTPC (Stg IV) – Vindhyachal Pooling		
18	400 kV LILO of Navsari-Boisar at Magarwada		
19	400 kV LILO of Vapi-Kudus at Kala		
20	400 kV Vindhyachal NTPC (Stg V) – Vindhyachal NTPC (Stg I)		
21	400 kV Mundra-Bachau		
22	400kV Ranchhodpur – Bachau		
23	765kV Gwalior – Agra		
24	765 kV Bina – Gwalior		
25	400kV Navsari-Magarwada		
26	220 kV Gandhar-Haldarwa		
27	220kV Kawas-Haldarwa		
28	220kV Damoh (PG)- Damoh (MPPTCL)		
29	220kV Satna (PG) – Satna (MPPTCL)		
30	Part of 400kV D/c Aurangabad-Boisar TL from 313/0 to 332/0 (D/C portion strung on M/c twin-quad portion comprising of 400kV D/c Aurangabad-Boisar and 400kV D/c Navasari-Boisar)	Transmission System Associated with Mundra Ultra Mega Power Project (UMPP)	29-Dec-17
31	Part of 400kV D/c Aurangabad-Boisar TL from Aurangabad SS to 313/0 on D/c Towers and fr om 332/0 to Boisar SS(on Multi Circuit towers)	Transmission system strengthening in western part of WR for IPP generation projects in Chattisgarh	29-Dec-17

32	• 765kV D/C Aurangabad (POWERGRID)-Padghe (POWERGRID) Transmission Line along with associated bays and 2x240MVAr Line Reactor at Padghe (POWERGRID) GIS Station. • 400kV D/C Padghe(POWERGRID)-Padghe/Kudus(MSETCL) Transmission line along with associated bays. • 765kV, 240MVAr Bus Reactor along with associated bays at Padghe (POWERGRID) GIS Station. • 765/400kV 1500MVA ICT-I & ICT-2 along with associated bays at Padghe (POWERGRID) GIS	CG-IPP-Set-E (System strengthening in North/West part of WR for IPP in Chhattisgarh)	31-Dec-17
33	Part of 400 kV D/C Vapi - Kudus T/L (*) from 45A/0 to 69/0 (D/C portion strung on M/C Twin-Twin portion comprising of 400 kV D/C Navsari-Boisar and 400 kV D/C Vapi-Kudus) and Part of 400 kV D/C Vapi - Kudus T/L (*) from 69/0 - 104/0	Transmission System Associated with Mundra Ultra Mega Power Project (UMPP)	31-Dec-17
34	Part of 400 kV D/C Vapi - Kudus TL (*) from 104/0 to Kudus SS along with associated bays at Kudus SS (MSETCL) .	Western Region System Strengthening Scheme-V	31-Dec-17
35	Aurangabad (POWERGRID)-Padghe (POWERGRID).	Establishment of Fibre Optic Communication System in Western Region under Master Communication Plan	01-Mar-18
36	Wardha(POWERGRID)-Pandurna (Repeater)		
37	63 MVAr switchable line reactor along with 500 Ohms NGR at Rajgarh (POWERGRID) end of Khargone TPS – Rajgarh (POWERGRID) 400 kV line (formed after LILO of one circuit of Khandwa – Rajgarh 400 kV D/C line at Khargone TPS, being implemented under TBCB)	POWERGRID works associated with Transmission System Strengthening in WR associated with Khargone TPS	01-Mar-18
38	2 nos. 400 kV line bays at 765/400 kV Vindhyachal Pooling Station of POWERGRID (for Vindhyachal (IV/V) STPP switchyard (NTPC) – Vindhyachal Pooling Station (POWERGRID) 400 kV 2nd D/C (quad) line)	POWERGRID Works associated with System Strengthening for IPPs in Chattisgarh and other generation projects in Western Region	18-Mar-18
39	234MVA 3 No. Spare Converter Transformer(3 winding) at Bhadrawati HVDC	Installation of Transformer &Procurement of Spare Converter Transformer for B'wati HVDC BTB Station	22-Mar-18

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Annexure- D.11

Status of Letter of credit(LC) opening against Deviation charges liability for 2018-19.

Sl No.	WR Entity who have to open LC	No of weeks in which UI payable	Average payable weekly UI (Rs in lakhs)	LC Amount (Rs in lakhs)	Status of LC opening
1	CSPDCL	24	122	134	Not yet opened
2	MP Power Management Co. Ltd.	31	294	323	Not yet opened
3	MSLDC UI Settlement account	44	322	354	Not yet opened
4	Goa	36	56	62	Not yet opened
5	D&D	52	105	116	Not yet opened
6	D&NH	42	112	123	Not yet opened
7	JINDAL POWER LIMITED	7	36	40	Not yet opened
8	NSPCL	13	9	9	Not yet opened
9	ACBIL	28	25	27	Not yet opened
10	RGPPL	16	42	46	Not yet opened
11	BALCO	46	88	96	Not yet opened
12	CGPL UMPP MUNDRA	47	58	64	Not yet opened
13	DCPP JSPL	17	25	27	Not yet opened
14	Essar Power MP ltd	23	34	37	Not yet opened
15	KSK Mahanadi	13	14	16	Not yet opened
16	GMR Warora Energy ltd	15	16	18	Not yet opened
17	KORBA WEST POWER Corp. LTD	52	7	8	Not yet opened
18	D. B.Power	8	55	60	Not yet opened
19	JAYPEE NIGRI TPP	21	32	35	Not yet opened
20	Essar Steel Ltd	52	107	117	Not yet opened
21	DGEN (Torrent Energy Limited)	52	6	7	Not yet opened
22	GMR Chhattisgarh Energy ltd	39	17	19	Not yet opened
23	Dhariwal Infrastructure Ltd.	12	7	8	Not yet opened
24	RKM POWERGEN	34	20	22	Not yet opened
25	MB POWER	23	38	41	Not yet opened
26	JHABUA POWER	45	29	31	Not yet opened
27	SKS POWER	36	24	26	Not yet opened
28	TRN Energy ltd	16	11	12	Not yet opened
29	BARC	26	9	10	Not yet opened
30	KAPS 3&4(INFIRM)	52	2	2	Not yet opened

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Annexure-D.12

Status of Deviation Charges Payable/Receivable to WR Deviation Pool Fund Account

Last updated on 21/05/18

	Total dues	*Payments overdue*
	Principal	*Principal*
CSPDCL		
MP Power Management Co. Ltd.		
GETCO LTD.		
MSLDC UI Settlement account		
Goa		
D&D	26,88,054	
D&NH		
NTPC	-11,72,30,236	
NR		
SR		
ER	1,00,32,97,012	40,11,09,379
JINDAL POWER LIMITED	81,55,840	80,71,470
HVDC Vin.		
HVDC Bha.		
LancoAmarkantak Power Ltd	-21,68,065	
NSPCL	-34,74,370	
ACBIL	-49,19,898	
RGPPL	-2,33,17,998	
BALCO	-4,75,759	
CGPL UMPP MUNDRA	34,33,249	
DCPP JSPL		
Essar Power MP Ltd	-13,75,130	7,03,147
SASAN Power Limited		
KSK Mahanadi	37,87,399	80,27,295
VandanaVidyut Ltd	10,00,23,191	10,00,23,191
EMCO Energy ltd.		
Korba West Power Co.Ltd	47,50,190	18,15,904
D. B.Power		
JaypeeNigrie TPP		
Essar Steel India Ltd	76,58,836	4,00,76,197

DGEN (Torrent Energy Limited)	-92,420	
GMR Chhattisgarh Energy Ltd	**56,95,449**	**46,52,576**
Dhariwal Infrastructure Ltd.		
RKM Powergen Pvt ltd.	-91,528	**70,43,771**
MB Power (Madhya Pradesh) Ltd.	**60,10,072**	
Jhabua Power Ltd	**1,12,655**	**29,32,614**
SKS POWER GENERATION (CHHATTISGARH) LTD	**59**	
TRN Energy Ltd.	**19,00,557**	
BARC (PAO, PREFRE, Tarapur)		
HVDC CHAMPA		
KAPS 3&4(INFIRM)		

Note : This includes :

1. DSM Accounts issued up to 05nd week of 2018-19 ie., 23.04.18 TO 29.04.18.

2. DSM Payments received and distributed up to 21.05.18

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Annexure-D-13

Status of Reactive Energy Charges Payable to REC Pool Account

Last updated on 21/05/18

(+) Payable / (-) Receivable from Pool

Amount in Rs.

