GUJARAT ELECTRICITY REGULATORY COMMISSION
Ahmedabad

Minutes of the 14th Meeting of the Co-Ordination Forum held on 24th January, 2014.

The 14th meeting of the Co-ordination Forum was held in the Conference room of the GERC Office, GIFT City, Gandhinagar on 24th January, 2014 at 03:00 PM.

The following were present in the meeting,

1. Shri Pravinbhai Patel,Chairman, GERC
2. Dr.M.K.Iyer, Member (Finance), GERC

Members / Representatives of Co-ordination Forum:

1. Shri Raj Gopal, IAS, MD, GUVNL
2. Shri N. Srivastava, IFS, MD, UGVCL
3. Shri S.B. Khayaliya MD, MGVCL
4. Shri Sandeep Kumar, IAS, MD, PGVCL
5. Shri P. M. Parmar, I/c ED, GSECL
6. Shri K. H. Chorera, Energy and Petrochemical Dept.
7. Shri P.N. Gandhi, Chief Electrical Inspector
8. Shri Murli Rangnathan, Managing Director, Torrent Power Limited, Ahmedabad.
9. Shri Samir Shah, Executive Director, Torrent Power Limited, Ahmedabad
10. Shri S. L. Amrani, IAS, Director, GEDA
11. Shri S.B.Patil, Dy. Director, GEDA
12. Shri K.P. Jangid, G.M.(Commerce),GUVNL
13. Shri Y. D. Brahmbhatt, GUVNL
14. Shri S. P. Trivedi, EE, GUVNL
15. Shri B.B. Mehta, CE, SLDC , Vadodara
16. Shri A. J. Mehta, SE, GSECL
17. Smt. Alpana Dani, Office of the Chief Electrical Inspector
18. Smt. C.R. Desai, CE, UGVCL
19. Smt. M. M Marathe, CE, MGVCL
20. Shri B. V. Shah, ACE, DGVCL
21. Shri Jasmin J. Gandhi, SE (R&C), PGVCL
22. Shri C. M. Bundela, TPL
23. Shri T.S. Bhatt, MD, Essar Power, (Hazira)
24. Shri Bhavesh Kundalia, Essar Power Gujarat Ltd.,
25. Shri Mehul Rupera, Sr. Manager, MUPL
26. Shri P.S. Pathan, SE (E), KPT

Officers of the Commission:

1. Shri D.R.Parmar, Joint Director,
2. Shri S.R.Pandey, Legal Advisor,
3. Shri M.N.Khalayani, Deputy Director (A & A),
4. Shri S. T. Anada, Deputy Director,
5. Shri Apurva Adhvaryu, Deputy Director,
6. Shri Gopal Dayalani, Deputy Director,

Shri M. N. Khalyani, Deputy Director (A & A) welcomed all the members of the State Co-ordination Forum in the meeting.

The meeting was presided over by Shri Pravinbhai Patel, Chairman, GERC. Chairman welcomed all the members to the meeting and sought support from the members during his tenure as the Chairman of the GERC as the Commission has been receiving so far. Thereafter, the discussion took place on the agenda items.

Agenda Item No. 1: Approval of the minutes of the 13th Meeting of the Co-ordination Forum held on 18th July 2013

Minutes of the last meeting as circulated to the members was confirmed as no comments were received.

Agenda Item No. 2: Action Taken Report on the minutes of the 12th Meeting of the Co-ordination Forum.

2.1 Item No. 2.2 (6) : CEI stated that the laws related to laying cables by cable operators and internet service providers, CEA safety regulations, relevant Indian Standards and requirement of co-ordination amongst authorities have been studied. CEI and the members of the Forum felt that Cable TV Network Operations being a highly unorganized sector, even if any authority prescribes any rule or guideline, it is impossible to enforce the same. The Commission advised the utilities to remove such type of cables from the electricity network and take up this activity on a continuous basis because safety cannot be compromised for facilitating any network operator. All the DISCOMs shall keep the Forum informed by reporting the activities carried out for removal of unauthorized cables from it's network.

2.2 Item No.2.2 (9): Chairman, GERC appreciated the work done by PGVCL in reducing T & D losses stating that the performance achieved by PGVCL is remarkable as the

overall T & D losses are reduced to 18.97 % in September, 2013 in comparison to 28.49 % in September, 2012 and hoped that the efforts will be continued to keep T & D losses under 20 % for the full year. MD, PGVCL informed about the various actions taken to reduce the T & D losses. On query from the Commission, MD, PGVCL confirmed that the T & D loss data and its calculations are being verified by the senior officers and stated that there is no inconsistency in the data. MD, PGVCL was directed to maintain the performance and achieve target of lower than 20 % T & D losses for the full year.
(Action: PGVCL)

2.3 Item No. 2 (7): CEI stated that a trial was carried out in the Torrent Power Limited area regarding provision of islanding facilities in Inverters and results were found to be satisfactory. The Commission is under process of framing Regulations on Connectivity Standards for Distributed Generation Sources for voltage level below 33 kV. All the utilities have been asked to submit their views on the subject matter. Incorporating the views received from the utilities a Draft Regulations shall be published by the Commission for soliciting views of the other stakeholders.

2.4 Item No. 2 (8): CEI informed that the purpose of asking details of star ratings of the apparatus from new consumers in the Test Report Form is to educate them and encourage for usage of energy efficient apparatus. CEI also recommended giving blank Test Report Form containing details of consumer along with the money receipt to be given to the prospective consumer on payment of estimates. This shall help to avoid frauds regarding selling of blank Test Report Forms by unauthorized persons. CEI emphasized that it is the DISCOMs' responsibility to see as to whether the wiring at the premises are meeting the safety norms. The Commission advised the Distribution Companies to follow the procedure and the format suggested by the CEI.
(Actions: All Distribution Licensees)

2.5 Item No. 2 (9 (B)) **:** The Commission reviewed the detailed reports furnished by the Distribution Utilities regarding review done by their MDs on compliance of CGRF and Ombudsman's orders and found out that DGVCL's report is incomplete and it is just a performance report. Member (Finance) showed his apprehensions over DISCOMs delaying the implementation of the Ombudsman's orders. MD, MGVCL suggested that the copy of the Ombudsman's order should also be sent to the Managing Directors of the

concerned DISCOM, so that execution of the orders can be monitored effectively. It was advised to all DISCOMs to implement the Ombudsman's orders in time limit specified in the Regulations and not after the reminders from the Ombudsman. It was also decided to inform the Ombudsman to send copy of each order to the MD of concerned Distribution Company.
(Action: Ombudsman)

2.6 Item No. 2 (10): The Commission looked at the progress of installation of meter on distribution transformers of all DISCOMs. Regarding the Commission's directives to install meter on HVDS transformers, MD, MGVCL informed that the same is not possible as it will increase the possibility of theft. Further, he opined that there is only one consumer on each HVDS Transformer. Energy recorded in the consumer's meter can be utilized for energy audit purpose. The Commission agreed with the suggestion of MD, MGVCL and directed all DISCOMs to consider all the HVDS Transformers as metered transformers where only one consumer is being supplied through meter.
(Action: DISCOMs)

2.7 Item No. 4: MD, MGVCL stated that 7 Solar Pumps were installed as a part of DSM activity and informed that the operation is satisfactory, though, there were some issues about metering and the same are being resolved by providing DC meters. MD, UGVCL informed that they have not installed any Solar Pumps till date but have placed orders for purchase. MD, PGVCL informed that 6 Solar Pumps have been installed at the Krushi Vikas Kendra as a part of DSM Measures with an idea to create awareness among the farmers. TPL stated that it will incorporate the same in its DSM Plan. Representative of DGVCL stated that 6 Solar Pumps were installed at the consumers' premises which are found functioning satisfactorily and the same are also billed. The Commission directed to keep the Forum updated about measures taken for Demand Side Management.
Actions: DISCOMs and TPL)

Agenda Item No. 3: Petitions for Review of Business Plan

The Commission informed that Petitions for Review of Business Plan, Truing up and Tariff Determination have been filed by all the utilities. Views and Objections form the various Stakeholders and consumers have been solicited. Hearing on the petition is

scheduled on second week of February. A separate intimation shall be sent to all concerned in this regard.

