

PREPAREDNESS & ISSUES FOR DSM IMPLEMENTATION



POINTS COVERED IN PRESENTATION

- **Comment on Important clauses of DSM**
- **Issues and solutions**
- **Existing Practice and Preparedness**

COMMENT/SUGGESTIONS ON IMPORTANT CLAUSES OF DSM



Regulation 5(4) & 6(B)(iv)- SLDC to use resources for maintain the load- generation balance & centralised MOD

- Instead of centralised MOD in real time, there should be centralised operation of decentralised MOD of each DISCOM by SLDC
- Koyna should not be used as a balancing mechanism for State.
- In case of exigency if Koyna is used by MSLDC (that too with prior permission/consent from MSEDCL) to control overdrawal or to meet demand of DISCOM other than MSEDCL then there must be a fair commercial mechanism to settle such transactions & should be such that it will deter other DISCOM to use Koyna to control its overdrawal and economically forced them to manage their purchase effectively.
- Irrespective of overdrawal of any DISCOM or under injection by seller, RLDC schedule costly RLNG power or URS power (almost Rs.8 per kwh) to MSEDCL wherever state is on overdrawal. In future, if such incidence increases, the DSM rate cannot offset the loss face by MSEDCL. If this such happen, fair commercial arrangement to recover cost from causer.
- Need to maintain reserve by all DISCOM's to be made compulsory, as required as per clause- 22.11 of state Grid code. Need of Ancillary reserve Regulation at State Level.

Regulation 6(B) & 7(1) Scheduling and Despatch

- As per regulation 6.5 (3) of IEGC 2010, ISGS station has to submit its availability by 06:00 Hrs & same to be adopted for InSGC also
- In case generator has not submitted its schedule within stipulated time period, action needed to initiate on concerned generator, which is mentioned in SOR 3.5.3(20) & same needs to be part of regulation
- DISCOM shall be allowed to revise its schedule in real time as per provision in IEGC -2010 for managing deviation in real time
- **Schedule revision shall be effective from at least 4th time block**

Regulation 6(B) (i), (ii) & (iii)- Use of URS power

- for scheduling of URS power, consent of buyer/DISCOM whose surrender power is being requested by other buyer/DISCOM must be obtained before scheduling of URS to other buyer/DISCOM
- Non availing URS shall not be linked with efficacy of power procurement/sale of Distribution licensee
- Total Tariff (Variable cost + Fixed Charge) of station for respective month + Average per unit cost required to incurred for scheduling of schedule power from power exchange or short term
- Landed cost of power purchase from power exchange + 10%

Regulation 1 - Implementation

- Instead of implementation of new DSM regulation in two phase, new intra DSM regulation with commercial arrangement to be implemented simultaneously. If possible, new DSM to be implemented alongwith DSM regulation of wind & solar which is effective from April 2019
- All T_D interface points of MSEDCL be metered for computation of actual MSEDCL drawal
- Due to present mechanism of deviation settlement i.e FBSM mechanism, MSEDCL has already incurred a loss of more than Rs.4000 Crs
- If immediate implementation of new DSM is not possible then MERC should devise a methodology to compensate MSEDCL's consumer for the losses incurred due to FBSM till revise DSM is implemented including loss incurred in past

Regulation 2(1)(k)- Definition of Gaming

- Definition of gaming shall be revised with inclusion of buyer to restrict *intentional mis-declaration of demand to gain commercial mechanism*

Regulation 4 & 13(2) Applicability

Following Shall be pool participant

- *Generating station having long term power purchase agreement with same variable rate in MOD stack shall be considered as one state pool participant*
- All generating unit with less than 25MW capacity shall be made SPP in phase manner.
- The units used for captive purpose & Units which are specifically for merchant capacity shall be considered as two separate state pool participant.
- Open Access consumer whether partial or full taking power beyond a particular capacity say 5 MW and Partial open access consumers particularly with more than 50% contract demand from RE source should be made pool participant

Regulation 9(A)(2), 10(E) & 10 (J) – DSM Cap for generator

- **Under injection at frequency below 50 HZ should not be capped as presently DSM rate linked to Market clearing price .**

Regulation 6(F)– Sign change

- Deviation can be easily controllable by Generator. Hence for Seller, the deviation for change in sign can be allowed for a shorter duration like six time blocks or lower.
- **Penalty should not be unrealistic.**

Regulation 6(H), 9(A)(3), 10(A), 10(B) & 10(D) Deviation Limit

- Additional 100MW deviation limit allocated by CERC to Maharashtra (for being RE rich state) shall be exclusively allocated to MSEDCL & deviation limit of all buyers (including MSEDCL) than shall be computed with State Volume Limit as 150MW in proportionate of recorded NCPD
- In case of buyer/DISCOM, additional deviation limit shall be on basis of peak demand instead of fixed same quantum for all
- As per real time operation (based on SCADA data visibility) , if no violation of limit but based on SEM data, if any penalty imposed for limit violation then said Penalty to be recovered from default entity i.e. STU as SCADA data visibility is responsibility of the STU

Regulation 9(A)(7), 11(1) & 11(2) Treatment to Infirm Power

- Presently Infirm power is injected into the grid on prior permission of MLSDC with zero paisa by the generator. The infirm power injected into grid by generator prior to COD, will affect unscheduled interchange of state .
- It is proposed that irrespective of type of fuel, cap for deviation charges shall be the lowest variable charges in respective month MOD stack

Regulation 11(3) & 11(4) Exemption of DSM for drawal prior to COD

No exemption shall be given for power drawn from grid and DSM charges shall be applicable. The concerned generator can avail power from DISCOM

Regulation 13 State Energy Account

State Energy Account to be inclusive of DC, Schedule & should be inline with REA prepared by WRPC

Regulation 13(3) Weekly DSM & Third party Audit

- All computations carried out by SLDC shall be open to all constituents for checking / verifications for a period of 15 days. If any mistake/omission is detected, the SLDC shall forthwith make a complete check and rectify the same
- The report of third party audit shall also available on SLDC website

Regulation 14- Compliance with the Instructions of SLDC

In case of congestion warning issued by NLDC, if SLDC pass any instruction, then DISCOM/Seller supporting relieving congestion shall be exempted from congestion charges. Further additional DSM penalty for violating DSM limit shall be waived

Regulation 15(A) - Accounting of Charges for Deviation

- Deadline to be fixed and any delay in implementation from STU / SLDC end shall result in penal action
- A proper mechanism is required to be incorporated in the Regulations for any delay in issue of such commercial bills for any reason