	Total dues	***Total overdues***
	Principal	***Principal***
GETCO	-2,92,366	-2,92,366
MPMPCL	-2,58,430	-2,58,430
CSPDCL	-1,44,683	-1,44,683
MSEDCL	-18,340	-18,340
Goa	-2,424	-2,424
DD	**8,16,222**	**8,16,222**
DNH	-99,979	-99,979
TOTAL	0	0

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

***When all are receivable, all receivables made zero .**

Note : This includes :

1. **REC Accounts issued upto 05th week of 2018-19 ie.,23.04.2018 to 29.04.2018**
2. **REC Payments received up to 21.05.18**

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Interest calculation statement of Deviation Pool Account for the period from 1st Oct '2016 to 31th March' 2018

The summary of interest payable/receivable for Deviation pool account along with payment status as on 21.05.18 is as given below :

Constituent	*Total Interest Due (Till Sept-16)*	*Total Interest Due (Oct16-Jun17)*	*Total Interest Due (July17-Mar18)*
CSPDCL			**53,188**
MP Power Management Co. Ltd.			-96,393
GETCO LTD.			-7,555
MSLDC UI Settlement account			-6,91,182
Goa			-6,010
D&D			**4,79,661**
D&NH			-56,240
NTPC			-4,88,118
JINDAL POWER LIMITED			**6,650**
HVDC Vin.			-1,581
HVDC Bha.			-4,568
LancoAmarkantak Power Ltd			-74,168
NSPCL			-22,735
ACBIL			-47,247
RGPPL		**2,45,186**	-16,601
BALCO			**1,62,707**
CGPL UMPP MUNDRA		**2,23,202**	**2,35,121**
DCPP JSPL			**27,223**
Essar Power MP Ltd			**5,35,245**
SASAN Power Limited			-5,10,210
KSK Mahanadi			**53,168**
VandanaVidyut Ltd	**2,76,85,720**	**1,06,96,317**	**1,10,42,213**
GMR Warora Energy Ltd.			-94,236
KORBA WEST POWER Co. LTD		**9,49,274**	**14,70,995**
D. B.Power			-22,487
JAYPEE NIGRI TPP			**4,264**
Essar Steel India Ltd		**12,05,437**	**34,26,318**
DGEN (Torrent Energy Limited)			-1,243
GMR Chhattisgarh Energy Ltd			**9,28,130**
Dhariwal Infrastructure Ltd.			**1,022**
RKM Powergen Pvt Ltd.			**4,88,792**
MB Power (Madhya Pradesh) Ltd.			**3,24,309**
Jhabua Power Ltd			**15,39,106**
SKS POWER GENERATION (CHHATTISGARH) LTD			**1,94,240**
TRN Energy Ltd.			-26,016
BARC (PAO, PREFRE, Tarapur)			-4,640
HVDC CHAMPA			**1,223**
KAPS 3&4(INFIRM)		**26**	**2,127**

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

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Annexure-D.15-2

Interest calculation statement of RRAS for the period from 11th Apr '2016 to 31th March'2018

The summary of interest payable/receivable for Deviation pool account along with payment status as on 21.05.18 is as given below:

Constituent	*Total (in Rs.)*
NTPC	-2853990
RGPPL	-401361
CGPL	-200747
NSPCL	-319566
SASAN	158636
Total Rs.	-3617029

Annexure-D.15-13

Interest calculation statement of REC account for the period from 01st Oct '2016 to 31th March'2018

The summary of interest payable/receivable for Deviation pool account along with payment status as on 21.05.18 is as given below:

Constituent	Net interest payable/ receivable (in Rs.)
GETCO LTD.	-3,85,832
MP Power Management Co. Ltd.	-6,46,497
CSPDCL	97,548
MSEDCL	**6,65,931**
Goa	-27,901
D&D	**2,64,506**
D&NH	-53,011
Total Rs.	-85,255

Annexure-D.15-4

Interest calculation statement of Congestion charge Account for the period from 1st Jul'2016 to 31st Mar'2018.

Constituent	Net interest payable/ receivable (in Rs.)
CSPDCL	**-1,05,573**
MP Power Management Co. Ltd.	**12,93,533**
GETCO LTD.	**-1,491**
MSLDC UI Settlement account	**6,87,507**
Goa	**297**
D&D	**-64**
D&NH	**-18,051**
NTPC	**-49,720**
JINDAL POWER LIMITED	**-2,54,620**
HVDC Vin.	**166**

HVDC Bha.	**164**
LancoAmarkantak Power Ltd	**1,23,923**
NSPCL	**86**
ACBIL	**-39,147**
RGPPL	**-36,799**
BALCO	**-52,458**
CGPL UMPP MUNDRA	**-599**
DCPP JSPL	**1,165**
Essar Power MP Ltd	**-10,00,102**
SASAN Power Limited	**2,57,012**
KSK Mahanadi	**82,022**
VandanaVidyut Ltd	**-2,29,471**
GMR Warora	**290**
Korba West Power Co.Ltd	**-9,169**
D. B.Power	**-34,361**
JaypeeNigrie TPP	**-28,249**
Essar Steel India Ltd	**7,727**
DGEN (Torrent Energy Limited)	**320**
GMR Chhattisgarh Energy Ltd	**-68,113**
Dhariwal Infrastructure Ltd.	**3,223**
RKM POWERGRN Pvt Ltd.	**-4,349**
MB POWER LTD	**13,240**
JHABUA POWER LTD	**-35,930**
SKS POWER	**-982**
TRN	**260**
BARC	**-128**
Total Rs.	**5,01,557**

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ANNEXURE- D-17

The updated status of the protection audit observations/recommendations as on December 2017, is as given below;

Protection Audit carried out in Year	State /utility	No of S/s Audited	Obseravations in Category A (Procurement not required)			Obseravations in Category B (Procurement required)			Status FC/PC/ NC	Remarks if any
			No of Deficien-cies Observed	No of Deficien-cies rectified	No of Deficien-cies pending	No of Deficien-cies Observed	No of Deficien-cies rectified	No of Deficienc-ies pending		
	Gujarat								FC	Protection Audit completed before 2012 and all are complied
	MP	12	80	79	1	76	38	38	PC	
	Maharashtra	122	114	114	0	53	53	0	FC	
	Chhattisgarh	13	15	15	1	61	4	57	PC	
	PGCIL									
	NTPC	4	8	8	0	5	5	0	FC	
2012-13	IPPs	1	11	11	0	0	0	0	FC	
	Gujarat									
	MP	25	83	82	1	42	14	28	PC	
	Maharashtra	154	147	146	1	92	85	7	PC	
	Chhattisgarh	5	18	12	6	21	6	15	PC	
	PGCIL									
2013-14	IPPs									
	Gujarat									
	MP	18	94	89	5	55	30	25	PC	
	Maharashtra	107	210	205	5	93	91	2	PC	
	Chhattisgarh	Nil	Nil	Nil	Nil	Nil	Nil	Nil		
	PGCIL									
2014-15	IPPs									
	Gujarat									
	MP	17	79	76	3	35	16	19	PC	
	Maharashtra	120	251	242	9	225	221	4	PC	
	Chhattisgarh	1	1	1	0	1	0	1	PC	
	PGCIL									
2015-16	IPPs									
	Gujarat									
	MP									
	Maharashtra	106	204	161	43	11	3	8	PC	
	Chhattisgarh	Nil	Nil	Nil	Nil	Nil	Nil	Nil		
	PGCIL									
2016-17	IPPs									

ANNEXURE D.18-1

SPS for JP Nigrie, MB Power and for High Loading of Sugen-Vapi S/C, held on 23.08.2017 at WRPC, Mumbai.

A meeting to design SPS for JP Nigrie, MB Power and High Loading of Sugen-Vapi S/C was conducted on 23.8.2017. MS, WRPC welcomed all the participants for the meeting. The List of participants of the meeting is enclosed at **Annexure**.

A. SPS of JP Nigrie and MB Power:

JP Nigrie (2x660MW) is connected to the grid through 400kV JP Nigrie-Satna D/C (Quad conductor, 161 km each). There is no other interconnection to this station. WRLDC informed that system blackout has occurred at JP Nigrie on many occasions under N-1 contingency due to sudden high loading on the parallel circuit followed by power swing and low frequency oscillation. Also very high current was observed when one circuit is out and other circuit is under A/R and the relay has detected and tripped the line for power swing. Therefore SPS was suggested to take care of N-1 contingency of JP Nigrie-Satna ckt.

MB Power (2x600MW) is connected to the grid through 400kV MB Power-Jabalpur PS D/C (Triple snowbird, 256km each). There is no other interconnection to this station.