Agenda Item No. 4: Demand Side Management

Chairman, GERC stated that all State Owned DISCOMs as well as TPL are given extension up to 7th February, 2014 for the submission of DSM Plan.
(Action: DISCOMs and TPL)

Agenda Item No. 5: Fuel Audit of GSECL and TPL Stations

GSECL informed that all the recommendations suggested in the Final Report are being implemented. It was advised to GSECL and TPL to implement the Final suggestions within time limit and send Action Taken report of the same.
(Action: GSECL and TPL)

Agenda Item No. 6: Comprehensive Third-Party Audit of Annual Accounts of State Owned DISCOMs and TPL.

The Commission informed the Forum that final report is awaited.

Agenda Item No. 7: Standard of Performance (SoP) and Monitoring of performance of CGRFs

Utility wise SoP reports of Q1 and Q2 of FY 2013-14 alongwith reports of previous year were discussed. The Commission observed that accidents, pendency of replacement of faulty meters and Reliability Indices were not improved up to the mark Chairman, GERC suggested that SoP reports should be reviewed at MD level in all DISCOMs in regular manner and ensure its improvement.
(Action: All DISCOMs)

Agenda Item No. 8: Draft Amendment to RPO Regulations, 2010.

The Commission stated that it has received suggestions/objections on the Draft Amendment to RPO Regulation and is studying the same. Based on those suggestions/objections, the Commission will publish the final Amendment to RPO Regulations.

Agenda Item No. 9: Status of Transmission Projects.

The CE, SLDC briefed the Commission on the development of transmission network, performance of transmission network, planning and achievement for the FY 2013-14, planning and progress of FY 2012-13, steps taken by GETCO towards Smart Grid and critical issues being faced by utility. The CE, SLDC explained the problems being faced while operating the State Grid due to frequent variations in wind generation on account of vagaries of weather and also steps taken to overcome those problems.

Agenda Item No. 11: Status of RPO – Presentation by GEDA.

Shri S.B. Patil, GEDA gave the current status of renewable energy generation by Biomass, Wind and Solar projects. He has also briefed about RPO compliance status of different licensees up to 2nd quarter of 2013-14.

Agenda Item No. 12: Presentation on Power sector Scenario by GUVNL.

General Manager, GUVNL made a detailed presentation on the power scenario in the State. It was shown that from 1st July, 2012 to 1st January, 2014, there was a capacity addition of 2964 MW and as on 1st January 2014, the total installed capacity was 18270 MW. He also informed the Capacity Addition Plan during the next four years, the current status of such projects, load growth, renewable capacity addition, details of Open Access consumers. He indicated that generation capacity of about 2086 MW would be commissioned in the current year 2013-14. He further briefed about Renewable Capacity addition, RPO obligations fulfilled, approved and actual T & D losses during the year 2012-13 and also Demand/Supply scenario as per the 17th EPS.

The meeting was concluded with a Vote of Thanks to the chair.

-Sd-

SECRETARY
GERC

14th Meeting of The Co-ordination Forum

Overview of Transmission Projects

Gujarat Energy Transmission Corporation Limited

[An ISO 9001 : 2008 Company]

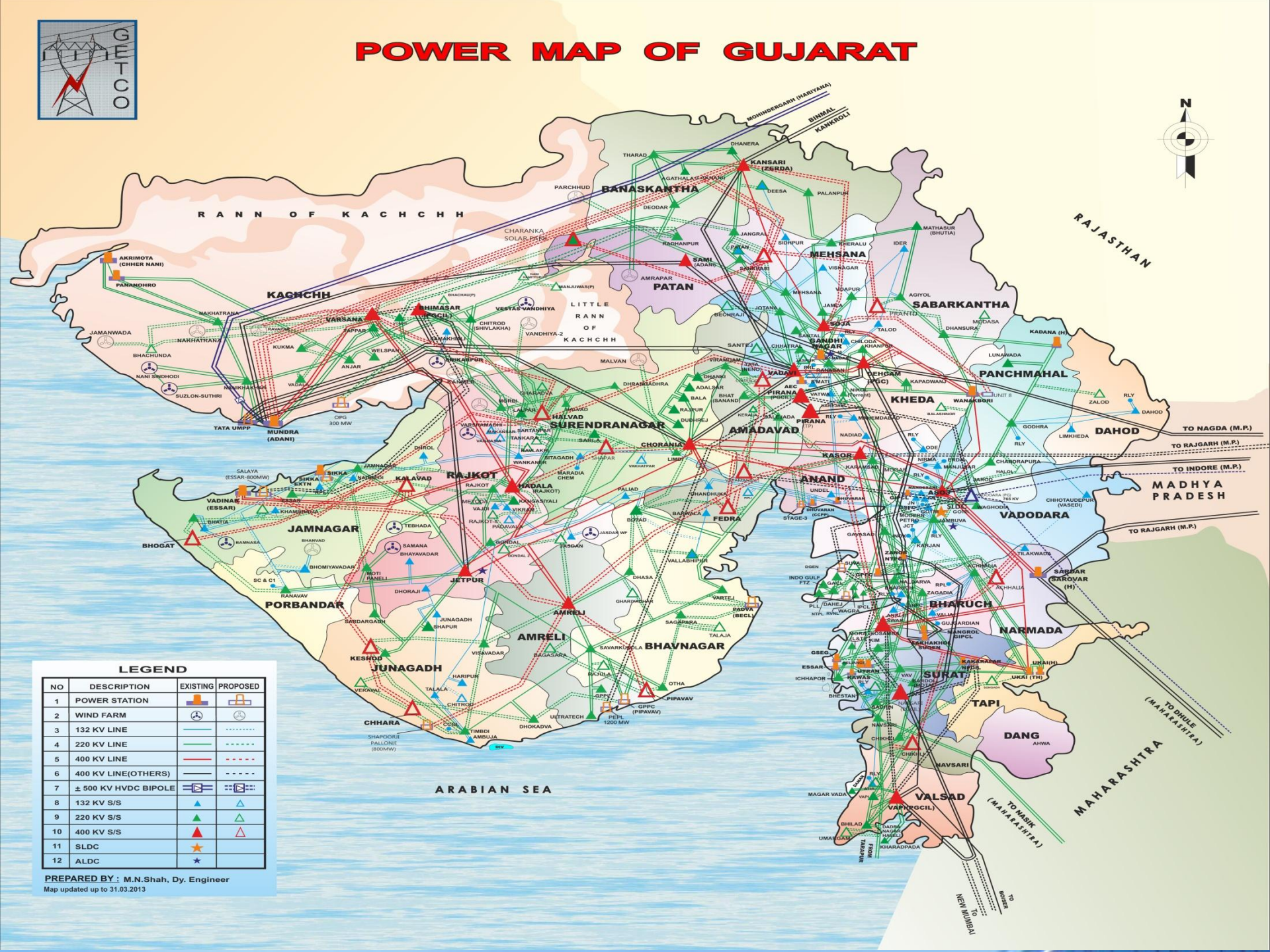
24th January, 2014

Presentation Outline

1. Development of Transmission Network
2. Performance of Transmission Network
3. Planning & Progress of FY 2012-13
4. Planning & Progress of FY 2013-14
5. Step towards Smart Grid