ISSUES AND SOLUTIONS IN IMPLEMENTATION OF NEW DSM

s	Issue	Solution
1	<p><u>Derived MSEDCL demand</u>: In SCADA of MSLDC, demand of MSEDCL is derived based on total generation and Mumbai Demand. Problem in any data affect MSEDCL Demand & lead to wrong calculation of real time demand & thereby problem in real time demand forecasting</p>	<ul style="list-style-type: none"> • SCADA to be installed at all MSEDCL's T-D interface locations • All generation in SCADA needs to be EX-Bus only
2	<p><u>SCADA Visibility of CS Drawal</u> :</p> <ul style="list-style-type: none"> ○ Sometimes on account of problem in real time SCADA visibility, state drawal from central sector was not computed correctly. Till corrective action taken, UI is managed with wrong drawal data, leading to unnecessary UI Charges. ○ financial loss of ~Rs.95 Cr in FY2017-18 & ~ Rs56 Crs in FY2018-19 till Dec-18. ○ From 1st Jan 2019 to 20th Jan 2019, due to same issue, loss of ~ Rs.7 Crs have 	<ul style="list-style-type: none"> • Installation of AMR on ISTS point on top priority & developing mechanism for monitoring difference between AMR data & SCADA for immediate corrective action • 24 x7 availability of staff for taking corrective action in SCADA visibility
3	<p><u>RE generation visibility</u> : Although SCADA visibility available for most of RE but due to communication network problem, visibility intermittent</p>	<p>Separate cell for Monitoring RE SCADA visibility with daily reporting to concern & initiating action as per clause 14.2.2 of DOP on F&S regulation</p>

s Issue	Solution
<p>3 Day ahead DC:</p> <ul style="list-style-type: none">• As per present State Grid code, DC declaration is by 10 Hrs, whereas in IEGC , same is 6 Hrs.• Some generator even submitting by 13hrs• DC of generator & revision thereof not available in real time• No correlation between dayahead DC & real-time DC	<ul style="list-style-type: none">• Grid code to be suitably amended• Web based portal for online availability of DC like WRLDC• Not to allow generator revise DC except valid reason & restriction on downward revision in case of fuel shortage; atleast in peak demand period (Provision already in IEGC 6.5.21)
<p>4 Revision in Schedule:</p> <ul style="list-style-type: none">• No provision for Demand revision in real time• Generator schedule revision after 6th time block as per State Grid code, whereas in IEGC , same is 4th time block• No ramp Up & down rate considered in preparation of schedule	<ul style="list-style-type: none">• Need for Provision for demand revision• Web based portal for online schedule revision monitoring like WRLDC

EXISTING PRACTICE AND PREPAREDNESS

- Demand forecasting, Wind forecasting & preparation of LGBR on daily basis
- **Factors considered in Demand forecasting & Wind forecasting**
 - Historical data of MSEDCL demand (Derived at STU peri) based on DSR data of MSLDC (Which is partly gross & partly Ex-Bus generation).
 - Weather forecast from IMD pune, IMD Gov website and Accuweather
 - Wind data from Windalert website of locations of Wind generator
- **Software & logic used in Dayahead Demand forecasting:** Microsoft-Excel based. But Demand manually forecasted considering factor like same day demand trend, special day analysis, weather forecasting, present day demand Trend etc. Software Purchase for load forecasting under process . Also substation monitoring system implementation in process. The data will be fetch through AMR.
- **Error in Day Ahead Demand forecasting:** Normally within $\pm 4\%$

EXISTING PRACTICE AND PREPAREDNESS...

- LGBR & calculation of Purchase/Sale requirement for next day : By 10:30 Hrs
- Submission of schedule to SLDC for central Sector power : By 12:00 Hrs
- Revision in LGBR after IEX & submission of schedule to SLDC : By 17:00 Hrs
- **Logistic & Manpower** : Special Duty for all related above work on every day & dedicated Cell
- **Real time demand forecasting**: Being State MOD is presently operated, state demand is forecasted & accordingly decision taken for scheduling of central sector power

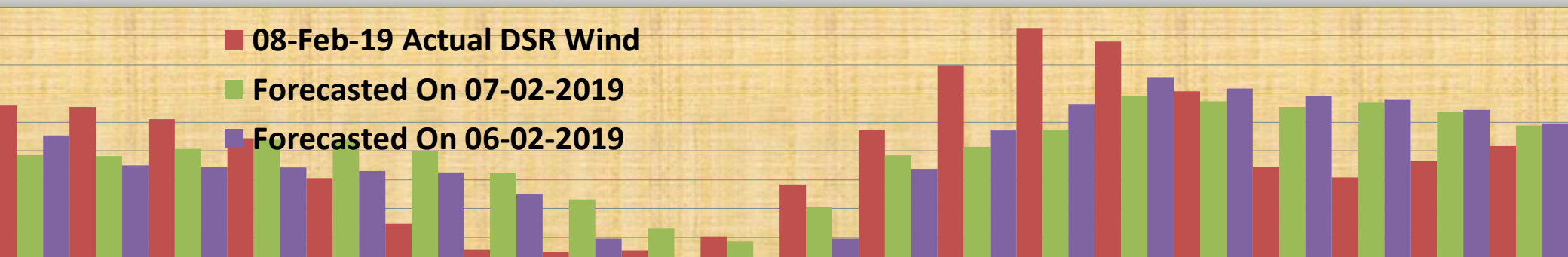
Thank You!

% ERROR OBSERVED IN DAILY DEMAND FORECAST

Hrs/Date	1-Feb-19	2-Feb-19	3-Feb-19	4-Feb-19	5-Feb-19	6-Feb-19	7-Feb-19	8-Feb-19
1	0.7%	-2.2%	1.6%	-0.3%	-3.9%	-6.0%	1.3%	2.3%
2	1.6%	-2.0%	-0.6%	-0.7%	-4.9%	-2.5%	0.0%	1.7%
3	-0.4%	-2.0%	-0.6%	0.7%	-2.1%	-3.0%	0.6%	1.5%
4	1.5%	-1.2%	-1.8%	0.9%	-3.8%	-3.9%	0.8%	3.9%
5	-0.5%	1.2%	-0.6%	-1.5%	-4.5%	-5.5%	3.4%	5.5%
6	0.5%	0.9%	0.3%	-0.9%	-1.9%	-1.9%	-1.2%	1.4%
7	-1.3%	1.1%	0.9%	-2.9%	-2.8%	0.6%	2.0%	1.1%
8	-1.0%	2.1%	2.1%	-0.5%	-2.7%	-2.0%	-1.2%	3.3%
9	-0.8%	-1.8%	2.8%	6.5%	-2.0%	-1.2%	0.8%	-0.8%
10	0.6%	3.0%	1.2%	-0.5%	-1.2%	2.2%	0.9%	1.0%
11	1.8%	2.1%	0.4%	1.7%	1.3%	0.3%	0.1%	2.4%
12	0.1%	0.0%	-0.6%	1.8%	-0.6%	1.4%	0.5%	1.7%
13	-0.7%	-1.4%	-0.7%	3.4%	1.3%	-0.2%	-1.3%	0.6%
14	-0.2%	0.8%	-0.9%	-0.2%	-0.6%	1.1%	1.3%	3.8%
15	-0.3%	0.1%	0.9%	-0.3%	-1.4%	1.5%	4.8%	3.4%
16	2.4%	1.9%	-0.3%	-2.4%	-1.5%	2.3%	2.6%	4.6%
17	3.1%	0.0%	0.8%	0.3%	-1.3%	1.3%	4.2%	5.7%
18	-0.6%	-2.4%	0.3%	0.8%	-0.5%	1.0%	2.2%	6.5%
19	0.0%	-0.8%	1.2%	-1.3%	0.4%	2.9%	2.2%	5.1%
20	0.3%	0.0%	3.5%	-1.3%	0.0%	2.9%	0.6%	2.1%
21	0.1%	2.3%	3.4%	-0.6%	-0.6%	-1.7%	2.6%	3.5%
22	-0.1%	1.5%	1.0%	-2.6%	-1.2%	-0.4%	1.9%	6.2%
23	-2.1%	-0.2%	1.1%	-4.5%	-2.2%	-0.2%	0.8%	5.3%
24	-1.1%	0.6%	-0.2%	-6.2%	-5.4%	0.5%	1.0%	6.9%
Average Devaiation	0.1%	0.2%	0.6%	-0.4%	-1.8%	-0.4%	1.3%	3.3%