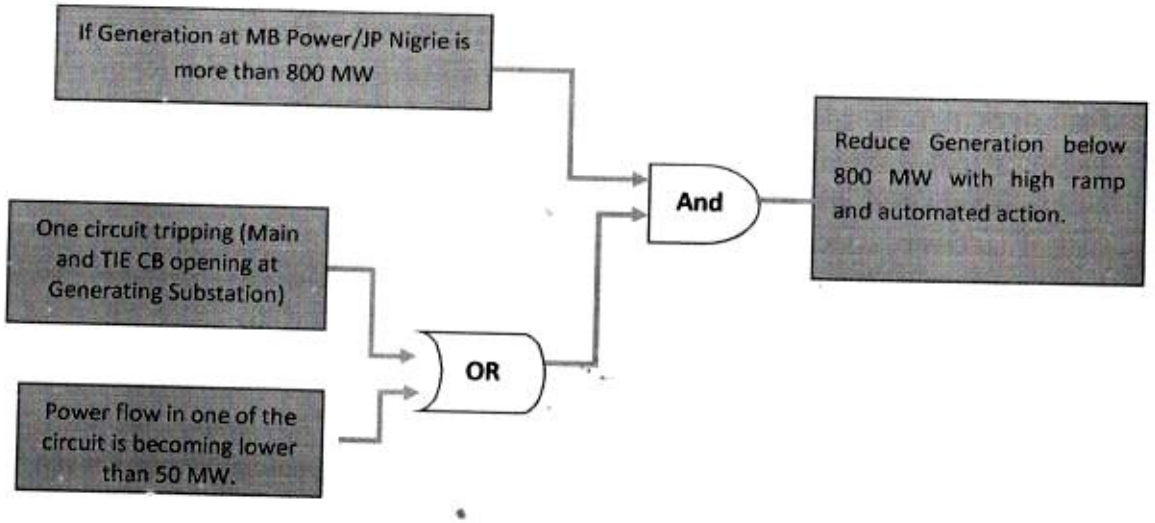
WRLDC informed that on 07/07/17, low frequency oscillations were observed at MB Power generating station under N-1 condition and the oscillation has persisted in Western Region grid for around 5 minutes. The absence of PSS and High angular separation (around 27 degree) were the two issues which has been observed at MB Power on tripping of MB Power-Jab PS one ckt. Further, in case of MB Power also there is high probability of tripping of the line in temporary fault due to power swing detection by relay. Therefore SPS was suggested to take care of N-1 contingency of MB Power-Jab PS ckt.

MB Power was requested to take the PSS into service in consultation with the OEM immediately. MB power representative informed that there were issues of ownership transfers. However they have successfully negotiated with the transferee company of the project and the OEM and by Sept. 2017 the PSS would be tuned and taken into service.

Conditions for SPS at JP Nigrie and MB Power stations:-

1. The SPS would be armed and kept in service whenever the generation at JP Nigrie and MB Power stations is more than 800 MW.
2. Triggering signal would be initiated for SPS action when both Main and Tie breaker position (at Nigrie/MB Power) of any of the line is OPEN for (Satna/Jabalapur PS lines respectively) **OR** line flow on any of the line (Nigrie- Satna /MB Power-Jabalapur PS) becomes less than 50 MW, when the generation is more than 800MW.
3. The generation to be reduced to 800 MW when one ckt is under planned shut down or as suggested by WRLDC. The SPS would be disarmed before opening the line manually. The SPS would be armed immediately after the restoration of line and the generation would be ramped up only after the SPS is armed.
4. The operators at the power station should be able to arm/disarm the SPS based on the above guidelines and the status of SPS must be clearly visible on the control panel.
5. The digital status of SPS arming/disarming signal should also be send to WRLDC.

The logic at both these generating stations which should be implemented by JP Nigrie and MB Power is as follows:



Further, it was decided during the meeting to further explore the possibility of power swing blocking for zone 1 when one line is already out and a temporary single phase fault on the other line.

This issue will be taken in the upcoming PCM in order to decide whether any configuration is available in the relay.

B. SPS for High Loading/Tripping of 400 kV Sugen-Vapi S/C

GETCO representative informed that during the last month, high loading of 400 kV Sugen-Vapi S/C of the order of 650-700MW was observed due the outage of Tarapur Unit 3 and 4, KAPS 1 & 2 and also outage of HVDC Mundra-Mahendragarh. Gujarat SLDC has suggested SPS in case of high loading above 750 MW or tripping of 400 kV Sugen-Vapi Line with generation reduction at Sugen and Load shedding at DD and DNH.

WRLDC informed that following actions in real time are taken to control Sugen-Vapi loading:-

a) Maximising HVDC Chandrapur-Padghe Bipole flow.
b) Advising MSLDC to run generation at Koyna or Ghatghar.
c) Opening of 400 kV Uno Sugen-Pirana (TPL) circuit and GPEC-Jhanor when loading is more than 700 MW which provide a relief of 30-40 MW.

After discussion, the following was decided:-

1. The above issue is temporary in nature and has aroused due to outage of entire generation at TAPS and KAPS.
2. The interim arrangement done with one ckt of 400 kV Jhanor-Navsari and one ckt of 400 kV Ukai-Kosamba to form Jhanor-Kosamba and Ukai-Navsari (Interim arrangement approved in the 36th SCM) may be restored which will relieve the loading on Sugen-Vapi and improves system reliability. The 400 kV Jhanor-Navsari D/C would be parallel path in case of tripping of 400 kV Sugen-vapi circuit and the system would be N-1 secure.
3. Further, in the 499th OCC meeting held on 22.8.17, it was informed by TAPS that their Unit 3 will be restored in Sept 2017 and unit 4 in Oct'17. This will reduce the loading of the present 400 kV Sugen –Vapi circuit to large extent.
4. In addition, in the TRM meeting of WR held on 21.8.17, PGCIL WRTS-1 informed that they will be charging the 400 kV Aurangabad(PG)-Boisar D/C in the Month of Sept'17. These circuits will attenuate the above problem as observed presently.

In view of the above it was decided that presently there is no requirement of SPS for 400 kV Sugen-Vapi circuit. Also, it was suggested that Gujarat will restore the interim arrangement of the 400 kV Jhanor-Navsari one circuit and 400 kV Ukai-Kosamba one circuit after ascertaining that the commissioning of that 400/220 kV Kosamba ICT 4 and any other issue in the down stream network of GETCO.

The meeting ended with thanks to the Chair.

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ANNEXURE-D.18-2

The current SPS operating condition at CGPL is given below:

SN.	Description
1	Condition: If net export is more than 3300 MW ***and*** one ckt of CGPL-Bachhau D/C trips Action: Backing down automatically to bring down the generation to 3100 MW. Further manual backing down of around 200 MW has to be done to bring down the flow of CGPL-Bachhau other ckt to 950 MW.
2	Condition: If net export is more than 3300 MW and if CGPL-Chorania or CGPL-Mansar or one ckt of CGPL-Jetpur D/C trips Action: Backing down automatically to bring down the generation to 3300 MW.
3	Condition: In case of D/C tripping of CGPL-Bachhau, CGPL-Jetpur or CGPL-Mansar S/C and CGPL-Chorania S/C Action: Trip one unit immediately. Unit running at maximum generation to be selected for tripping to get full 800 MW reduction immediately to take care of system stability. (If export is between 3300 -3500 MW then trip one unit & If export exceed 3500 MW then Trip one unit and runback other).
4	Condition: If net export is more than 3300 MW and in case of D/C tripping of Bachhau-Ranchopura Action: Backing down automatically to bring down the generation to 3300 MW.

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CGPL SPS -Revision

WRLDC

Loading Limits of Lines/ICT from CGPL Complex

As per 447th OCC Minutes

- The Loading of Line Emanating from CGPL has been decided as 950 MW.
- It has to be increased in step manner based on experience.
- ***Among Six lines 400 kV CGPL-Bhachau 1 & 2 has operated till 1100 MW.***
- Other four Lines to Chorania and Jetpur has operated up to 900 MW.

PGCIL Vide its e-mail dt. 08-01-18 has updated the loading Limit

- 400 kV CGPL-Jetpur each ckt (Triple Snowbird) – 1200MW
- 400 kV CGPL-Bhachau 1 & 2 each ckt (Triple Snowbird) – 1200MW
- 400 kV CGPL-Bhachau 3 & 4 each ckt(Triple Snowbird) – 1200MW
- 400 kV Bhachau-Chorania and 400 kV Bhachau-Mansar-Chorania each ckt (Triple Snowbird) – 1200MW
- 400 kV Bhachau-Ranchodpura each ckt (Triple Snowbird) – 1200MW
- 400/220 kV 315 MVA Bhachau ICTs – 300MW
- 400 kV Bhachau-Versana each ckt (Twin Moose) – 750MW

Inferences from the Dynamic Study for CGPL Complex

Scenario	Dynamic Study	Load Flow
For All N-1, N-1-1, N-2 Cases System	System is stable	In Few Cases N-2 and N-1-1 cases, Loading of 400 kV Triple Snowbird Lines were exceeding its limit
For N-1 cases on CGPL and Bhachau lines with a 100 ms Fault	System is stable	Loading of lines are within limit
For N-1 cases on CGPL lines with more than 150 ms Fault	System is Not Stable	Loading of lines are within limit
For N-1 cases of Bhachau lines with more than 150 ms Fault	System is Not Stable	Loading of lines are within limit.
For N-4 of CGPL-Bhachau Lines	System is Stable with two units in service.	Angular and voltage instability is not observed if only two units are in service.

During N-1 Contingency of Elements from CGPL and Bhachau

- No Thermal Loading observed on any of the transmission lines from CGPL and Bhachau.
- However in Cases of tripping of 400 kV CGPL-Bhachau one circuit, other parallel circuit loading is increasing and depending on operating condition can go above 1200 MW.
- **Manual reduction by CGPL and WRLDC : To keep CGPL-Bhachau other three circuits within 1200 MW.**
- For each 100 MW generation backing down at CGPL, CGPL-Bhachau ckts loading get relieved by around 25 MW.
- This is the Scenario for Any planned outage/ Forced or emergency outage of lines.

loading of Any CGPL-Bhachau circuits	Reduction at CGPL Generation (MW)
> 1400	600 MW
>1300 and <1400	400 MW
>1200 and <1300	200 MW

This also takes care of 400 kV CGPL-Jetpur D/C tripping

During N-1-1 or N-2 Contingency of 400 kV CGPL-Bhachau two circuits.