1 Development of Transmission Network

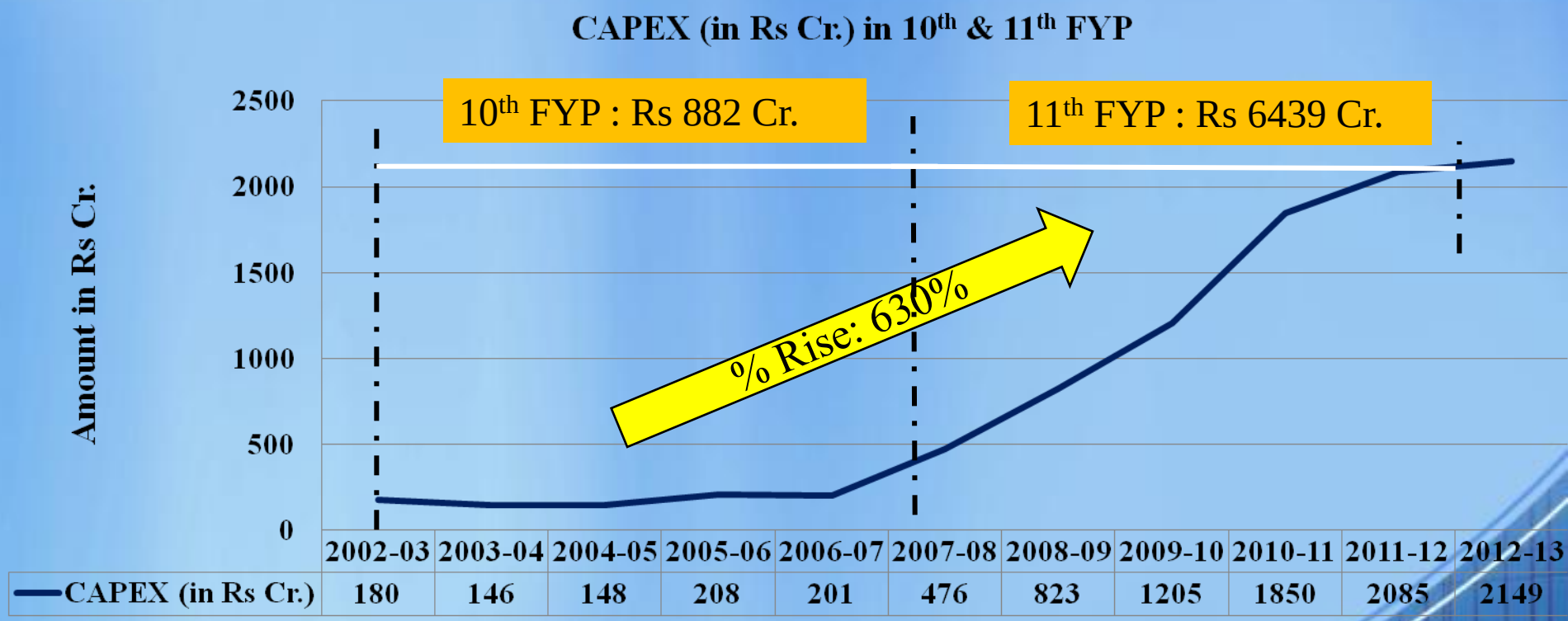
POWER MAP OF GUJARAT



GETCO Assets as on 31.03.2013

Particulars	At the end of 10th FYP	Addition in 11th FYP	Added in 2012-13	Total
Substation	878	392	80	1350
Tr. Lines	35160	9785	3027	47972

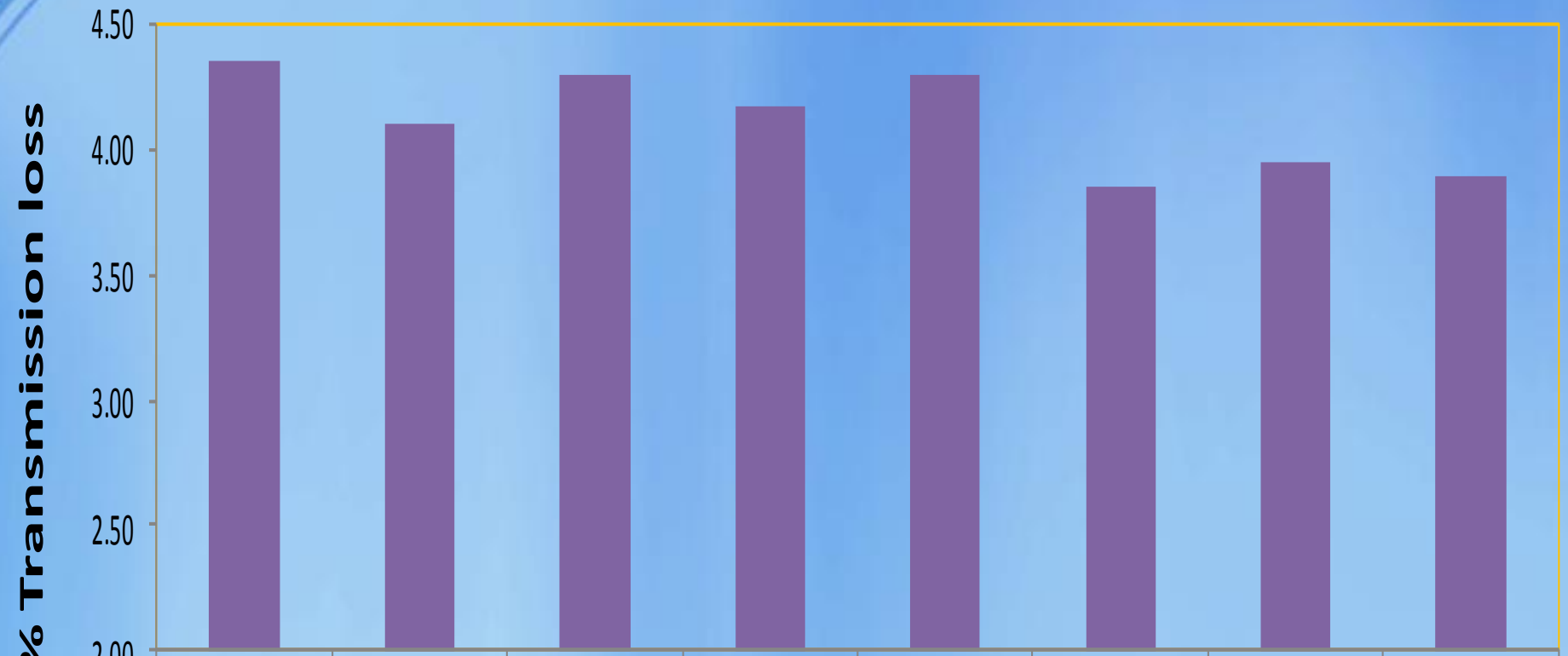
GETCO Assets as on 31.03.2013



2 Performance of Transmission System

Performance – Transmission Loss (%)

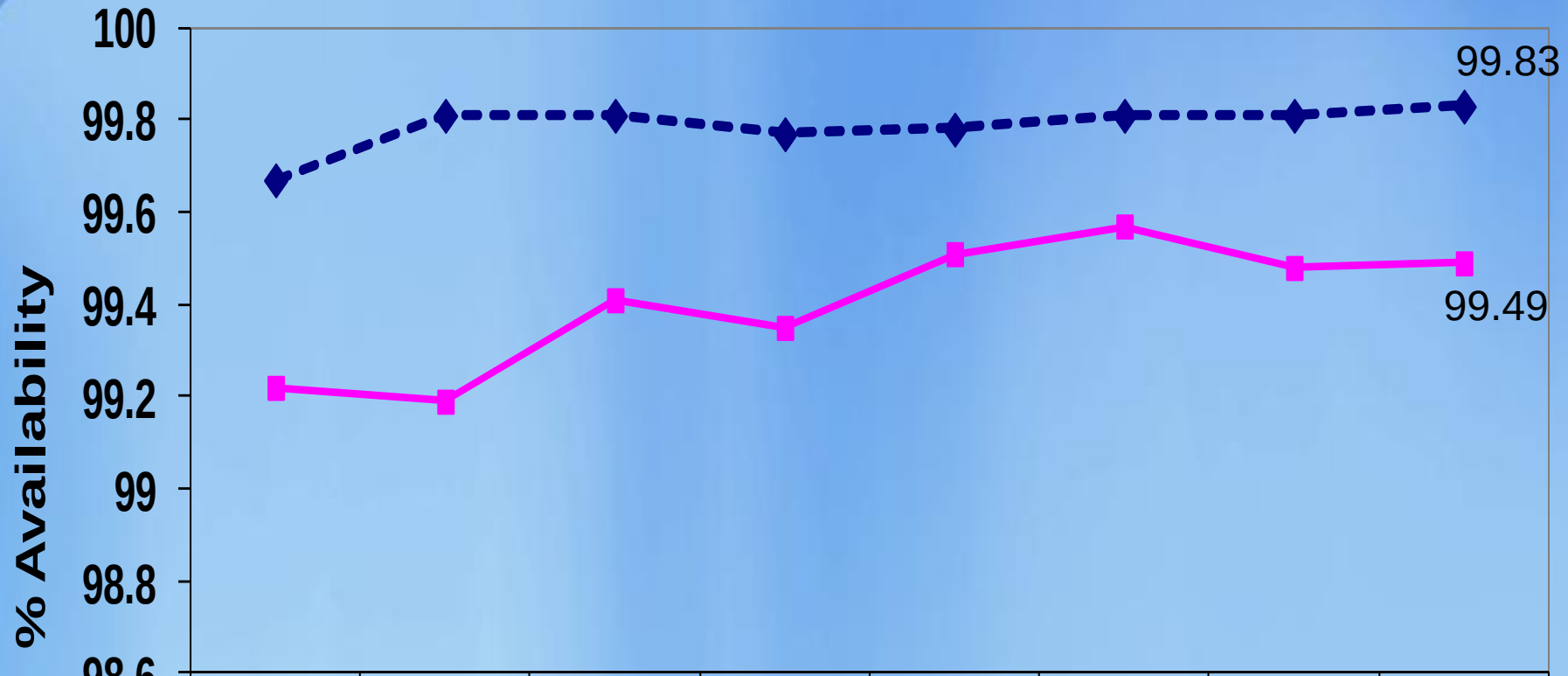
Target : Transmission Losses Target for FY 2012-13: **4.15 %**