Forecasted On		WITH ORIGINAL VALUE		DAY	DAY+1	ON BASIS OF DATA OF DOWNLOAD ON DT:			
Forecasted On	Forecasted On	Installed Capacity = 4770MW				WIND FORECAST	08		
07-02-2019	Actual DSR Wind	Difference	Absolute % Error w.r.t. Installed capacity	Hour	09-Feb-19	10-Feb-19	11-02-2019	12-02-2019	13-02-2019
543	667	36	1%	1	839	585	449	638	831
524	635	57	1%	2	871	593	498	646	821
488	660	158	3%	3	974	548	476	562	707
482	652	205	4%	4	1091	495	589	556	648
507	611	167	4%	5	1166	640	533	512	652
540	544	108	2%	6	1159	509	621	546	562
539	406	-21	0%	7	1132	598	560	638	625
499	247	-140	-3%	8	1078	641	591	608	666
423	156	-116	-2%	9	859	588	602	714	735
332	149	4	0%	10	741	559	673	744	701
231	153	67	1%	11	801	641	734	873	773
186	203	67	1%	12	654	487	633	826	730
305	384	67	1%	13	568	492	562	691	780
484	573	69	1%	14	490	367	539	682	662
515	799	183	4%	15	324	253	480	641	635
573	926	217	5%	16	225	203	398	538	497
691	880	144	3%	17	197	226	381	558	551
673	707	3	0%	18	175	171	374	631	452
652	444	-240	-5%	19	229	159	397	581	421
667	407	-253	-5%	20	347	220	455	653	419
636	464	-155	-3%	21	494	170	426	730	486
588	517	-84	-2%	22	529	240	550	694	442
595	481	-127	-3%	23	481	412	523	796	438
649	533	-78	-2%	24	502	443	653	824	452
12.32	12.20	0.3	0%	Mus	15.9	10.2	12.7	15.9	14.7

WIND GENERATION FORECAST & ACTUAL WIND GEN. COMPARISION FOR



IMPACT OF FBSM ON MSEDCL

- Annual fixed cost component for FY 2011-12 to FY 2017-18

FY	Net Imbalance Units in Mus	MSEDCL's Average fixed cost rate/Kwh, Rs.	Amount, Rs. Cr.	Interest component Rs. Cr.	Total estimated amount Rs Cr
2011-12	-596	0.67	-40	-41	-81
2012-13	210	0.77	16	13	29
2013-14	1082	0.89	96	57	153
2014-15	1509	1.09	164	65	229
2015-16	2512	1.16	291	64	355
2016-17*	1393	1.37	191	22	213
2017-18*	1359	1.69	230	0	230
Total	7469		949	179	1128

- Variable cost component for FY 2011-12 to FY 2017-18

FY	Net Imbalance Units in Mus	Estimated amount to be recovered, Rs Cr.	Interest component	Total estimated amount , Rs Cr
2011-12	-596	25	26	51
2012-13	210	66	53	119
2013-14	1082	256	154	410
2014-15	1509	520	204	724
2015-16	2512	607	133	740
2016-17*	1393	529	62	591
2017-18*	1359	465	0	465
Total	7469	2468	632	3100



USE OF KOYNA FOR OVERDRAWAL OF MUMBAI

Mumbai OD, Koyna Use & cost if purchase from Exchnage instead of overdraw from grid							
Month	Total Koyna TMC	Mumbai OD Mus	Koyna Used for Mumbai DISCOM OD		% TMC used for Mumbai OD	If OD unit purchased from IEX	
			Mus	TMC		Purchase cost (Rs in Lac)	Average purchase cost (Rs/Kwh)
Jun-18	3.6	70.8	30.0	0.83	23%	3022	4.27
Jul-18	1.8	50.8	25.5	0.71	39%	1977	3.89
Aug-18	2.2	10.7	7.4	0.21	9%	513	4.80
Sep-18	8.8	44.2	34.5	0.96	11%	2700	6.11
Oct-18	4.8	71.2	33.4	0.93	19%	4615	6.48
Total	21.2	247.7	130.8	3.63	17%	12827	5.18

Note : OD Mus computed based on DSR of MSLDC and OD calculated excluding due to backdown of Mumbai DISCOM

Proposed commercial arrangement

- Highest variable cost in MOD. Presently Highest variable cost station is Gandhar RLNG which is Rs.8.13 per kwh

Or

- Rate of power in IEX for respective time block + 10%

In case schedule of costly power to MSEDCL by RLDC, MSEDCL shall be compensated by recovering both fix & variable cost of that station from overdrawing DISCOM at that time



MSLDC SCADA SCREEN- SHOWING DEMAND COMPUTATION AND DISCOMWISE UI

49.952

HZ 06.02.19 16:08

Maharashtra State Electricity Transmission Co. Ltd.

State Load Dispatch Centre , Kalwa

THERMAL

HYDRO

N A S I K

U3	0
U4	142
U5	0
TTL	142

K O R D Y

U6	0
U7	0
U8	491
U9	502
U10	519
TTL	1512

K H P K D

U1	159
U2	147
U3	138
U4	147
U5	369
TTL	959

P A R A S

U3	0
U4	222
TTL	222

P A R L Y

U4	-0
U5	-1
U6	0
U7	0
U8	0
TTL	-1

C H D P R

U3	176
U4	0
U5	365
U6	426
U7	330
U8	476
U9	456
TTL	2228

B H S W L

U3	0
U4	340
U5	365
TTL	705

THERMAL (Ex-Bus) 5771

THERMAL (GROSS) 6232

GAS URAN 298

COAL+GAS 6530

U4	-0	KOYNA 1&2	40
U5	-1	KOYNA 3	0
U6	0	KOYNA 4	-1
U7	0	KDPH	19
U8	0	VTRNA	0
U8	0	TILLARY	0
U8	0	BHIRATR	0
U8	0	GHATGAR	0
U3	176	OTHERS	0
U4	0	HYDRO	58

U5	365	SAKRI MEGHA	11
U6	426	SAKRI LANCO	23
U7	330	SHIRSUPHAL SLR	18
U8	476	SOLAR TTL	52
U9	456	MAHAGENCO GENERATION	6640
U9	456	GHATGR PUMP	0

Major IPP / CPP

U3	0	JINDAL (SW)	1012
U3	0	ADANI	2384
U4	340	IDEAL ENR	0
U4	340	RATTAN_IND-AMT	0
U4	340	RATTAN_IND-NSK	0
U5	365	BUTIBORI-REL	0
U5	365	SWPGL	0
U5	365	DHARIMAL	0
U5	365	PIONEER	0

RE	489
MS WIND	429
MS SOLAR	1183
COGEN (SSK)	279
OTHR+SMHYD	2379
TTL	2379

TTL(IPP/ CPP+RE) 5724

STATE GEN (Exc Mumbai) 12364

MAHAGENCO TOTAL GEN	6640
IPP/ CPP TTL.	5724
CS EXCH	5003
MUM EXCH	-972
MAHADISCOM TOTAL DEMD	16395

MUMBAT

TPC HYD.	365
TPC THM.	724
TPC TTL.	1089
AEML GEN.	372
MUM GEN.	1461
MUM EXCH	972
MUM DEMD	2433

STATE GEN	13825
STATE DEMAND	18828

CENTRAL SECTOR

	SHARE	DRAWL	DIFF
MAH.	5119	5003	-116
MP.	5391	5565	174
GUJ.	2836	2714	-122
CGARH	1030	923	-107
GOA	523	529	6

TIME BLOCK

UTILITY	SCH	(Actual) (DRAWL)	DIFF.
MSEDCL	15609	15933	324
TPC_D	635	638	3
AEML_D	1130	1123	-7
BEST	616	588	-28

DSM RATE

(PAISE) 451

C. S. GENERATION

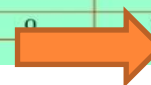
KORBAN	2483
VINCHAL	3928
GANDHAR	36
KAWAS	146
KK' PARA	207
TARPR PH-I	308
TARPR PH-II	1086
SIPAT	2375
SSP	-1
RGPPL	391
MAUDA STG-I	263
MAUDA STG-II	365
CGPL MUNDRA	3300
SOLPRN	0
CS GEN. TTL.	14888