- With Two CGPL-Bhachau ckt tripping, Loading on Other two CGPL Bhachau ckts increases up to 1400 MW.
- Fast reduction in Generation MW is desired.
- Past SPS operation : Generation Backing in One unit : 350 MW takes 4 Minute 32 Second.

CGPL Generation	Contingency	Action Plan
> 3500 MW	If CGPL-Bhachau one ckt trip "&" Another CGPL-Bhachau circuit trip within the next four minutes.	Trip One unit of CGPL "Or" Generation Reduction by 600 MW (Fast generation reduction in Two Units within 4 Minutes)
> 3500 MW	If CGPL-Bhachau Two circuits trip simultaneously within 5 Seconds Interval.	Trip One unit of CGPL

During N-3 Contingency of Tripping of 400 kV CGPL-Bhachau three Circuits

CGPL Generation	Contingency	Action Plan
> 3500 MW (All Units in Service)	If CGPL-Bhachau three circuit trips simultaneously.	Trip two units of CGPL with Maximum Generation "AND" Reduce the generation the Generation in One Unit by 300 MW. Generation to be brought to 2200 MW.
> 2800 MW and < 3500 MW	If CGPL-Bhachau three circuit trips simultaneously.	Trip One unit of CGPL with Maximum Generation "AND" Reduce generation in other One Unit to 300 MW. Generation to be brought to 2200 MW.
>2200 MW < 2800 MW	If CGPL-Bhachau three circuit trips simultaneously.	Trip One Unit of CGPL.

During N-4 Contingency of 400 kV CGPL-Bhachau 4 Circuits

- Condition of Blackout of 400 kV Bhachau Bus and all associated elements.
- **Only 400 kV CGPL-Jetpur D/C will be there for evacuation of power from CGPL.**
  - Angular separation will be more than 40 Degrees
  - Voltage at Jetpur will drastically reduce below 300 kV and will cause tripping of loads and voltage collapse.
  - Issue of Load Encroachment in Zone 3.
- **Tripping of Two units at CGPL :**
  - Voltage of Jetpur will be 360 kV and Amreli is 365 kV
  - Angular Separation between CGPL-Jetpur is 43 Degree
- **Tripping of Three units at CGPL :**
  - Voltage of Jetpur will be 391 kV and Amreli is 392 kV
  - Angular Separation between CGPL-Jetpur is 26 Degree

Contd..

CGPL Generation	Contingency	Action Plan
>3500 MW (All Units in Service)	If CGPL-Bhachau four circuit trips simultaneously.	Trip three units of CGPL with Maximum Generation. and Reduce the generation the Generation in One Unit by 300 MW. (Generation to be brought to 1500 MW)
> 2800 MW and < 3500 MW	If CGPL-Bhachau Four circuit trips simultaneously.	Trip One unit of CGPL with Maximum Generation and reduce generation in other One Unit to 300 MW. Generation to be brought to 2200 MW. (Generation to be brought to 1500 MW)
>2200 MW < 2800 MW	If CGPL-Bhachau Four circuit trips simultaneously.	Trip One Unit of CGPL (Generation to be brought to 1500 MW)

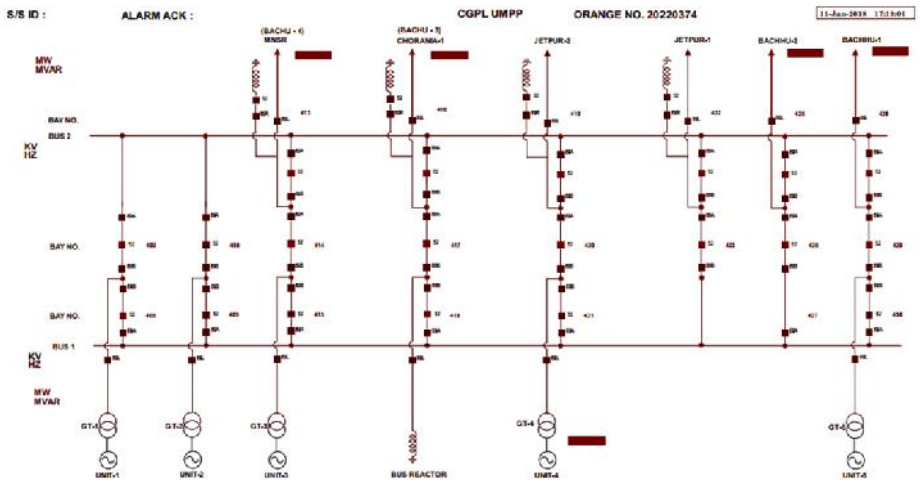
During N-1-1 or N-2 Contingency of 400 kV Bhachau-Ranchodpura D/C and 400 kV Bhachau-Mansar, 400 kV Bhachau-Choronia ckts

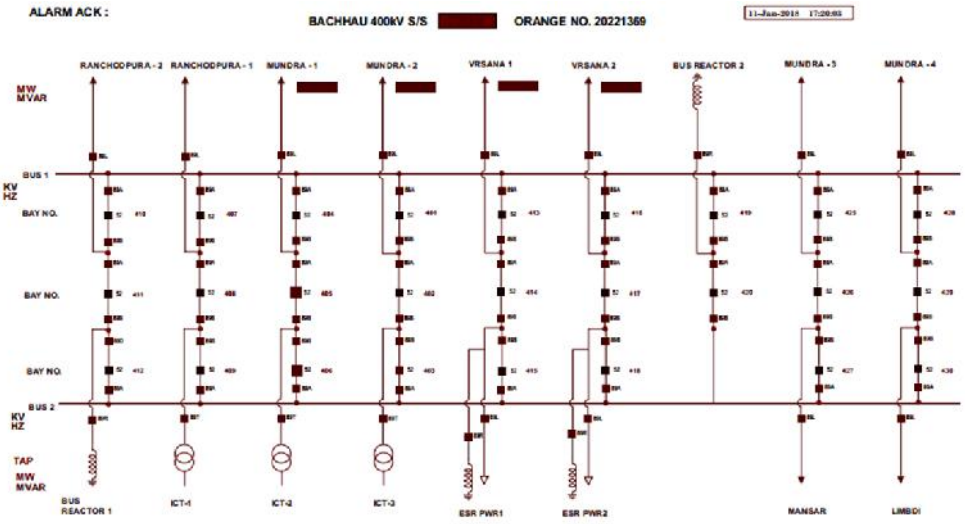
- No Overloading is Observed.
- Voltage and Angle are within Limit.
- However, System is not ready for N-1 of 400/220 kV Bhachua ICT tripping. So immediate load trimming Scheme has to be implemented on these ICTs to take care of overloading under such condition till the new ICT.

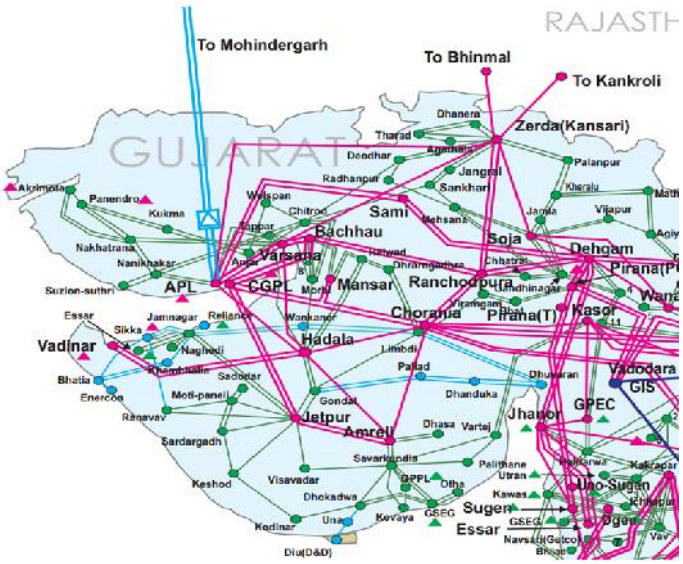
During N-3 Contingency of 400 kV Bhachau-Ranchodpura D/C and 400 kV Bhachau-Mansar, 400 kV Bhachau-Choronia ckts