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
% LOSSES	4.35	4.10	4.30	4.17	4.30	3.85	3.94	3.89

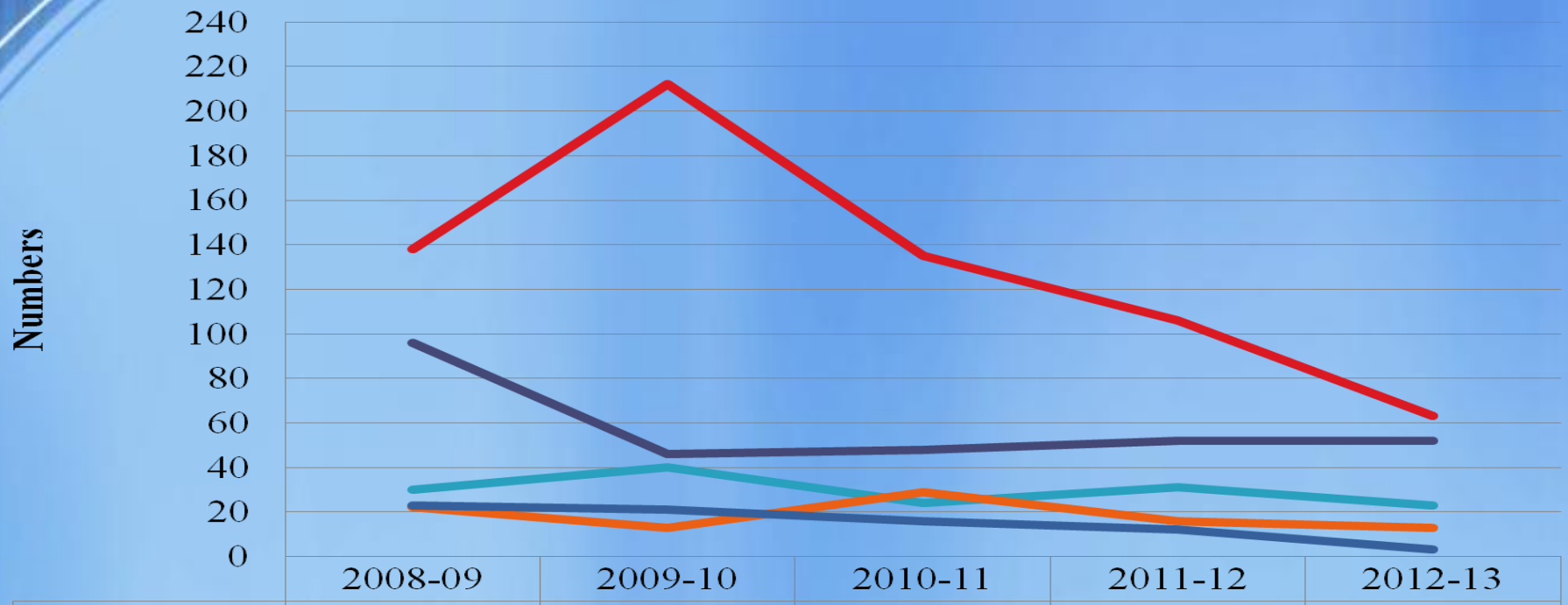
Performance – System Availability

Transmission System Availability for FY 2012-13 : **99.50%**



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
S/s	99.67	99.81	99.81	99.77	99.78	99.81	99.81	99.83
LINE	99.22	99.19	99.41	99.35	99.51	99.57	99.48	99.49

Performance – Equipment Failure (Nos)



	2008-09	2009-10	2010-11	2011-12	2012-13
Transformer	30	40	24	31	23
CT	138	212	135	106	63
PT	22	13	29	16	13
CB	23	21	16	12	3
LA	96	46	48	52	52

R&M Expenditure for 11th FYP

Year	2007-08	2008-09	2009-10	2010-11	2011-12	Total
R&M (Rs in Lacs)	15824	13918	17515	16343	27214	90817

Weakness of GETCO Grid Network

Congestion in South & Central Gujarat

Installed capacity of Gas based generating station in South & Central Gujarat area – **5177** MW

Gas based Generating Station	Installed Capacity (As on 31.08.2013)	Share of Gujarat in MW
Utran	510	510
Essar	515	300
GSEG & GSEG Ext.	156+351	156+351
CLPI (GPEC)	655	655
Kawas	656	187
Jhanor	657	237
Sugen	1148	1148
Dhuvaran	219	219
GIPCL	310	310
Total	**5177**	**4073**

Due to reduction in the generation from Gas Based Generating Stations located in South Gujarat area to the tune of 1000 MW, owing to availability of gas and merit order criteria, following elements are getting critically loaded.

Weakness of GETCO Grid Network

Congestion in South & Central Gujarat

Due to reduction in the generation from Gas Based Generating Stations located in South Gujarat area to the tune of 1000 MW, owing to availability of gas and merit order criteria, following elements are getting critically loaded.

Name of Transmission Element	Power Flow in MW	
Transmission Line	**Safe Loading Capacity**	
220 KV D/C Ukai - Mota line	2 X 175	2 X 225
220 KV D/C Jhanor - Haldarawa line	2 X175	2 X 200
220 KV D/C Asoj – Jambuva line	2 X175	2 X 220
Transformer	**Installed capacity (MVA)**	
400/220 KV ICTs at Asoj	2 X 500	2 X 390
220/132 KV ICTs at Jambuva	3 X 100	3 X 75
220/132 KV ICTs at Asoj	2 X 150	2 X 125

Short Term Solution:

- 3rd ICT of 400/220KV, 500MVA & 220/66KV Transformer – will be commissioned in **Feb-2014**
- 2nd ICT of 400/220KV, 315MVA at Kosamba Substation - **Commissioned**
- Interconnection of one ckt each of 400KV Ukai-Kosamba & 400KV Jhanor-Dastan line.
- 220KV interconnection of between GSEG switchyard: 220KV Kim-Kosamba connectivity.

Long Term Solution:

- 400KV Achhalia, 400KV Chikhali substation & its adjoining network
- 400/220KV Phase Shifting Transformer at 400KV Ukai TPS.