REGIONAL EXCHANGES

	SCH.	ACT.
WR-NR	-6434	-5929
WR-SR	-2694	-3154
WR-ER	221	164

SCADA SCREEN OF MP SLDC- SHOWING MONITORING OF DISCOM DRAWAL & GENERATION INJECTION

08:43 12-11-18			MP SYSTEM OVERVIEW					FREQ	50.03	DEV RATE		0.71		
THERMAL GENERATION			HYDEL GENERATION			CENTRAL SECTOR GENERATION								
POWER STATION	INSTCAP	ACTUAL		INSTCAP	ACTUAL	UNIT_NO	VSTPS (4260MW)	KSTPS (2600MW)	SEEPAT (2980MW)	MAUDA (1000MW)	SASAN (660*6MW)	SOLPR (660*2MW)	GDRWD (800*2MW)	
STP #6	200	176	GANDHI SAGAR	115	37	1	221	148	594	481	641	449	0	
STP #7	210	150	PENCH	160	0	2	212	201	595	481	638	0	1	
STP #8	210	182	BARGI	90	88	3	215	0	587	0	642			
STP #9	210	0	TONS-BNS I	315	100	4	185	533	373	519	647			
STP #10	250	257	BANSAGAR II	30	8	5	194	502	381		643			
STP #11	250	261	BANSAGAR III	60	0	6	135	492			646			
STP TOT	1330	1025	JHINNA-BNS IV	20	12	7	502	492						
SGTIPS#1	210	167	BRS HYD	20	0	8	490	2368	2531	1445	3857	449	0	
SGTIPS#2	210	179	MADIKHEDA	60	58	9	536							
SGTIPS#3	210	0	RAJGHAT	45	26	10	541							
SGTIPS#4	210	176	INDIRA SAGAR	1000	253	11	484			DISCOM	SCHEDULE	DRAWAL	O/U DRL	
SGTIPS#5	500	503	OMKARESHWAR	520	63	12	485			EAST	3371	3322	19	
SGIP TOT	1340	1025	TOTAL HYDEL	2435	647	13	471			CENTRAL	3744	3958	21	
AMK #1	210	215				TOTAL	4675			WEST	4976	5171	195	
SSTPH1#1	600	1	POWER STATION	JP NIGRE	MB POWER	JHABUA	KAWAS	GANDHAR	KAPS	TAPS	SSP			
SSTPH1#2	600	575	INS CAP	1320	1200	1200	656.2	657.4	440	1080	1450			
SSTPH1 TOT	1200	575	ACTUAL	406	188	182	400	20	195	981	27			
SSTPH2#3	660	295	POWER STATION	ATPS	SGTIPS	STPS	SSTPS	ISP	JP BINA	BLA				
SSTPH2#4	660	0	SCHEDULE	196	950	925	569	619	313	0				
SSTPH2 TOT	1320	295	ACTUAL	196	951	934	545	253	318	0				
THERMAL	4080	3136	BREAKUP OF MP DRAWAL SCHEDULE							RE GENERATION				
SCH	2640	2910	ISGS	2978	TRNT+RAJ+UP	0	MB	188	BANKING/STOA	2083	BIOMASS	4		
			SSP	27	Rih/Matatila	18	JHABUA	182	TOTAL SCH	8058	SOLAR	537		
			DVC	0	SASAN	1332	SECI	-48	TOTAL DRL	8217	WIND	54		
			LANCO	264	JP NIGRI	406	RAILWAY	236	OD(+)/UD(-)	159	MINI HDL	0		
WR CONSTITUENT	THERMAL	HYDEL	SCHEDULE	DRAWL	DEMAND						RE TOTAL	594		
MADHYA PRADESH	2910	647	8058	8217	12681	DEVIATION DETAILS			SURRENDER POWER					
CHHATTISGARH	2830	0	413	318	3148	RATE(INST)		0.71	CATEGORY	ON BAR	OFF BAR	TOTAL		
MAHARASHTRA	12307	271	6395	6701	20335	CUM LU		-4	ISGS	-427	90	-337		
GUJRAT	5954	0	4926	4955	11935	CUM DEV (LAKHS RS)		-3	SSGS	0	0	0		
GOA	0	0	402	409	409	RATE(AVG)		0.74	IPP	75	0	75		



SCADA SCREEN SHOWING CS DRAWAL FROM IST'S POINTS

50.055

HZ 29.01.19 08:31

Maharashtra State Electricity Transmission Co. Ltd.

State Load Dispatch Centre, Kalwa

C. S. DRAWAL				C. S. DRAWAL					
	#S	WR	DIFF		#S	WR	DIFF		
	END	END			END	END			
1	400 KV KORADI - BHILAI	153	146	7	25	400 KV CHAPAN - TALEGAONPG	509	528	-19
2	400 KV KORADI - SATPURA	-47	-55	8	26	400 KV LONIPAND-TALEGAONPG	288	288	0
3	400 KV CHDPR - BDRVT(1-4)	-907	-931	24	27	400 KV KHARGAR - TALEGAONPG	222	254	-32
4	400 KV DHULE - KHANDWA(D/C)	571	567	3	28	400 KV KALWA - TALEGAONPG	245	234	11
5	400 KV DHULE - SDSRV(D/C)	51	54	-3	29	220 KV TALEGN AMBI-TALEGNPG (D/C)	190	309	-119
6	400 KV DHULE - DHULE_BD(D/C)	356	357	-2	30	400 KV ARGBDMS- PUNE GIS (D/C)	-522	-521	-1
7	400 KV PADGHE - BOISRPG	242	241	1	31	220 KV KLSMR - PANDHURNA	-54	-54	0
8	400 KV PADGHE - TARPAPRG(D/C)	662	662	0	32	400 KV NEWKOYNA- DABHOL (D/C)	124	120	5
9	400 KV PRLYMS - PRLYPG(D/C)	634	634	0	33	400 KV NGOTNE- DABHOL (D/C)	507	502	5
10	400 KV AKOLA - WARDHAPG(D/C)	597	601	-4	34	220 KV BOISRMS- BOISRPGPG (1-3)	369	516	-147
11	400 KV WARDHA-WARDHAPG	-823	-813	-9	35	220 KV NALASOPARA - BOISRPGPG	151	183	-32
12	400 KV KORADI2-WARDHAPG	-614	-613	-1	36	220 KV NASIK - NYSRY(D/C)	103	98	5
13	220 KV WARDHA -WARDHAPG	75	73	2	37	400 KV KOLHAPR- KOLHAPRPG (D/C)	33	23	10
14	220 KV BADNERA -WARDHAPG	94	97	-3	38	220 KV TILLARI - AMONA	-41	-42	1
15	400 KV AKOLA - ARGBDPG(D/C)	-513	-507	-6	39	220 KV MAHALAXMI - AMONA	-44	-43	-2
16	400 KV ARGBDMS - ARGBDPG(D/C)	651	649	2	40	220 KV BOISRMS - TARAPUR	76	76	0
17	220 KV CHITEGAON- ARGBDPG (D/C)	188	189	-0	41	220 KV BORIVLI - TARAPUR	94	165	-71
18	220 KV SHENDRA- ARGBDPG (D/C)	26	37	-11	42	220 KV TARAPUR ZONE3 LOAD	10	10	0
19	400 KV SOLPRMS - SOLPRPG	54	124	-70	43	132 KV KANHAN - PENCH	-0	-1	1
20	400 KV KARAD - SOLPRPG	0	-0	0	44	132 KV MANSAR - PENCH	0	0	0
21	400 KV KOLHAPR - SOLPRPG	242	238	5	45	220 KV PUSAD - WARDHAPG	167	174	-8
22	400 KV ALKUD - SOLPRPG	260	270	-10	46	220 KV BHUGAON - WARDHAPG	70	64	10
23	220 KV SOLPR SOUTH-SOLPRPG(D/C)	27	67	-40	47	220 KV JEUR - SOLPRPG	46	115	-69
24	220 KV PARLIMS- PARLIPG	178	180	-2	48	220 KV OSMNBD - PARLIPG	144	148	-3