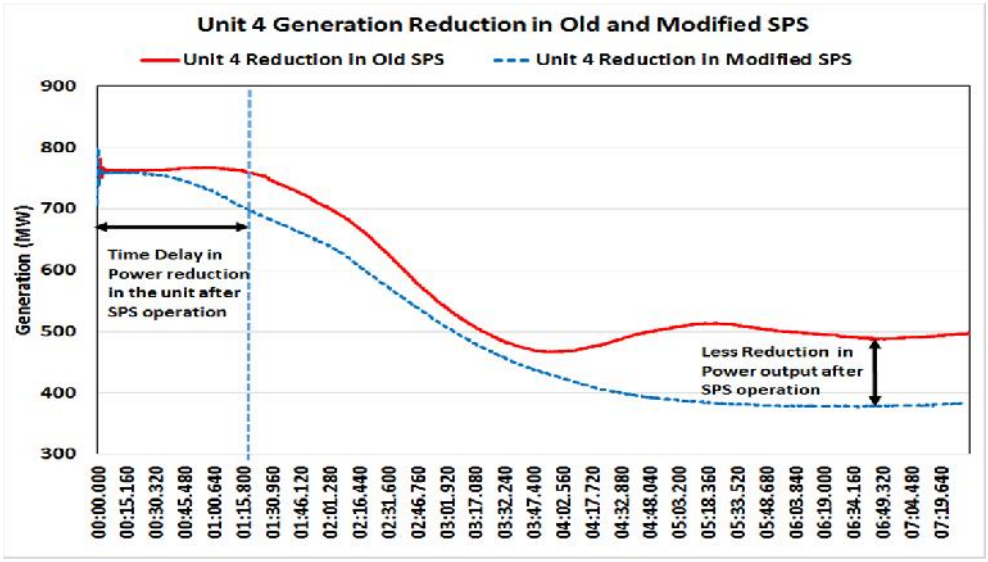
- No Overloading is Observed.
- Voltage and Angle are within Limit.
- **System is not ready for N-1 of 400/220 kV Bhachua ICT tripping :**
  - Load trimming Scheme has to be implemented on these ICTs to take care of overloading under such condition till the new ICT.
- **System is also not ready for N-1 of 400 kV Bhachau-Varsana one circuit (750 MW):**
  - SPS signal to CGPL for 1000 MW immediate generation relief.
  - Tripping of one Unit and Generation backing down by additional 200 MW.

Power Swing Criteria




ALARM ACK :
BACHHAU 400kV S/S
ORANGE NO. 20221369
RANCHODPURA - 2
RANCHODPURA - 1
MUNDRA - 1
MUNDRA - 2
VRSANA 1
VRSANA 2
BUS REACTOR 2
MUNDRA - 3
MUNDRA - 4
MW MVAR
BUS 1
KV HZ
BAY NO.
BAY NO.
BAY NO.
BUS 2
KV HZ
TAP
MW MVAR
BUS REACTOR 1
ICT-1
ICT-2
ICT-3
ESR PWR1
ESR PWR2
MANSAR
LIMBDI


To Mohindergarh
To Bhinmal
To Kankroli
RAJASTH
GUJARAT
Zerda(Kansari)
Dhanera
Tharad
Deodhar
Radhanpur
Palanpur
Jangral
Sankhari
Kheralu
Vijapur
Sami
Mehsana
Bachhau
Soja
Dehgam
Varsana
CGPL
APL
Mansar
Ranchodpura
Pirana(T)
Kasor
Choraria
Hadala
Vadinar
Limbdi
Patlad
Vadodara GIS
GPEC
Jetpur
Amreli
Dhasa
Jhanor
Sardargadh
Keshod
Visavadar
Dhokadwa
Una
Kevaya
GSEG
Sugen
Essar
Uno-Sugen
Kawas
Utran
Kodinar
Diu(D&D)


Unit 4 Generation Reduction in Old and Modified SPS
Unit 4 Reduction In Old SPS
Unit 4 Reduction In Modified SPS
Generation (MW)
900
800
700
600
500
400
300
Time Delay in Power reduction in the unit after SPS operation
Less Reduction in Power output after SPS operation
00:00.000
00:15.160
00:30.320
00:45.480
01:00.640
01:15.800
01:30.960
01:46.120
02:01.280
02:16.440
02:31.600
02:46.760
03:01.920
03:17.080
03:32.240
03:47.400
04:02.560
04:17.720
04:32.880
04:48.040
05:03.200
05:18.360
05:33.520
05:48.680
06:03.840
06:19.000
06:34.160
06:49.320
07:04.480
07:19.640

ANNEXURE D.19

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093
F-3, MIDC Area, Andheri (East), Mumbai - 400 093
दूरभाष Phone: 022- 28221681; 28250004; 28200195; फैक्स Fax : 022 – 28370193
Website : www.wrpc.gov.in E-mail:prc-wrpc@nic.in , protectionwrpc@gmail.com

आई एस ओ ः 9001-2008

ISO: 9001-2008

No. : WRPC/Protection/Mumbaiislanding/2018/ 3620 **Date:** 11 APR 2018

To,

1. Head- PSCC, Tata Power Company Limited,Trombay,Mumbai
2. GM(O&M),Reliance Infrastructure Lmited,Mumbai
3. CE,SLDC,MSETCL,Kalwa
4. CE(P AC),MSETCL,Kalwa
5. GM, WRLDC,Mumbai
6. DGM(ES),BEST Undertaking,Mumbai

विषय: मुंबई आइलैंडिंग योजना की समीक्षा करने के लिए **13.03.2018 को आयोजित बैठक के रिकॉर्ड नोट**
Sub: Record notes of the meeting held on 13.03.2018 to review Mumbai Islanding Scheme

Sir/महोदय,

मुंबई आइलैंडिंग योजना की समीक्षा करने के लिए **13.03.2018** को आयोजित बैठक के रिकॉर्ड नोट इसके साथ आपकी सूचनार्थ और आपकी आवश्यक कार्रवाई हेतु संलग्न हैं।

बैठक के रिकॉर्ड नोट पक्षेविस की वेबसाइट www.wrpc.gov.in. पर भी अपलोड किए गए हैं।

Please find attached herewith the Record notes of the meeting held on 13.03.2018 to review Mumbai Islanding Scheme your information and necessary action.

The Record notes of the meeting has also been uploaded in WRPC website at www.wrpc.gov.in

Yours' faithfully/भवदीय,

11/04/18

J.K. Rathod/ जे के राठौड़ ,
SE (Protection)/ अधीक्षण अभियंता (रक्षण)

संलग्नक: यथोपरि
Encl.: As above

Record notes of the meeting held on 13.03.2018 to review Mumbai Islanding Scheme

A meeting to review Mumbai Islanding scheme was held on 13.03.2018 at WRPC Mumbai. The list of participant is enclosed at **Annexure-I.**

Member Secretary, WRPC welcomed all the participants of the meeting on review of Mumbai Islanding Scheme. He informed that the islanding scheme of Mumbai transmission system was first commissioned in 1981 by TATA Power with the embedded generation within the Mumbai. This scheme had successfully saved Mumbai from several blackouts (on 27 occasions so far) during Major grid disturbances. This scheme has been revised several times by WRPC in line with the development of Mumbai Network and the settings advised by WRPC were adopted. At present Trombay unit #6 remaining out since long time due to no schedule owing to costly gas. This unit is not likely to revive in present scenario. At the time of last review of Mumbai islanding scheme, Trombay unit #6 was a part of embedded generation of the island. Also, the demand of island has steeply increased in last few years due to fast pace of growth in electricity consumption by commercial and domestic category of consumers., Due to reduction in embedded generation and growth in Mumbai demand there is increased power flow from outside to Mumbai through tie-lines to meet the demand of the island. He further added that recently BEST had come out with a tender for procurement of 750 MW power. This implies that embedded generation in Mumbai will not be able to meet power requirement in the event of Island formation and thus it is the appropriate time to review the Mumbai Islanding Scheme in order to save the city from blackout in the exigent situation. He further informed that the review of Mumbai Islanding Scheme was discussed in brief in 131st PCM held on 27/28.02.2018 at WRPC Mumbai wherein it was decided to hold a separate meeting involving TATA Power, BEST, MSETCL, Reliance Infrastructure, WRLDC and WRPC.

SE (P), WRPC briefed about power scenario in Mumbai. He informed that total embedded generation in Mumbai system is 1877 MW which is approximately 50% of the peak demand (3825 MW). In case of Grid

Disturbance, generation will not be able to meet the demand. So there is an urgent need to review the existing Mumbai islanding scheme. In order to ensure successful operation of separation of Mumbai island in the event of grid disturbance and to ensure survival of formed island, it is utmost important to identify some additional loads for load shedding in Mumbai

With the above brief background, he requested Tata Power to give presentation on existing Mumbai Islanding Scheme.

TATA Power representative gave a presentation (Enclosed at **Annexure-2**) on the existing Mumbai Islanding scheme. The Mumbai Power System is connected with MSETCL through Boisar, Borivali, Kalwa and Trombay. The brief on the existing Islanding scheme is as given below:

Stage I:

- Major disturbance is sensed by frequency decay. At 48.0 / 47.9 Hz under-frequency load shedding takes place by way of opening designated feeders, prior to islanding, to ensure generation rich island.
- Combination of under-frequency condition (47.9 Hz) and power flow (from Mumbai area) into the grid will trigger islanding scheme.
- Islanding scheme operation will result in tripping of all tie line breakers and Tata Power system along with R-infra Dahanu system will be isolated from rest of the grid

Stage II:

- Further, if frequency continues to sink, coupled with reversal of power (Power flow from Tata Power to RInfra) then Tata Power system gets isolated from R-infra at 47.7Hz
- Redundancy is provided in the form of Main 1 & Main 2 islanding schemes.
- In case of failure or stuck breaker condition, at 47.0 Hz LBBU of that breaker operates and gets isolated from the network.
- Islanding signal from 220kV Trombay tie point provides trigger for Unit 5, 6 & 8 to respond to frequency between 49.5 – 50 HZ by varying generation by 20 /10 MW for every 0.1 Hz variation

- Bhivpuri 24MW 3 Units, Khopoli 24MW 1 unit & Bhira old 25 MW, 5 units changes over to speed control mode at 47.9 Hz.
- 150 MW Bhira Pump Storage Unit changes over to speed control mode if df/dt is > 5Hz/sec.