Weakness of GETCO Grid Network

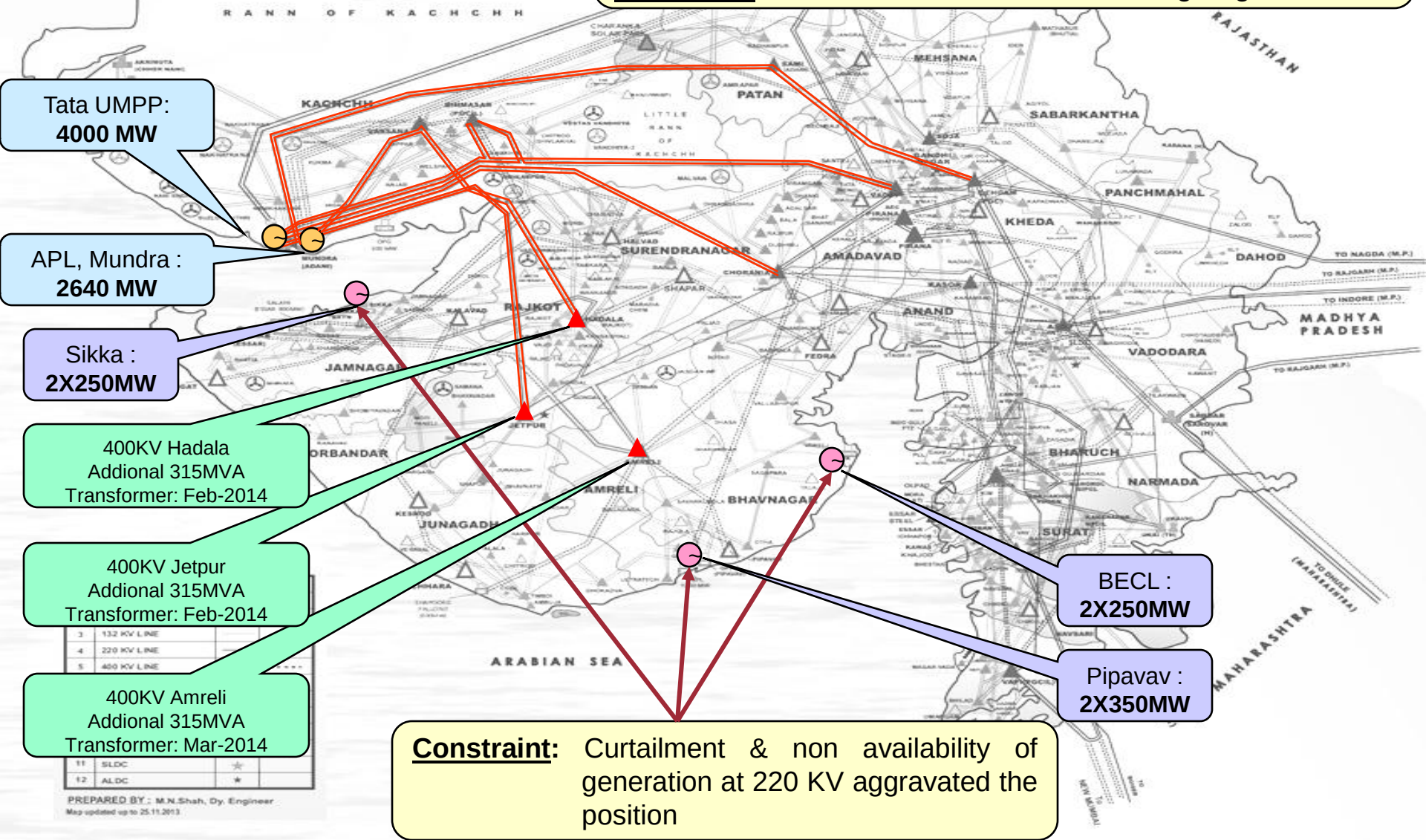
Congestion in Saurashtra & Kutch Area

- After APL (2640 MW), UMPP, Mundra (5 X 800 MW) and Essara, Vadinar (2 X 600 MW) excessive generation at 400 KV level.
- Inadequacy in transformation capacity noted from 400 KV to 220 KV level.
- And now being augmented.
- Curtailment & non availability of generation at 220 KV aggravated the position
  - Sikka TPS - does not come in merit, but we are operating
  - GPPC, Pipavav - Not put up in operation
  - BECL - Delayed

Weakness & remedies for GETCO Grid network

Constraint: Inadequacy in transmission capacity noted in 400KV & 220KV level

Remedies: The identified location are being augmented.



Constraint: Curtailment & non availability of generation at 220 KV aggravated the position

Weakness of GETCO Grid Network

Congestion in Peak Wind Season

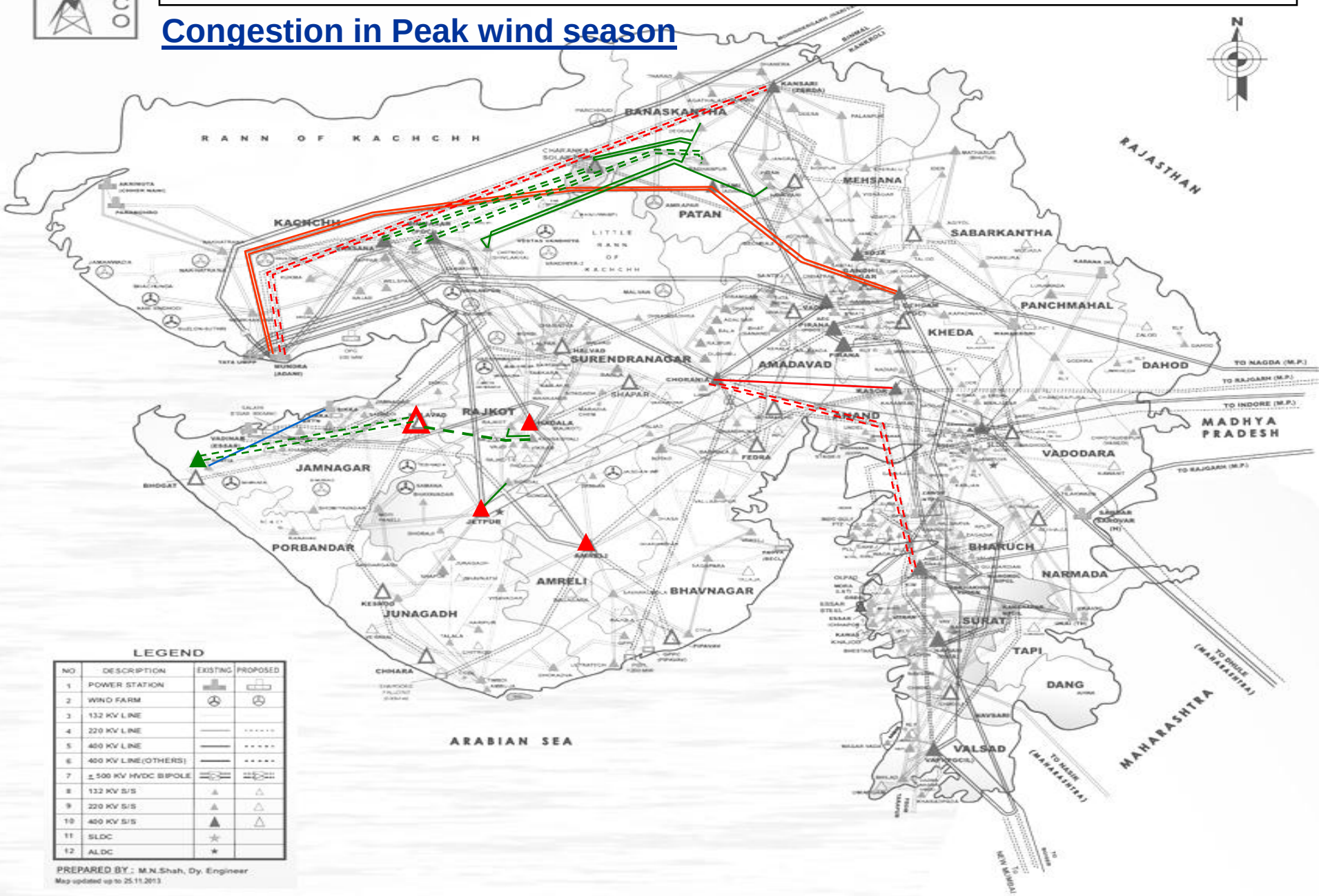
Name of Transmission Element	Power Flow in MW		Remedies
Transmission Line	Safe Loading Capacity	Actual Loading	
400 KV S/C Kasor - Chorania Line	515	530	[1] 400 KV D/C Kosamba – Chorania line
400 KV D/C Adani – Dehgam Line	2 X 515	2 X 625	[1] 400 KV 2 X D/C Adani – Zerda line
220 KV S/C Nyara – Kangasiyali Line	175	148	[1] 400 KV Kalavad substation [2] 220 KV D/C Kalavad – Kangasiyali line
220 KV S/C Gondal – Jetpur Line	175	156	
220 KV S/C Shivlakha – Deodar line	175	200	[1] 220 KV D/C Varsana – Charanka line [2] 220 KV D/C Bhachau - Radhanpur line
220 KV S/C Shivlakha – Sankhari line	175	175	
132 KV S/C Bhatia – Sikka line	50	90	[1] 220 KV Bhatia substation [2] 220 KV D/C Bhatia - Kalavad line

Therefore, it is very difficult to evacuate further RE power in the grid

Transformer	Installed capacity (MVA)	Power Flow in MW	Remedies
400/220 KV ICTs at Jetpur	3 X 315	3 X 270	1 X 315 MVA ICT by Feb-14
400/220 KV ICTs at Hadala	2 X 315	2 X 155	1 X 315 MVA ICT by Feb-13
400/220 KV ICTs at Amreli	2 X 315	2 X 250	1 X 315 MVA ICT by Mar-14

Weakness & remedies for GETCO Grid network

Congestion in Peak wind season



Weakness of GETCO Grid Network

Low & High Voltage condition:

Sr. No.	Name of substation	Permissible limit in KV	Actual Voltage observed in KV		Remedies
			Min.	Max.	
1	400 KV Jetpur	380-420	377	436	[1] 220 KV D/C Amreli – Visavadar line [2] 220 KV D/C Visavadar – Timbadi line [3] Creation of 400 KV Pipavav, Chhara, Bhogat substation along with associated 220 KV connectivity [4] Installation of 1 X 25 MVAr reactor each at 18 Nos. of location (proposed) [5] Installation of 200 MVAr shunt capacitor banks in low voltage area (proposed) [6] Installation of 220KV SVC/STATCOM at 220KV Timbdi/Dhokadva Substations.
2	400 KV Amreli	380-420	372	431	
3	400 KV Hadala	380-420	392	433	
4	400 KV Varsana	380-420	400	434	
5	220 KV Dhrangadhra	198-245	196	239	
6	220 KV Viramgam	198-245	216	239	
7	220 KV Gondal	198-245	200	239	
8	220 KV Limbadi	198-245	217	240	
9	220 KV Ranavav	198-245	199	244	
10	220 KV Vartej	198-245	202	240	
11	220 KV Timbadi	198-245	178	248	

Weakness & remedies for GETCO Grid network

Low & High voltage condition

Remedies

400KV Bus reactors

400KV 125MVAR reactors are already installed at Hadala, Amreli, Varsana, Vadavi, Chorania, Jetpur (63MVAR) during the year 2013-14.