TOTAL MAH CS_DR_#SEND

4847

TOTAL MAH CS_DR_WREND

6131

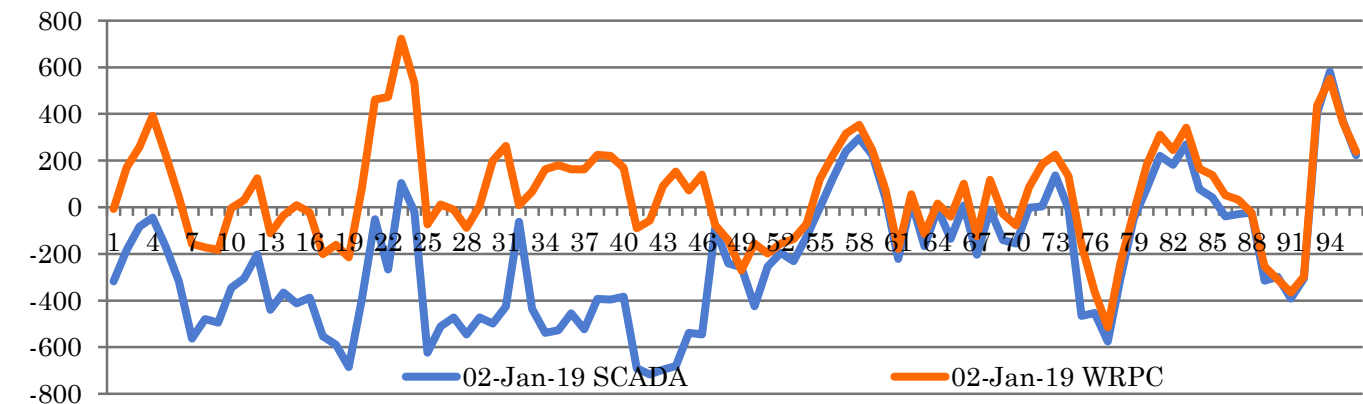
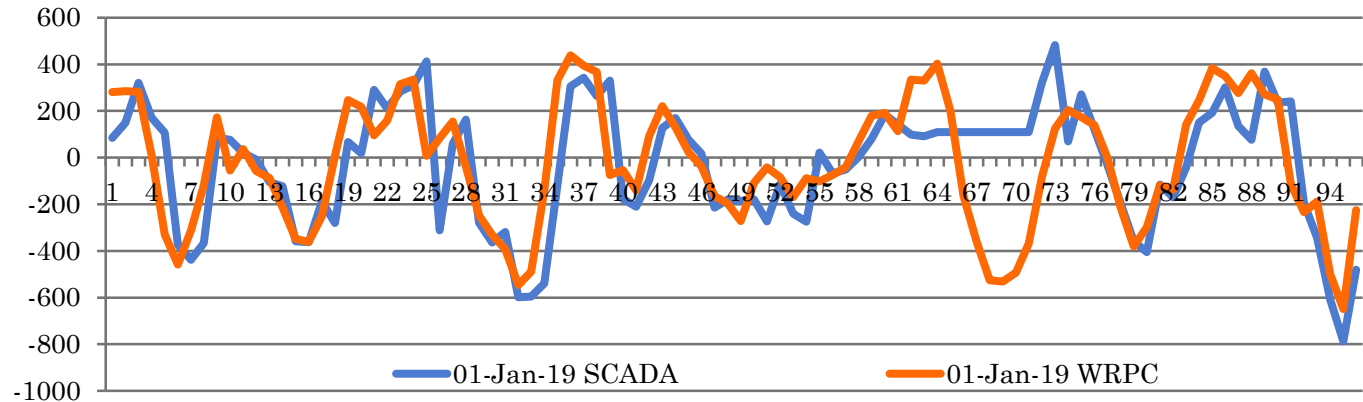
TOTAL DIFF

-1273

Note: The figures shown above are indicative only & are calculated based on data acquired from remote locations in Maharashtra over existing

DIFFERENCE IN SCADA UI & WRPC DSM BILL UI

Hour	01-01-19			02-01-2019		
	WRP C	SCADA A	Difference	WRP C	SCADA A	Difference
1	214	181	33	203	-157	360
2	-304	-268	-36	-15	-382	367
3	24	43	-19	-8	-337	329
4	-252	-237	-15	-40	-402	361
5	55	-96	151	-124	-555	432
6	226	274	-48	547	-58	605
7	52	81	-29	-40	-538	498
8	-379	-390	11	119	-365	485
9	35	-238	272	143	-489	633
10	159	190	-31	194	-424	618
11	76	-3	78	24	-696	721
12	-94	-75	-19	-2	-354	352
13	-127	-188	61	-195	-283	87
14	-108	-140	32	34	-59	93
15	100	54	46	247	201	47
16	295	111	184	-56	-92	36
17	-212	109	-321	13	-86	99
18	-369	162	-531	41	-74	115
19	161	236	-76	-41	-198	156
20	-224	-248	24	-148	-212	64
21	33	-44	77	265	188	78
22	343	177	166	50	-13	62
23	44	163	-119	-307	-328	21
24	-390	-555	165	397	394	3



In real time operation, email given to SLDC on 02.01.2019 at 02:36 Hrs regarding SCADA data issue