High Frequency Control in Islanded Mode:

- If frequency recovers to more than 50.2 HZ, auto restoration scheme at Borivali resumes 20 MW load in three stages at frequency settings of 50.3, 50.5 & 51.0 Hz respectively, which helps to stabilize islanded system frequency.
- At 51.5 Hz, high frequency anti acceleration protection on Trombay Unit 5,6 &8 will drop load with 5% droop.
- At 51.5 Hz , 30 sec time delay, Unit 7A class C trip & 56 Sec time delay – Class A . At 53.0 Hz - Instantaneous , Unit 7A – Class C trip & 0.6 sec time delay Class A trip.
- In case frequency does not recover after islanding,
    - At 47.5 Hz, 30 sec time delay Unit 7A Class C protection will operate and unit will continue to operate on house load.
    - At 47.0 Hz, 2 sec time delay, 220kV GT breakers of Units 5, 6 & 8 will open and Units will run on house load.- Class C
    - At 46.0 Hz, 0.6 sec time delay – Class C & at 2 Sec – Class A
    - At 46.5 Hz, at Bhira, Set 2/5 gets isolated from the grid and feeds station auxiliary.

Hydro Islanding Scheme (For fast restoration)

- At 45.0 Hz, Hydro islanding scheme operates and trip all outgoing lines & transfer breaker. Hydro units remains on line and available for building the network. BPSU & Set No.1 at Bhira also trips.
- With this arrangement the generating units at all three hydro stations are kept running supplying own auxiliary power.

MS, WRPC enquired with BEST Officials regarding the status of power procurement from outside Mumbai through open access. BEST representative informed that they would purchase power through open access from outside Mumbai to reduce their overall cost of power purchase. However the agreement between TPC and BEST have been extended for one more year.

ED WRLDC opined that as far as system operation is concerned, generation within Mumbai should be given preference to supply within Mumbai, so that adequate generation is available within Mumbai. TATA power has thermal generation capacity of 2x500MW+250MW+180MW and Hydro capacity of 447MW and Reliance Dahanu has a thermal capacity of 2x250MW. These generating units should always be kept on-bar to meet any contingency to have minimal dependency on external sources. With one Unit of 500 MW at TATA power Trombay out of service since long, it is very much essential that at least 1x500+250MW+180MW generating Units at TATA Power Trombay be kept in service as spinning reserve. He further added that we cannot afford to keep any of these units out of service. He requested SLDC Maharashtra to take up the issue with appropriate authorities to address the commercial issues involved, including measures such as keeping these units on bar through Ancillary services.

WRPC opined that since PPA between TATA and BEST has been extended for one more year, and the measures suggested by ED WRLDC would take time to be in place, it would be appropriate to review the Mumbai Islanding Scheme under the present generation and load (demand) scenario in Mumbai, so that any grid disturbance in the near future can save the Mumbai city from going into dark. The other measures as suggested by ED WRLDC can be taken up by WRLDC, SLDC Maharashtra, TATA power, BEST & Reliance Energy at appropriate authorities/forums.

After detailed discussions, the following conclusions were drawn;

(i) At present the total generation normally in operation in the Island is around 1880MW without Unit 6 at TATA Trombay. (TATA Trombay=500MW+250MW+180MW, TATA Hydro= 447MW & Reliance Dahanu=500MW)

(ii) Total Maximum Demand met in the Island in recent past =3825MW

(iii) Import from Maharashtra System is around 2200MW.

(iv) The demands of utilities in Mumbai City & present load shedding quantum identified is as follows;

Quantum of Existing Load Shedding **Table-1**

Sr. No.	Utility	Normal Load (MW)	Present Load Shedding quantum (MW)	Net Load after island formation (MW)
	(1)	**(2)**	**(3)**	**(4)**
1	RETL-Reliance	1300	800	500
2	TPC-Reliance	600	450	150
3	BEST	900	310	590
4	TPC	500	160	340
5	MSEDCL	200	200	0
6	Railways	170	0	170
Total		**3670**	**1920**	**1750**

After detailed discussion on existing quantum of load shedding it was felt by the participants that additional 300 MW load is required to be identified for shedding for successful formation and survival of island in the worst case scenario i.e in case of **peak demand of Mumbai =3850MW**. 300 MW additional load shedding was decided by taking into account embedded **generation** (including losses) of around **1650MW** and **Import** from Maharashtra System of around **1900MW. The details are as follows;**

The Demand before Island formation is 3850MW. After formation of Island the Import from Maharashtra of 1900MW will be lost (The load to be catered will be 3850-1900= 1950MW) . So Net Demand in the Island after Island formation will be 1950MW. Actual generation in the Island including losses will be around 1650MW (The load-generation mismatch i.e generation shortfall will be = 1950-1650MW=300MW). Therefore the additional load of 300MW needs to be shed in addition to existing load shedding implemented in the Mumbai Island.

(v) Reliance representative informed that they are shedding required load so that their load is matching with the generation at Reliance Dahanu plant. Members insisted that Reliance should always maintain their load to balance generation at Reliance Dahanu, at all the times under the Islanded condition.

(vi) It was felt that the Railway load is essential load therefore there shall not be any load shedding in Railway System.

(vii) After long deliberations it was decided to distribute the additional load of 300MW, required to be wired up for shedding among TPC & BEST in proportion to their normal loads as follows;

TPC=(500x300)/1400=107MW.

BEST=(900x300)/1400=193MW.

The representatives of TPC and BEST agreed on the additional quantum of load shedding given above.

(viii) TPC representative stated that it will take around 6 months to procure and commission the UFRs, since it requires customized UFR panels to be integrated with SCADA.

BEST representative also recorded similar views.

(ix) Members felt that the time lines given by TPC & BEST be reduced and they shall procure and commission/wire up the UFRs to shed

the above additional loads in 1-2 months. However TPC & BEST maintained their views.

(x) It was suggested that already UFRs are provided in the TPC & BEST system. These existing UFRs can be used to extend the trip command to additional loads existing at the same S/S for time being, till procurement & commissioning (wiring up) of the new UFRs. TPC & BEST should immediately hold a meeting to identify such locations and the additional loads.

MS WRPC requested TPC & BEST representatives to implement (wire up) the above additional load for shedding as early as possible. There should not be any hesitancy in implementation of above loads, since these are the rarest of the rare conditions under which the Island would be formed. But it is utmost important that the island survive after its formation. He stated that public life & safety would seriously be affected, if the Mumbai City is without power supply. He further requested all the utilities in the Mumbai City to co operate in this matter and save the city from being without power supply in the event of a grid failure, since such a densely populated city without power supply may lead to law & order issues and consequences would be beyond imagination, since Mumbai is commercial capital of country.

Decisions :

(1) TPC and BEST shall identify additional load of 107 MW and 193 MW respectively to be shedded for Mumbai Islanding Scheme.

(2) TPC and BEST shall take up the issue of procurement of UFRs with their management to operationalise the revised load shedding at the earliest. Till such time TPC/BEST shall implement the suggested methodology as given at point (x) above.

(3) DISCOM wise quantum of revised load shedding shall be as per Table 2 (given below)

Quantum of Revised Load Shedding **Table-2**

Sr. No.	Utility	Normal Load (MW)	Revised Load Shedding quantum (MW)
	(1)	**(2)**	**(3)**
1	RETL-Reliance	1300	800
2	TPC-Reliance	600	450
3	BEST	900	503
4	TPC	500	267
5	MSEDCL	200	200
6	Railways	170	0
Total		**3670**	**2220**

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

****

ANNEXURE-I

List of participants for the meeting to review Mumbai Islanding on 13.03.2018 10.30 hrs at WRPC Mumbai

S.N.	Name	Designation/ Organisation	Mob no.	Email	Signature
1.	Sonu. W. Korekar	Asst. V.P. Rinfra.T	9324216663	sonu.korekar@relianceada.com	
2.	Mohan R. Waingankar	G.M. / R-INFRA(T)	9324216664	mpbag.waingankar@relianceada.com	
3.	D. M. Devasthale	Add VP / R-Infra(T)	9324180932	dilip.devasthale@relianceada.com	
4.	Abaji Narralkar	AVP / R[illegible]	97[illegible]175 2[illegible]	abaji.narralkar@ —	
5.	Shrikant Yeole	AVP / Rinfra	9323552945	Shrikant.yeole@relianceada.ca	
6.	Sandeep Parekh	VP | RInfra	9323553117	sandeep.parekh@relianceada.com	
7.	Vikas Sonar	V.P. RInfra-T	9323552929	vikas.sonar@relianceada.com	
8.	Arvind Kumar Sharma	Sr. EVP RInfra-T	9699992095	arvind.kumar.sharma@relianceada.com	
9.	K. RAJAMANI	Chief Consultant	9323549810	rajamani.krishnamurthi@relianceada.com	
10.	Snehal Mahajan	DyEE, SLDC, Maharashtra	9619892041	cesldc@mahasldc.in	
11.	Peeyush S Sharma	SE, Protection MSETCL	9769213863	seprotectionmsetcl@gmail.com seprotection@mahatransco.in	