Reactors:

- Installation of 1 X 25 MVAr reactor each at 18 Nos. of location (proposed)

Capacitors:

- Installation of 200 MVAr shunt capacitor banks in low voltage area (proposed)

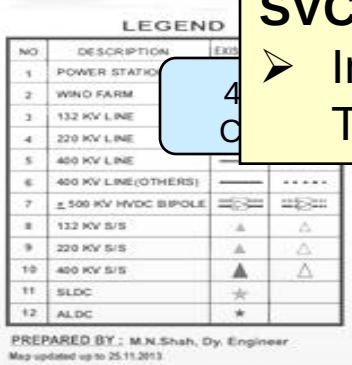
SVC/STATCOM:

- Installation of 220KV SVC/STATCOM at 220KV Timbdi/Dhokadva Substations.

Max
434
239
239
240
433
239
436
431
240
244
248

400KV Bhogat

400KV Pipavav



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Planning & Progress of FY 2012-13

Key Drivers Considered for Network Planning

New Network

- Integration of new generation capacity addition,
- To receive power from ISGS through ISTS network,
- Technical requirements:
  - Redundancy – Radial feeders in ring main system,
  - Consideration of N-1 contingency criteria
  - Reactive Power Management,
  - Power Quality.
- Load growth and nature of load – Agriculture, Urban area, Railways, Industrial Zones & Corridors, SEZ, SIR, Coastal area etc.
- To contain transmission losses,
- Captive power plants - Open access requirements,
- Down stream network according to geographical and socio-economical conditions,
- For integration of Renewable energy,
- To transfer surplus power to other States

Substation & Transmission Line Achievement (FY 2012-13)

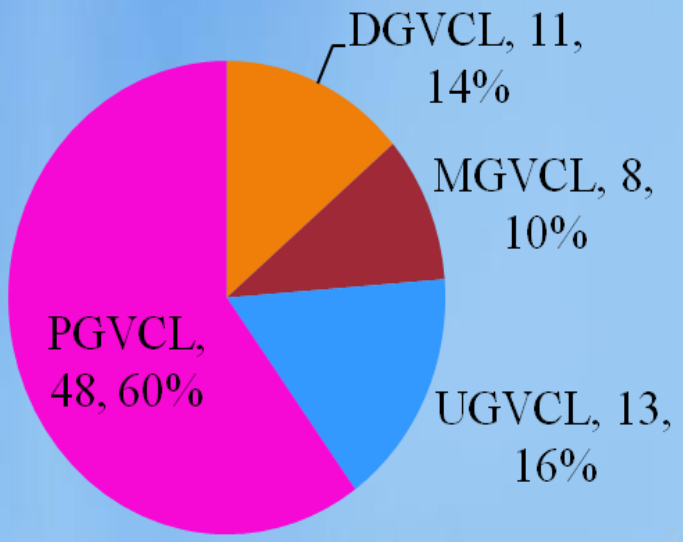
Substations

Sr. No.	Voltage Class	Planned	Achieved
1	400 KV	0	0
2	220 KV	4	4
3	132 KV	1	1
4	66 KV	75	75
	Total	80	80

Transmission Lines (CKM)

Sr. No.	Voltage Class	Planned	Achieved
1	400 KV	709	414
2	220 KV	1280	922
3	132 KV	29	131
4	66 KV	924	1560
	Total	2942	3027

DISCOM-wise S/S Charged



Completion of Major EHV Line – FY 2012-13

A. Evacuation Lines

Sr. No.	Name of Tr. Line	Length in Ckm
1	400KV D/C Ukai - Kosamba line with ACSR Twin Moose Conductor	144
2	220KV Savarkundla - Otha LILO at GPPC line No. 2 with ACSR Zebra conductor	83

B. System Strengthening Lines

Sr. No.	Name of Tr. Line	Length in Ckm
1	LILO of 220kv Halvad - Morbi line No. 1 at 400kv Bhachau (PGCIL) S/S with ACSR Zebra conductor	217
2	LILO of 220kv Halvad - Morbi line No. 2 at 400kv Bhachau (PGCIL) S/S with ACSR Zebra conductor	217
3	220KV Hadala - Halvad line with ACSR Zebra conductor	168
4	220KV Kosamba- Mobha line with ACSR Zebra conductor	178
5	220KV D/C Tharad - Thavar line with ACSR Zebra conductor	97
6	220KV D/C Tharad - Deodar line with ACSR Zebra conductor	78
7	220KV LILO at Vondh from Varsana - Morbi line with ACSR Zebra conductor	2.32
8	220KV D/C Tharad - Kintech line with AL-59 conductor	173

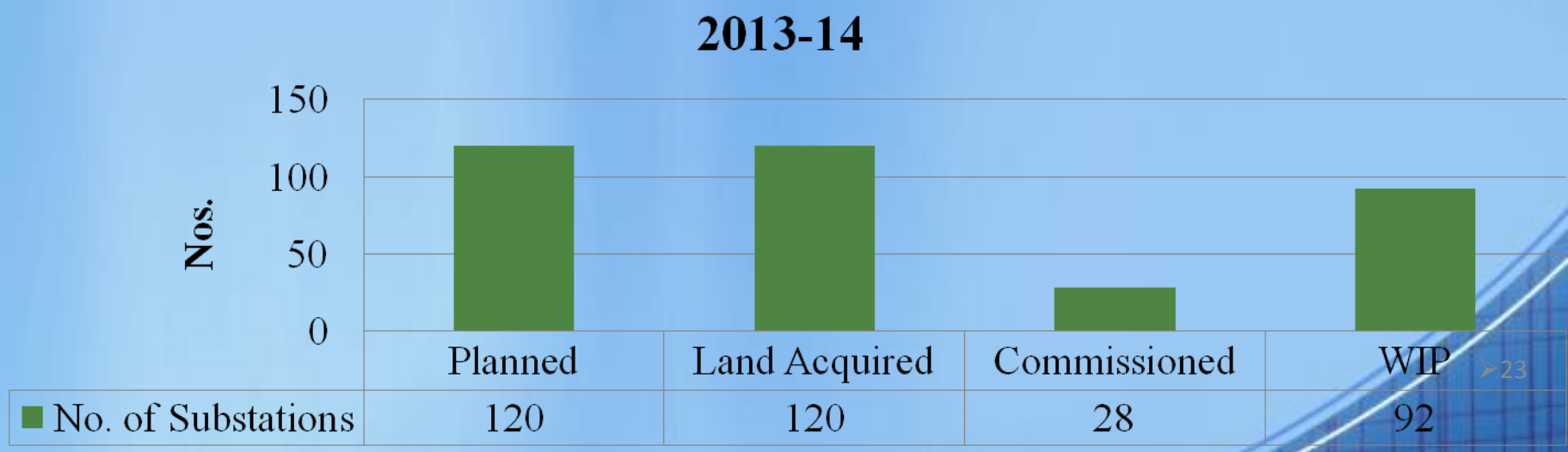
4

Planning of 2013-14

Substation & Transmission Line FY 2013-14

Sr. No.	Voltage Class	Substation (Nos)	Tr. Lines (Ckm)
1	400 KV	1	633
2	220 KV	4	723
3	132 KV	1	10
4	66 KV	114	1104
	Total	**120**	**2470**

Substations : FY 2013-14 (Status as on 01-01-2014)