IMPACT OF SCADA VISIBILITY ON DSM CHARGES

Date	As per WRPC Bill								As per SCADA								Impact of SCADA	Net SCADA UI Diff (MW)
	OD Mus	UD MUS	Base DSM (Rs. In lac)	CAP DSM (Rs. In lac)	DSM Penalty (Rs. In lac)	Nos of sign change Violation	Sign Change Penalty (Rs. In lac)	Net (Rs. In lac)	OD Mus	UD MUS	Base DSM (Rs. In lac)	CAP DSM (Rs. In lac)	DSM Penalty (Rs. In lac)	Nos of sign change Violation	Sign Change Penalty (Rs. In lac)	Net (Rs. In lac)		
01-Jan-19	2.4	-2.6	7	24	41	6	38	110	2.2	-2.9	-14	31	27	9	31	76	34	154
02-Jan-19	2.8	-1.4	78	4	27	3	49	159	0.9	-6.2	-198	91	8	8	171	72	87	277
03-Jan-19	1.6	-2.7	-74	26	5	3	29	-14	1.4	-3.2	-102	30	6	2	28	-37	23	49
04-Jan-19	1.4	-2.9	-90	38	6	3	31	-15	1.2	-3.6	-123	41	11	3	49	-22	7	71
05-Jan-19	2.1	-1.7	11	7	25	4	14	58	1.3	-3.2	-45	11	30	5	34	30	28	83
06-Jan-19	1.4	-2.2	-36	21	11	4	12	8	1.0	-3.0	-56	19	13	4	29	6	2	88
07-Jan-19	1.2	-3.0	-59	24	40	9	63	69	1.1	-4.3	-84	37	39	7	66	58	11	61
08-Jan-19	1.6	-1.8	-15	9	6	2	3	2	1.0	-2.4	-54	10	8	4	36	-1	3	68
09-Jan-19	1.4	-2.3	-25	10	3	3	9	-3	1.1	-3.2	-70	31	1	5	38	1	-4	106
10-Jan-19	2.6	-1.5	61	7	26	7	95	188	0.9	-2.7	-64	20	8	6	53	17	172	152
11-Jan-19	2.1	-2.0	4	9	11	7	19	43	1.3	-2.3	-51	14	3	4	30	-4	47	95
12-Jan-19	2.5	-1.6	42	9	23	4	41	116	1.8	-2.0	-5	8	14	3	2	19	96	79
13-Jan-19	1.1	-2.1	-30	6	18	4	19	13	0.9	-2.8	-51	8	22	4	34	14	-1	57
14-Jan-19	1.5	-1.8	-13	16	9	5	3	15	1.4	-2.2	-22	14	8	5	8	8	8	46
15-Jan-19	2.2	-1.3	5	6	8	4	8	27	1.6	-1.6	-11	4	11	3	4	8	19	54
16-Jan-19	2.1	-1.1	38	4	15	4	34	91	1.3	-2.1	-13	11	15	2	1	14	76	78
17-Jan-19	1.6	-1.9	1	3	11	3	3	18	1.5	-2.5	-17	6	10	3	7	5	13	46
18-Jan-19	0.6	-2.1	-61	7	5	6	65	16	0.5	-2.7	-103	22	2	4	65	-15	31	63
19-Jan-19	2.2	-1.5	17	2	3	3	11	33	1.9	-1.9	-15	4	2	3	7	-3	36	64
20-Jan-19	1.5	-1.5	-12	2	8	3	6	4	1.2	-1.9	-25	4	8	2	8	-5	9	37
Total	35.9	-39.0	-151	235	301	87	552	937	25.5	-56.6	-1122	417	244	86	701	240	697	56

IMPACT OF SCADA VISIBILITY ON DSM CHARGES

Month	As per WRPC DSM Bill						As per SCADA						Net Impact (Rs in lac)
	OD Mus	UD MUS	Base DSM (Rs. In lac)	CAP DSM (Rs. In lac)	DSM Penalty (Rs. In lac)	Net (Rs. In lac)	OD Mus	UD MUS	Base DSM (Rs. In lac)	CAP DSM (Rs. In lac)	DSM Penalty (Rs. In lac)	Net (Rs. In lac)	
Apr-18	83	-57	825	244	435	1503	44	-69	-537	278	42	-218	1721
May-18	95	-51	1235	292	385	1912	78	-56	564	251	248	1063	849
Jun-18	58	-98	-650	623	205	178	59	-87	-304	401	178	274	-96
Jul-18	73	-94	-370	589	276	496	46	-115	-1385	694	104	-587	1083
Aug-18	61	-81	-168	382	199	413	45	-92	-738	433	68	-237	650
Sep-18	81	-52	957	189	238	1385	79	-57	612	331	273	1216	169
Oct-18	84	-72	599	395	355	1349	73	-81	48	458	226	732	617
Nov-18	50	-85	-656	416	123	-118	49	-92	-909	472	100	-337	219
Dec-18	54	-67	-210	251	81	122	48	-79	-680	324	72	-283	404
Total	638	-656	1563	3380	2298	7240	521	-729	-3329	3640	1312	1623	5617

Days having Financial Burden more than Rs.100 Lac									
Date	Avg. Diff (MW)	DSM Bill as per SCADA	DSM bill as per 3rd Amend.	DSM bill as per 4th Amend.	Date	Avg. Diff (MW)	DSM Bill as per SCADA	DSM bill as per 3rd Amend.	DSM bill as per 4th Amend.
10-Apr-18	146	-6	101	301	04-Jun-18	103	42	143	574
11-Apr-18	583	-62	411	2216	30-Jun-18	175	-62	52	163
12-Apr-18	223	21	174	631	26-Jul-18	225	-36	68	327
28-Apr-18	462	-33	385	2179	27-Jul-18	121	-45	56	187
13-May-18	190	56	203	1014	06-Aug-18	274	26	220	891
18-May-18	160	-24	95	323	13-Sep-18	272	-22	166	869
19-May-18	135	73	227	914	14-Sep-18	164	69	198	1305
27-May-18	112	45	166	658	10-Oct-18	197	106	315	1635

All Rupees in Lacs



WIND SCADA VISIBILITY

NW400MVR - NW400MVR

50.075 HZ 11.02.19 07:30

Maharashtra State Electricity Transmission Co. Ltd.