S.N.	Name	Designation/ Organisation	Mob no.	Email	Signature
12.	D. J. Kolhe	SLDC, Kalwa	9820981115	deepakKKolhe@yahoo.com	
13.	D.P. Nandanwar	PAC, KO, Kalwa	9769509798	ndp1210@rediffmail.com	
14.	M. S. Jangde.	S.E. TCC, Vashi	8879219550	se7500@mahatransco.in	
15.	S. A. Jadhav	AEK, BEST	9869268057	cerebest@gmail.com	
16.	G. M. Bhagat	Dy Chief Engr BEST	9969017811	dcet@bestundertaking.com	
17.	S. P. Makwana	Chief Engr Maint BEST	9869205357	cem@bestundertaking.com	
18.	Dr. Rajendra Patsute	Chief Engineer BEST	9869405910	cerebest@gmail.com	
19.	Girish Jawale	~~Team~~ Head - Protn	9223311419	gtjawale@tatapower.com	
20.	ANOWAR MUKHERJEE	Head (Elec) PE - Tata Power	9223553160	anm mukherji @tatapower.com	
21.	KIRAN DESALE	Head - PP & ABT	9223553342	desalekv@tatapower.com	
22.	T.K. BHASKARAN	Head - PSCC	9220550622	tkbhaskaran@tatapower.com	
23.	PRADEEP KUMAR CANODIA	SR. ENGG/WRLDC-POSOCO			
24.	Chitrankshi G.	Manager, WRLDC	9869004892	chitrankshi@posoco.in	

S.N.	Name	Designation/ Organisation	Mob no.	Email	Signature
25.	Pushpa. S	Asst. CM WRLDC, POSOCO	9869404482	pushpa@posoco.in	
26.	V.K. Shrivastava	ED WRLDC			
27.	Abhimanyu Garoda	GM WRLDC	9869088058	agarosa@posoco.in	
28.	A. Balan	MS/WRPC	9483540528	ms-wrpc@nic.in	
29.	P.D. Lone	WRPC	9867622823	protectionwrpc@gmail.com	
30.	J.K. RATHOD	S.E. WRPC	"	"	
31.	Ratnesh K. Yadav	AD-1, WRPC	9969948089	ratneshkumar[illegible]@gmail.com	
32.					
33.					
34.					
35.					
36.					
37.					

ANNEXURE D.20-1-2

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 400 093
F-3, MIDC Area, Andheri (East), Mumbai - 400 093
दूरभाष Phone: 022- 28221681; 28250004; 28200195; फैक्स Fax : 022 – 28370193
Website : www.wrpc.gov.in E-mail:prc-wrpc@nic.in , protectionwrpc@gmail.com

आई एस ओ : 9001-2008
ISO: 9001-2008

No. : WRPC/Protection/AUFLS/2018/ 3626 - **Date:** 11 APR 2018

To,

As per list/ सूची के अनुसार

विषय: विद्यमान एयूएफएलएस योजना में स्तरों और मात्रा की समीक्षा करने के लिए 13.03.2018 को आयोजित बैठक के रिकॉर्ड नोट

Sub: Record notes of the meeting held on 13.03.2018 to review the stages and quantum in the existing AUFLS scheme

Sir/महोदय

विद्यमान एयूएफएलएस योजना में स्तरों और मात्रा की समीक्षा करने के लिए 13.03.2018 को आयोजित बैठक के रिकॉर्ड नोट आपकी सूचनार्थ और आवश्यक कार्यवाई हेतु इसके साथ संलग्न हैं।

बैठक के रिकॉर्ड नोट पक्षेविस की वेबसाइट www.wrpc.gov.in. पर भी अपलोड किए गए हैं।

Please find attached herewith the Record notes of the meeting held on 13.03.2018 to review the stages and quantum in the existing AUFLS scheme for your information and necessary action.

The Record notes of the meeting has also been uploaded on WRPC website at www.wrpc.gov.in.

Yours' faithfully/भवदीय,

16/04/18

J.K. Rathod/ जे के राठौड़
SE (Protection)
अधीक्षणअभियंता(रक्षण)

संलग्नक: यथोपरि
Encl.: As above

The List

1. CE, SLDC, GETCO, Gotri, Vadodara.
2. S.E. (Testing), GETCO, Baroda. Fax-0265-2351218
3. Chief Engineer (LD), MSETCL, Kalwa. Fax-27601769/65
4. Chief Engr. (Trans O&M), MSETCL, Bandra. Fax No. 022 - 26590808/26598587
5. Chief Engineer (LD), MPPTCL, Jabalpur, Fax - 0761- 2664343 / 2970119
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7. Chief Engineer (LD), CSPTCL, Raipur. Fax-0771 – 2574174
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9. EE, Division VIII (MRT),Elect. Dept; Goa Fax 0832-2735124.
10. Supdt.Engr., Electricity Dept., DNH, Silvasa. Fax : 0260-2642338
11. Executive Engr., Electricity Dept. DD. Fax: 0260-2250889
12. General Manager, WRLDC, Fax 022-22851244
13. Chief General Manager (Comml), MP Power Management Co.Ltd., Jabalpur-482 008. Fax: 0761-2664749.
14. Chief Engineer (Comml), Chhattisgarh State Power Distribution Co. Ltd., Raipur – 492 013. Fax: 0771-5066942
15. Chief Engineer (PP), Maharashtra State Electricity Distribution Co. Ltd., Mumbai-400 051. Fax: 022-26475012.
16. Addl. Chief Engineer (R & C), Gujarat Energy Trans. Corpn. Ltd., Vadodara-390 007
17. **CE, NPC,CEA for information**

Record notes of the meeting held on 13.03.2018 to review stages and quantum in the existing Automatic Under Frequency Load Shedding Scheme

In line with the decision taken in the 131st PCM held on 27th & 28th Feb. 2018, a meeting to review the stages and quantum in the existing Automatic Under Frequency Load Shedding Scheme was held on 13.03.2018 at WRPC Mumbai. The list of participant is enclosed at **Annexure-I.** The existing frequency settings and quantum of load shedding of WR constituents is enclosed at **Annexure –II.**

Member Secretary WRPC welcomed the participants of the meeting. He informed that in the 7th NPC meeting held on 08.09.2017 at Indore, NPC has sought the views of participants on the matter of reviewing of quantum of load shedding and stages of frequency under AUFLS. He further informed that in the NPC meeting it was agreed that there is a need for review of the quantum of load shedding without introduction of additional slabs/stages of frequency and therefore, RPCs were requested to discuss this issue. The views of RPCs would be put up in next meeting of NPC.

He further informed that the issue was deliberated in the 131st PCM held on 27 & 28th February 2018, in which WRLDC was of the view that there is a wide variation in the system frequency during system operation. Raising the AUFLS slabs would arrest these wide variations. However, WRPC informed that the flat frequency AUFLS is not aimed at smoothening out the frequency and it is a defense mechanism to arrest the fall of system frequency and try to bring back it to near the nominal/operating frequency range. There are other mechanisms already available in the system such as primary response, secondary response and tertiary response to address the variations in the system frequency around nominal frequency. Therefore any revision in the slabs and quantum of the flat

frequency AUFLS may be decided by considering the fact that it is a defense mechanism. Further raising the slabs has to be judiciously decided based on the system inertia and the resources available (such as primary, secondary and tertiary responses) with the system operator.

SE(P) WRPC informed that in the 131st PCM the sub-Committee decided that a separate meeting be held to discuss the issue of raising the AUFLS slab and slab wise quantum of load shedding in detail. He requested WRLDC to give details of the frequency profile for the last few years.

WRLDC representative gave a brief presentation on the system frequency variations in last few years. It was highlighted that the frequency never touched 49.2 Hz after the 2012 grid disturbance. Further it was informed that during past period of more than three years, frequency of grid did not go below 49.5 Hz and therefore WRLDC proposed that the slab of frequency stages be raised by 0.2Hz from the existing 49.2Hz, 49.0Hz, 48.8Hz and 48.6Hz to 49.4Hz, 49.2Hz, 49.0Hz and 48.8Hz respectively.

WRLDC representative also informed that the Frequency Response Characteristics (FRC) from the recent past data have shown that the power number is around 9000MW/Hz. The Zalte Committee report prepared by WRPC after the grid disturbance of 2012 have given the philosophy for arriving at the quantum of load shedding to be identified for AUFLS. This philosophy was adopted by NPC (in the 2nd NPC meeting held on 16th July 2013) for arriving at the quantum of load to be shed at different frequency settings for all India grid. The regional shares for Northern region(NR), Western region (WR), Southern region(SR), Eastern region (ER) and North-eastern region(NER) were worked out based on the peak demands of these regions.