Ongoing EHV Projects

Major EHV substations planned for 2013-14 & Status

Voltage Class	Name of District	Name of S/S	Land Acq Date	Progress		Target
				Civil	Electrical	
400 KV	Morbi	400KV Halvad	22-10-2009	100%	75%	Mar'14
220 KV	Bharuch	220KV Suva	11-11-2010	75%	65%	Mar'14
	Surat	220 KV Popada	01-08-2011	100%	50%	Mar'14
	Vadodara	220KV Karjan	-	100%	40%	Mar'14
	Vadodara	220KV Vyankatpura	25-02-2011	96%	75%	Mar'14
132 kV	S'nagar	132KV Vakhatpar (Doliya)	11-09-2012	100%	70%	Mar'14

Major EHV substations planned for 2014-15 & Status

Voltage Class	Name of District	Name of S/S	Land Acq/ Date	Progress		Target
				Civil	Electrical	
132 KV	Ahmedabad	132KV Chandkheda	29-03-2013	68%	0%	Mar'15
	Junagadh	132KV Bhavnath(HYB)	08-04-2013	0%	0%	Jun'14
220	Kutch	220KV Bhachau (PS-3)	SSNL	100%	7%	Jun'14
	Morbi	220KV Sartanpar	01-10-2011	96%	65%	May'14
	Valsad	220KV Atul (Navera)	Existing	0%	5%	Mar'15
	Gandhinagar	220KV Santej PH-I	Existing	62%	0%	Mar'15
	Bhavnagar	220KV Vallabhipur	Existing	35%	5%	Dec'14

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14) % Completion	Revised Target	Remarks
1	**Ukai Extension (500MW) C.O.D. - Oct'12**				
i	400KV D/C Ukai – Kosamba line	136.20	100%	**Done (31.03.13)** **Done (30.03.13)**	
ii	400KV D/C Kosamba–Chorania line **(Package-I)**	222.40	89%	Mar-14	W I P
	400KV D/C Kosamba–Chorania line **(Package-II)**	234.60	86%	Mar-14	W I P
	Total	**457.00**	**87%**		
iii	LILO to Kosamba from 400kV Asoj-Ukai line	62.5	100%	**Done (31.12.2011)**	
iv	220KV D/C Kosamba - Zagadia line	48.40	100%	**Done (09.07.2011)**	

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14)	Revised Target	Remarks
			% Completion		
2	**Dhuvaran CCPP-III (360 MW) C.O.D. - Jul'13**				
i	LILO of 220KV Kasor – Botad S/C at Dhuvaran CCPP-III	82	24%	Jun-14	WIP
ii	LILO of 220KV Karamsad – Vartej S/C at Dhuvaran CCPP-III	78	76%	Mar-14	

*** Back charging through 132/220 KV transformer by 30-4-13 for start up power**

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	Present Status (As on 01.01.14)	Revised Target	Remarks
			% Completion		
(B)	**Transmission Schemes associated with IPP**				
3	**Adani Power, Mundra (Bid-02) (2011-12) (1000 MW) Feb'12**				
i	400kV D/C Mundra-Zerda Line No. 1 **(Package-I)**	160	44%	Dec-14	W I P
	400kV D/C Mundra-Zerda Line No. 1 **(Package-II)**	190	24%	Dec-14	W I P
	400kV D/C Mundra-Zerda Line No. 1 **(Package-III)**	314	27%	Dec-14	W I P
	Total	**664**	31%		
ii	400kV D/C Mundra-Zerda Line No. 2	662	83%	Dec-14	W I P

*** Stuck-up due to forest clearance - Not in our control.**

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm	PRESENT STATUS (As on 01.01.14) % Completion	Revised Target	Remarks
4	**GSPC Pipavav Power Co. Ltd. C.O.D. - Apr'13 (1x350 MW)**				
i	220KV D/C GPPC – Dhokadva line	100	73%	Mar-14	W I P (Severe RoW)
ii	LILO to GPPCL from 220KV Savarkundla – Otha Ckt. No.1*	90.5	100%	**Done (17.03.2012)**	
iii	LILO to GPPCL from 220KV Savarkundla – Otha Ckt. No.2*	82.6	100%	**Done (21.07.2012)**	
iii	220KV D/C Otha – Sagapara line	95.6	100%	**Done (05.06.13)**	

*** Plant Not Operative.**

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14)	Revised Target	Remarks
			% Completion		
5	**Bhavnagar Energy Co. Ltd. (BECL), (2x300=600 MW)**				
i	220kV D/C BECL - Botad line	188.52	17%	Sep-14	WIP
ii	220kV D/C BECL - Sagapara line	82.40	72%	Mar-14	WIP
iii	LILO of 220kV S/C Savarkundla-Vartej at BECL	56.20	100%	**Done (06.06.2013)**	

*** Plant likely by March, 2014.**

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14)	Revised Target	Remarks
			% Completion		
6	**Sikka Unit 3 & 4 (2 x 250= 500 MW) C.O.D. - Mar'14**				
i	220KV D/C Sikka – Moti Paneli line*	156.00	42%	Jun-14	WIP
ii	LILO to Sikka from 220kV Jamnagar – Jetpur ckt. No.2	120.00	41%	Mar-14	WIP

*** Plant likely by March, 2014.**

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14)	Revised Target	Remarks
			% Completion		
7	**Utran CCPP (374 MW) Commissioned - Nov'09**				
i	220KV Navsari- Talangpore S/C line LILO to Utran	156.00	0%	--	Yet to award
ii	220KV D/C Gavasad - Salejada line	120.00	32%	Sep-14	WIP

Status of Transmission Lines for Power Evacuation

Sr. No.	Name of Generating Station & associated Transmission lines	Length in Ckm.	PRESENT STATUS (As on 01.01.14)	Revised Target	Remarks
			% Completion		
8	**Essar Power, Vadinar (Bid-3) (2011-12) (1000 MW)**				
i	400kV D/C Vadinar - Amreli line (Package-I)	116.85	95%	Jun-14	400kV Hadala-Jetpur made LILO at Amreli through Vadinar-Amreli line (Pkg-1) at Amreli S/s on 22.11.13 (Stop Gap).
ii	400kV D/C Vadinar - Amreli line (Package-II)	118.22	58%	Jun-14	WIP
iii	400kV D/C Vadinar - Amreli line (Package-III)	120.94	43%	Sep-14	

Ongoing System Strengthening Lines

Sr. No.	Name of Tr. Lines	Length (Ckm)	Target
1	400KV Mundra - Hadala LILO to Halvad	89	Jun-14
2	400KV D/C Amreli - Kasor line	471	Sep-14
3	LILO of one ckt. of 400KV D/C Mundra-Zerda line at 400KV Varsana S/S	5.6	Jun-14
4	220kV D/C Nakhatrana - Varsana line (Commercialized)	214	07.05.13
5	220KV D/C Halvad - Sadla line	76	Mar-14
6	220KV LILO to Sadla from Chorania - Gondal line	58	Feb-14
7	220KV D/C Bhatiya - Kalawad line	238	Sep-14
8	220KV D/C Kalawad - Kangasiyali line	112	Sep-14
9	LILO of one circuit of 220KV D/C Wanakbori – Asoj line at Vyankatpura (Jarod) S/S	28	Mar-14
10	Termination of one D/C line of 220KV 2xD/C Achhaliya-Jambuva line at Vyankatpura (Jarod) S/S	68	Jun-14
11	220KV D/C SSNNL PS-1 to PS-2 line	23	Mar-14
12	220kV Shivlakha - Deodar Line LILO at SSNNL PS-2	43	Mar-14
13	220kV Tappar - Shivlakha Line LILO at SSNNL PS-3	3	Mar-14
14	220kV D/C Charanka - Jangral Line (AP-13/0 To Jangral)	191	Jun-14
15	220kV LILO at Suva from Kosamba - Mobha Line	112	Jun-14
16	220kV LILO at Popada from Navsari - Vav Line	17	Mar-13
17	220KV D/C Visavadar - Timbdi line	185	Aug-14
18	220KV D/C Varsana - Jamanwada line	350	Mar-14