State Load Dispatch Centre, Kalwa

Renewable Energy_Wind

WIND																	
STATION	DIST	IC	MW	STATION	DIST	IC	MW	STATION	DIST	IC	MW	STATION	DIST	IC	MW		
1 ADITYA ENGG (Bhud)	Sangli	30	2.6	36 SUZLON(Jamde)	Dhule	328	11.7	71 WINDWORLD(Panchpalta)	Nashik	62	3.4						
2 AMRIK(Suzlon-Khaprale)	Nashik	88	11.8	37 SUZLON(Mendigiri)	Sangli	122	-0.3	72 WINDWORLD(Vare'vadi)	Satara	10	0.4						
3 BOTHE WINDFARM(othel)	Satara	200	32.2	38 SUZLON(Kedgaon)	A'nagar	22	3.0	73 VICTORY (Pokhari)	Beed	9	0.0						
4 GAMESA (Bhedevasdi)	K'pur	25	0.0	39 SUZLON(Kundalapur)	Sangli	9	0.0	74 ZYPHERSUN (Paloda)	Beed	10	0.2						
5 GAMESA(Kirvere)	A'nagar	48	0.0	40 SUZLON(Malharpeth)	Satara	47	5.0										
6 GAMESA (Mendigiri)	Sangli	39	2.1	41 SUZLON(Nandurbar)	N'bar	40	0.0										
7 GAMESA (Vaspeh)	Sangli	199	31.9	42 SUZLON(Nigde)	Satara	95	-0.4										
8 GIRIRAJ (Ambheri)	Satara	16	0.7	43 SUZLON(Pandurli)	Nashik	9	6.3										
9 GIRIRAJ (Kadegaon)	Sangli	15	0.0	44 SUZLON(Parali)	Satara	11	0.4										
10 GIRIRAJ(Sanmadi)	Sangli	10	1.0	45 SUZLON(Ranala)	N'bar	11	1.1										
11 ITC SANGLI(Bhud)	Sangli	6	3.6	46 SUZLON(Sadawaghpr)	Satara	118	1.5										
12 ITC NANDURBAR(akla)	N'bar	6	1.1	47 SUZLON(Savljaj)	Sangli	24	0.6										
13 KRISHNA POWER(undh)	Satara	8	0.3	48 SUZLON(Shirshi)	Sangli	8	0.5										
14 MALPANI(Nigde)	Satara	24	-0.4	49 SUZLON(Supa)	A'nagar	35	1.7										
15 MARUTI WIND(Bhud)	Sangli	250	11.6	50 SUZLON(Undale)	Satara	6	6.8										
16 MARUTI WIND(Shedyal)	Sangli	250	27.5	51 SUZLON(Vankuswade)	Satara	186	1.9										
17 PANAMA (Merle)	Satara	101	7.4	52 SUZLON(Vita)	Sangli	11	2.3										
18 PANAMA-2(BEED)	Beed	80	7.7	53 SUZLON(Walve)	Dhule	168	80.6										
19 REGEN (Hivarvadi)	Satara	183	34.8	54 TS WIND (Aundh)	Satara	33	6.0										
20 REGEN & TATA(Mayani)	Satara	99	4.5	55 TS WIND(Alephata)	Pune	30	7.5										
21 REGEN PWR (Savargaon)	Y'tmal	10	0.7	56 TS WIND(Medha)	Satara	7	0.0										
22 RENEW PWR(Khandke)	A'nagar	74	23.3	57 TS WIND(Shirata)	K'pur	42	0.3										
23 RENEW WIND(Aundh)	Satara	28	0.0	58 TS WIND(Wai)	Satara	20	1.5										
24 RWPP (Palsi)	Satara	98	3.3	59 VALSANG (Sangli)	Sangli	102	20.1										
25 SANJANA PWR(Satara)	Satara	6	0.3	60 VESTAS WIND(Karve)	Sangli	43	-0.8										
26 SERUM INST(Jath)	Sangli	38	4.1	61 VESTAS WIND(Sakri)	Dhule	53	0.0										
27 SERUM INST(Sakri)	Dhule	34	-0.1	62 VESTAS WIND(Hirala)	Sangli	38	0.0										
28 SHAH DEVP (Khandke)	A'nagar	22	10.3	63 VICTORY (Jamkhed)	A'nagar	9	-0.0										
29 SHAH DEVP(Koregaon)	Satara	12	-0.0	64 VISH WIND(Khandke)	A'nagar	200	18.5										
30 SIVA RENEWABLE(Jath)	Sangli	14	0.0	65 WINDWORLD(Andralake)	Pune	106	0.6										
31 SRIRAM EPC(Kokrale)	Satara	13	0.0	66 WINDWORLD(Bham'vadi)	Sangli	50	5.5										
32 SUYOG URJA (A'vadi)	A'bad	50	0.0	67 WINDWORLD(Bavneshvr)	Satara	62	5.3										
33 SUZLON (Bhoysre Patthar)	A'nagar	8	1.9	68 WINDWORLD(Darvekurdh)	Satara	6	0.0										
34 SUZLON(Gangapur)	N'bar	236	2.2	69 WINDWORLD(Khanapur)	Sangli	35	5.3										
35 SUZLON(Ghainandare)	Sangli	226	9.3	70 WINDWORLD(Khandke)	A'nagar	50	18.5										
													TTL WIND	439			

2019.02.11 - 07:30

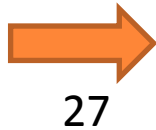
Page 5

OTHER & SMALL HYDRO SCADA VISIBILITY

NW400MVR - NW400MVR

49.942 HZ 11.02.19 07:30 Maharashtra State Electricity Transmission Co. Ltd. State Load Dispatch Centre, Kalwa
Others & Small Hydro

OTHERS				Small Hydro																
SN	STATION	DIST.	IC	MW	SN	STATION	DIST.	IC	MW	SN	STATION	DIST.	IC	MW	SN	STATION	DIST.	IC	MW	
1	FINOLEX	R'giri	43	0	GOM WRD Projects															
2	ULTRATECH	C'pur	84	64	1	YEOTESHWAR	Satara		0.075											
3	UTTAM GALVA	Raigad	18	0	2	SHAHNOOR	A'vati		0.750											
4	ADITYA BIRLA	Raigad	23	10	3	MAJALGAON	Beed		2.250											
5	SURYALAXMI	Nagpur	25	0	4	KARANJWAN	Nashik		3.000											
6	INDRAJIT PWR	Wardha	80	0	5	WAN	Akola		1.500											
7	AA ENERGY	G'chirol	40	0	6	DOLWAHAL	Raigad		2.000											
8	INDORAMA	Nagpur	49	14	7	VEER	Satara		9.000											
9	APPLE SPONGE	K'pur	12	0	Private Projects															
10	LLOYDS METAL	C'pur	120	0	1	MAHALAXMI	K'pur		10.00											
11	JSW WADKHAL	Raigad	53	54	2	DARNA	Nashik		4.90											
12	B. S. ISPAT	C'pur	25	0	3	MAHATI	Sangli		5.00	0										
13	PRITHVI (COAL)	C'pur	18	0	4	KHODASHI	Satara		4.90											
14	GRETA (COAL)	C'pur	15	17	5	GATPRABHA	K'pur		8.00											
15	GRACE (COAL)	C'pur	33	0	6	PENCH KAMPTY (RBC)	Nagpur		1.40											
16	MANIKGD CEMENT	C'pur	75	48	7	GADRE MARINE	S'durg		1.50											
17	GMT MINING	Nagpur	10	10	8	KASRI-VISHWAJ	K'pur		2.50											
18	UTTAM GALVA (2)	Wardha	18	0	9	B'WADI-VISHWAJ	Satara		4.00											
19	MVNL WARDHA	Wardha	10	0	10	GAUTAMI GODAVARI	Nashik		1.20											
20	MANAS AGRO	C'pur	18	0	11	NILWANDE	A'nagar		7.00											
21	SOLAPUR BIO	S'pur	3	0	12	PENCH (LBC)	Nagpur		4.40											
22	SPARK GREEN	A'nagar	25	0	13	MULA (RBC)	A'nagar		4.00											
23	RELIANCE PGANGA	Raigad	80	0	14	MUKANE	Nashik		1.45											
24	JSW TARAPUR	Palghar	38	0	15	URMODI	Satara		3.00											
25	TOPWORTH	Nagpur	25	0	16	MAHATI (GOSHIKURD)	B'dara		24.00	20										
26	VINATI ORGANICS	R'giri	9	5	17	HETAWANE	Raigad		1.50											
27	VAYUNANDAN POWER	G'chirol	410	12	18	NIRA DEODHAR	B'mati		6.00											
28					19	KANHER (LBC)	Satara		1.20											
29					20	CHIKOTRA HEP	K'pur		1.80											
30					21	JAMBRE HEP	K'pur		2.00											
31					22	VEER NIRA (MAHATI)	Pune		4.80	0										
32					23	GOSIKHURD (RBC)	B'dara		2.50											
33					24	GUNJAWANI	Pune		2.00											
34					25	PURNA HEP	A'vati		0.50											
35					26	LAXMI ORGANIC	Pune		4.00	0										
36					27	R M MOHITE	K'pur		10	0										
37																				
38																				
39																				
40																				
						TTL OTHERS+ Small Hyd			288											