SE (P), WRPC informed that as per the actual data of frequency profile available in WRLDC web site, frequency never touched 49.5 HZ during the period of more than last three years and therefore if the first slab is raised to 49.4 HZ,

there would not be any frequent operation of AUFLS and at the same time AUFLS would continue to work as a last defense mechanism.
WRPC stated that it is appropriate to raise the first stage to 49.4 Hz from existing 49.2 Hz. WRLDC, based on the Zalte Committee philosophy, have worked out the quantum and in the first stage of proposed frequency setting of 49.4 Hz, the quantum of load shedding for all India grid with power number of 9000MW/Hz, works out to be around 15000MW.

SE(P) WRPC supported the views of WRLDC and suggested that if the frequency setting of 1st Stage is raised to 49.4 Hz, it would be more comfortable to system operators for bringing back the system to normalcy from unforeseen exigency condition and also there would not be any frequent unnecessary operation of AUFLS. He further added that the raising the first stage to 49.4 HZ would certainly reduce vulnerability of grid without any financial burden to the stake holders.

WRPC raised query on whether there were any system constraints or threat to the system when the frequency touched around 49.5Hz, if so, the details of the same may be shared by WRLDC with the forum. This would be useful in deciding the frequency setting. In reply, WRLDC stated that it would be more comfortable to the system operator to bring back the system frequency to the nominal value from 49.4 HZ instead of 49.2 HZ. WRLDC further added that the system constraints/ threats to the grid depend upon so many other system parameters in real time in integrated grid operation and therefore at different point of time, level of vulnerability of grid failure is different even if the frequency is same.

Based on the above discussions following was decided;

1. Gujarat SLDC, MP SLDC and Maharshtra SLDC agreed with the views of WRLDC. Chattisgarh SLDC representative was not present in the meeting.
2. In general it was agreed that the frequency setting of 1st stage of AUFLS be raised from existing 49.2 Hz to 49.4Hz.
3. The proposed revised stages are :

AUFLS	Existing frequency (Hz)	Proposed frequency (Hz)	Quantum of load shedding (MW)
Stage-I	49.2	49.4	Same as per existing quantum (Annexure-II)
Stage-II	49.0	49.2	
Stage-III	48.8	49.0	
Stage-IV	48.6	48.8	

4. All participants agreed to keep state-wise load shedding quantum same as existing as per annexure-II.

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

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ANNEXURE-I

List of participants for the AUFLS meeting on 13.03.2018 15.00 hrs at WRPC Mumbai

S.N.	Name	Designation/ Organisation	Mob no.	Email	Signature
1.	Ratnesh Kumar Yadav	Asst Director-I/WRPC	9969948089	ratneshkumar7437@gmail.com	
2.	S. S. Raghuwanshi	Ch Mgr (WRLDC)	9427615752	satyendra@posoco.in	
3.	R.C. Chakraborty	MPPTCL, Jabalpur	9425805283	ceps321@yahoo.com	
4.	Sunil Yadav	EE MPPTCL, Indore	9425806916	aseeindore@yahoo.com	
5.	Shankar Chakraborty	EE MPSLDC	9425812499	s.chakraborty166@gmail.com	
6.	P. A. Patel	Ex. Engg SLDC Gujarat	9925214015	papatel66@yahoo.com sldc.getco@gmail.com	
7.	D. J. Kolhe	EE(OP) MSLDC	9820981115	deepakkolhe@yahoo.com	
8.	Snehal Mahajan	DyEE MSLDC	9619892041	ceesldc@mahasldc.in	
9.	P. D. Lone	WRPC	9867622823	protectionwrpc@gmail.com	
10.	J. K. RATHOD	S.E, WRPC	"	"	
11.	A. Balan	MS/WRPC	9483540528	ms-wrpc@nic.in	

S.N.	Name	Designation/ Organisation	Mob no.	Email	Signature
12.	Abhimanyee Gaurha	GM WRLDC	9869088058	agaurha@posoco.in	
13.	L.K.S Rathore	WRPC	9833371874	lksr_ies@nic.in	
14.	Sachala Mishra	DGM	9869450223	sachalamishra@posoco.in	
15.	Pushpa.S	Asst. GM WRLDC	9869404482	pushpa@posoco.in	
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

Annexure-II

The existing slabs and quantum of load shedding under UFR is as follows;

AUFLS implementation status in WR as on 31.03.2015									
(all figures are in MWs)		**49.2 Hz**		**49.0 Hz**		**48.8 Hz**		**48.6 Hz**	
		Actual	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**	**Target**
Guj	**Average**	**773**	**580**	**726**	**580**	**1117**	**580**	**1025**	**590**
MP	**Average**	**468**	**460**	**450**	**460**	**460**	**460**	**465**	**465**
CG	**Average**	**110**	**150**	**114**	**150**	**117**	**155**	**91**	**155**
MH	**Average**	**1122**	**805**	**1215**	**810**	**1044**	**815**	**1071**	**820**
Goa	**Average**		**25**	**25**	**25**	**25**	**25**	**25**	**25**
DD	**Average**	**10**	**10**	**15**	**15**	**16**	**15**	**15**	**15**
DNH	**Average**	**30**	**30**	**30**	**30**	**35**	**35**	**35**	**35**
Total		**2513**	**2060**	**2575**	**2070**	**2814**	**2085**	**2727**	**2105**

ANNEXURE- D.24

Action taken on 35th TCC/WRPC decisions

S. N.	Item/ Issue	Action By	Action taken
	A. Confirmation		
1	Confirmation of the Minutes of 34th Meeting of WRP Committee	WRPC	Confirmed
	B. Follow-up / Status update of previous issues		
2	LILO of 220 KV S/C Haldarva – Jhagadia line at NTPC Jhanor PS – regarding extending necessary support by Jhanor to GETCO	GETCO, NTPC.	Work under progress
3	Increase in GETCO Transmission loss due to high power flow on + 500 KV Mundra-Mohindergarh Bi-Pole HVDC line	GETCO, WRLDC	Joint study done
4	Interconnection between CGPL UMPP and Adani Mundra STPS in Gujarat – provision of 400/220 KV ICT at CGPL Mundra and compensation mechanism for 220 KV S/C CGPL Mundra – Nanikhakhar line & bays	PGCIL	Rating of ICT decided during 43rd SCM, work to be started by PGCIL
5	Operation of Kadana and Bhira in Pumping Mode	GETCO, TATA Power	Under progress
6	Status of pump mode operation of SSP	GETCO	Shall take up the issue with NCA and NVDD.
7	Multiple tripping of evacuation lines at CGPL on13.07.2016 leading to tripping 5x830 MW generators and 400 kV lines at 400 kV Bachhau S/S.	CGPL/ PGCIL	PGCIL may update
8	New Interface Energy Meters, AMR system and meter data processing system: installation	PGCIL	PGCIL may update
9	SAMAST: status of implementation of recommendations		
10	Signing of TPA by State Govt with GoI & RBI	MahaTransco	MSETCL may update
11	Progress of downstream network of constituents whose terminating bays are under construction by	WRPC to convene TRM regularly.	Regularly monitoring in TRM

	POWERGRID		
12	Ongoing transmission schemes (765/400 KV & above): status of completion		Regularly monitoring in OCC meeting
13	Extension of LILO arrangement for evacuation of power by ESSAR Power M.P. Ltd., 2x600 MW ("EPMPL")	EPMPL	Taken up with CERC, APTEL
	C. Items for Noting purpose		
	(a) Commercial		
14	5-minute scheduling: Impact of forthcoming five minutes scheduling and energy accounting.	WRPC	A meeting of the Group was held on 22.02.2018
15	DOCO: Declaration of Transmission elements into commercial operation by ISTS licensees	For noting.	---
16	LC: Status of Letter of credit (LC) opening against Deviation charges liability for 2017-18	For noting.	---
17	Status of pool account fund		
	(i) Deviation Settlement Mechanism (DSM) & RRAS	For noting.	---
	(ii) Reactive Energy Charges (REC)	For noting.	---
	(iii) Congestion Charges	For noting.	---
18	Status of Reconciliation	For noting.	---
	(b) Operation		
19	Performance of WR grid: during July to October 2017	For noting.	---
20	Anticipated power supply position in WR: January to March 2018	For noting.	---
21	New generating units in WR: during the current year 2017-18	For noting.	---
22	Installation of FGD in generating units:	For noting.	---
	(c) Protection		
23	SPS formulated for JP-Nigirie and MB Power:	For noting.	---
	(d) Details about WRPC Secretariat		
24	Establishment charges	For noting.	---

25	Meetings conducted	For noting.	---
26	Status of staff position	For noting.	---
27	Action Taken Report for MoM of 34th WRPC meeting (27-28 July, 2017)	For noting.	---
28	Any Other Item		
	(1) Installation of additional ICT at Kakrapar	GETCO & CTU	Site visit report submitted.
	(2) Additional Transformer of 1 x 500 MVA capacity at Jabalpur, PGCIl s/s	PGCIL	Work completed
	(3) WRLDC SCADA	For noting.	---
29	Date and venue of next WRPC meeting	For noting.	---

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