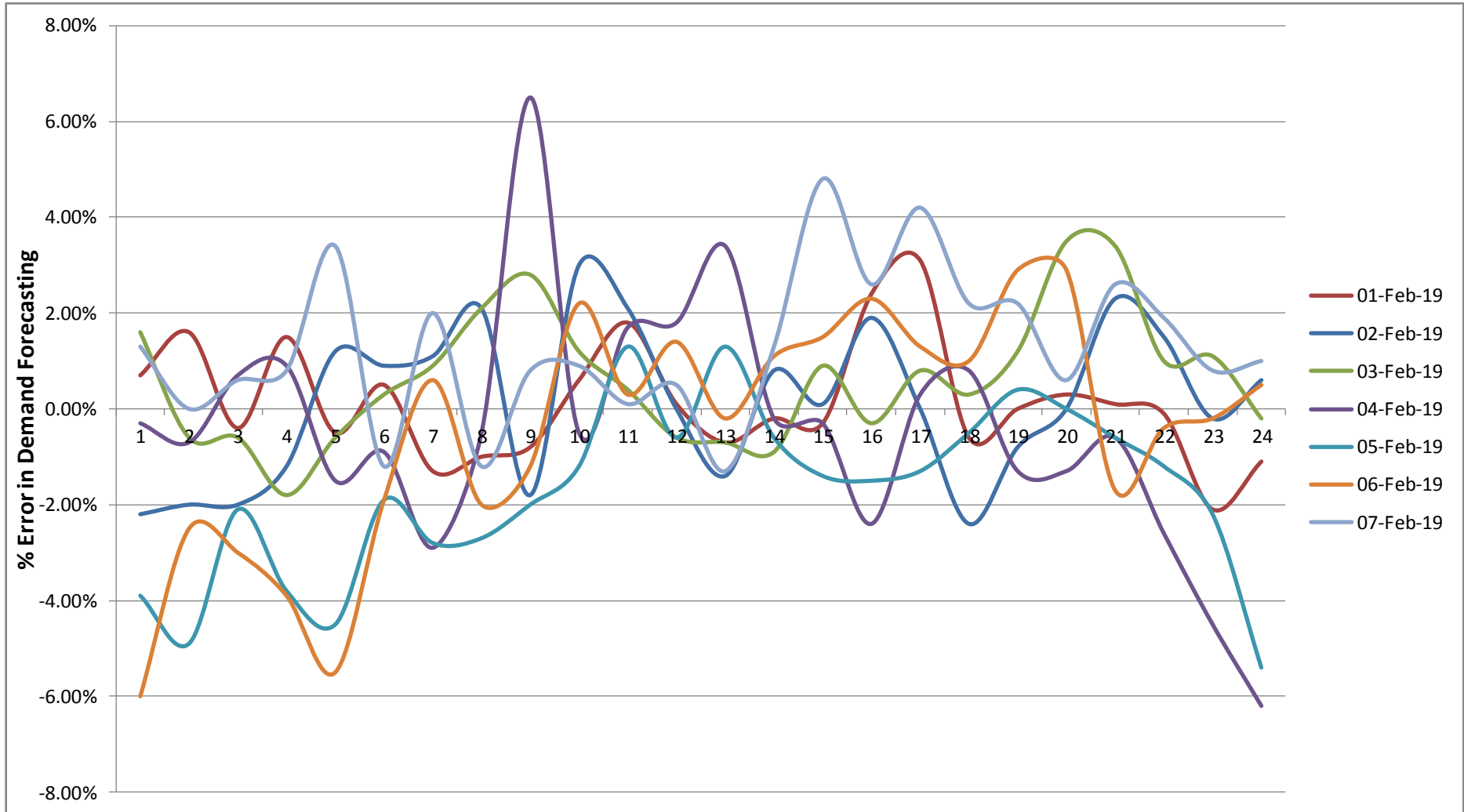


QUANTUM OF COGEN & SMALL HYDRO

particulars	Cogen		Small Hydro & Others	
	Nos	MW	Nos	MW
Total Nos of Generators	112	2148	57	1061
Nos of generators with installed capacity less than 25 MW	87	1354	46	306
% of generator with installed capacity less than 25MW w.r.to total	78%	63%	81%	29%



% ERROR OBSERVED IN DAILY DEMAND FORECAST



SCENARIO BUILDING FOR MAHARASHTRA

SCENARIO-I I- DEMAND EQUAL TO AVAILABILITY FROM LTA GENERATOR

Licensee	Tied-up under Coal & Gas	Tied-up under RE	Available for MoD	Available under Must Run	Capacity tie up under STOA	Demand	Contracted Capacity under MoD	Decentralised MoD	V. Cost Allocation	V. Cost Allocation	National MoD	MCP	V. Cost Allocation	Refund from Gen.	Share from Beneficiaries	V. Cost Allocation	V. Cost Allocation	Saving
	MW	MW	MW	MW	MW	MW	%	MW	Rs. Crs	Rs./kWh	MW	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs./kWh	Rs. Crs
MSEDCL	21,785	11,954	18,435	5,072	-	23,507	92.68%	23507	59.52	2.53	20,127		120.83	60.67	-	60.15	2.56	-0.63
AEML	1,100	190	935	42	523	1,500	73.33%	1500	5.32	3.55	1,239	5.14	7.71	2.25	-	5.46	3.64	-0.14
TATA + BEST	930	815	737	489	374	1,600	58.13%	1600	8.85	5.53	566		8.22	1.27	-	6.95	4.34	1.90
Total	23,815		20,107	5,603	897	26,607	75.57%	26,607	73.70		26,607		136.76	64.20	-	72.56	10.54	1.14

SCENARIO-I I- DEMAND MORE THAN AVAILABILITY FROM LTA GENERATOR

Licensee	Tied-up under Coal & Gas	Tied-up under RE	Available for MoD	Available under Must Run	Capacity tie up under STOA	Demand	Contracted Capacity under MoD	Decentralised MoD	V. Cost Allocation	V. Cost Allocation	National MoD	MCP	V. Cost Allocation	Refund from Gen.	Share from Beneficiaries	V. Cost Allocation	V. Cost Allocation	Saving
	MW	MW	MW	MW	MW	MW	%	MW	Rs. Crs	Rs./kWh	MW	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs./kWh	Rs. Crs
MSEDCL	21,785	11,954	18,435	5,072	493	24,000	90.77%	24000	59.87	2.49	20,127		123.60	60.96	-	62.64	2.61	-2.77
AEML	1,100	190	935	42	523	1,500	73.33%	1500	5.32	3.55	1,239	5.15	7.73	2.27	-	5.46	3.64	-0.14
TATA + BEST	930	815	737	489	374	1,600	58.13%	1600	8.85	5.53	566		8.24	1.28	-	6.96	4.35	1.90
Total	23,815		20,107	5,603	1,390	27,100	74.20%	27,100	74.05		27,100		139.57	64.52	-	75.05	10.60	-1.00

SCENARIO BUILDING FOR MAHARASHTRA

SCENARIO-I I- DEMAND LESS THAN AVAILABILITY FROM LTA GENERATOR

Licensee	Tied-up under Coal & Gas	Tied-up under RE	Available for MoD	Available under Must Run	Capacity tie up under STOA	Demand	Contracted Capacity under MoD	Decentralised MoD	V. Cost Allocation	V. Cost Allocation	National MoD	MCP	V. Cost Allocation	Refund from Gen.	Share from Beneficiaries	V. Cost Allocation	V. Cost Allocation	Saving
	MW	MW	MW	MW	MW	MW	%	MW	Rs. Crs	Rs./kWh	MW	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs. Crs	Rs./kWh	Rs. Crs
MSEDCL	21,785	11,954	18,435	5,072	-	20,500	106.27%	20500	44.18	2.16	20,127		104.76	59.98	0.01	44.77	2.18	-0.59
AEML	1,100	190	935	42	523	1,500	73.33%	1500	5.32	3.55	1,239	5.11	7.67	2.21	-	5.46	3.64	-0.14
TATA + BEST	930	815	737	489	374	1,600	58.13%	1600	8.85	5.53	566		8.18	1.24	-	6.94	4.34	1.92
Total	23,815		20,107	5,603	897	23,600	85.20%	23,600	58.36		23,600		120.60	63.42	0.01	57.17	10.16	1.19