5 Step towards Smart Grid

Adoption of Smart Technology

Smart Grid technologies adopted	Status
Substation Automation System - Human interface at limited points, Manpower optimization	5 Nos. of substations completed
Optical CT and merging units – A step towards Digital Substation for better reliability and availability	1) Two pilot projects completed. 2) In process for 400 KV substation
OPGW – The communication highway (5270 Km) & Replacement of Conventional PLCC to FOTE	110 km of OPGW laid and rest work under progress
GIS and Hybrid switchgear - High reliability and availability, Maintenance free and economical on life cycle cost basis	66 KV GIS adopted and 220 KV Hybrid at Dahej and Sartanpar (Morbi) are under execution
Geographical Information System (GIS) – Better network planning and asset management	Project completed for 400 KV and 220 KV Lines
Reactive power compensation – Quality power	4728 MVAR installed
PMU and WAMS – Pre warning and control system for entire grid (Deployment Under Process)	Sponsored R&D project with IIT for Development of following analytics: 1. Online Power System Oscillation mode identification 2. Hybrid State Estimator 3. Dynamic Security Assessment with voltage stability
New Energy Accounting Software for ABT by Infosys	Job Awarded


Thank You

14th MEETING OF THE CO-ORDINATION FORUM

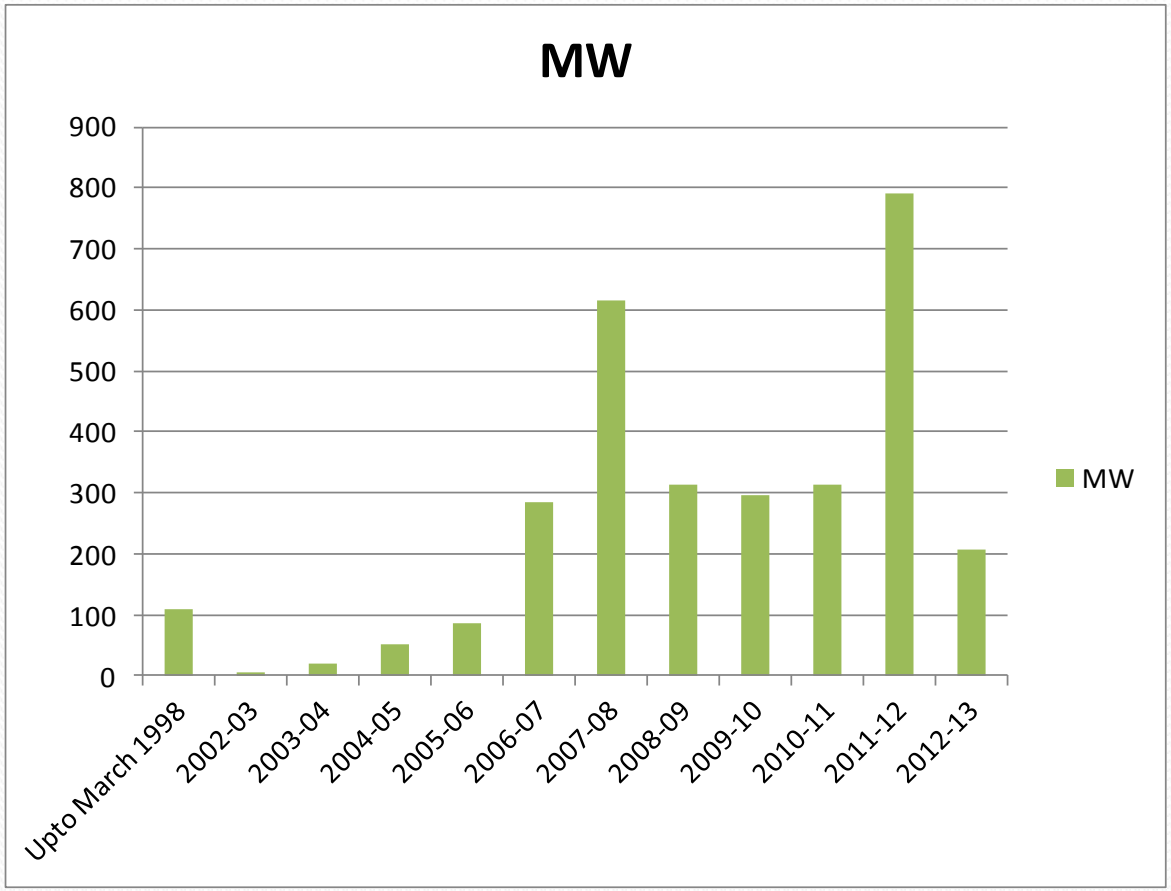
STATUS OF RPO

PRESENTED BY:

GUJARAT ENERGY DEVELOPMENT AGENGY

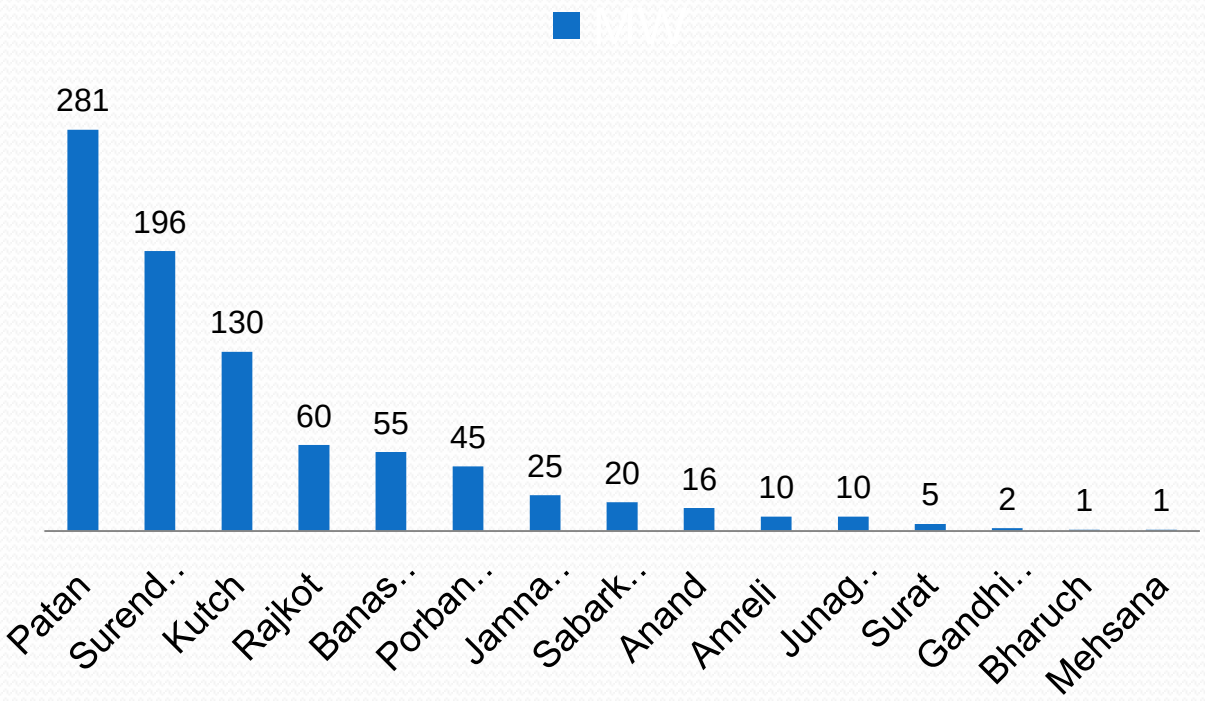
Wind Power – Capacity Addition

Year	MW
Upto March 1998	109
2002-03	6
2003-04	19
2004-05	52
2005-06	85
2006-07	284
2007-08	616
2008-09	314
2009-10	297
2010-11	313
2011-12	790
2012-13	208
2013-14 (December)	151
Total	**3242**



Solar Power Projects Commissioned

	District	MW
1	Amreli	10
2	Anand	16
3	Banaskantha	55
4	Bharuch	1
5	Gandhinagar	2
6	Jamnagar	25
7	Junagadh	10
8	Kutch	130
9	Mehsana	1
10	Patan	281
11	Porbandar	45
12	Rajkot	60
13	Sabarkantha	20
14	Surat	5
15	Surendranagar	196
		857



Draft Amendment to RPO Regulation, 2010

- The Commission has proposed the following trajectory for the RPO.

	Minimum Quantum of purchase (in %) from renewable sources (in terms of energy in kWh)			
Year	**Wind**	**Solar**	**Other**	**Total**
2010-11	4.5	0.25	0.25	5.0
2011-12	5.0	0.5	0.5	6.0
2012-13	5.5	1.0	0.5	7.0
2013-14	5.5	1.0	0.5	7.0
2014-15	6.25	1.25	0.5	8.0
2015-16	7.0	1.5	0.5	9.0
2016-17	1.75	1.75	0.5	10.0

Obligated Entities for year 2012-13 and 2013-14

(1) GUVNL (MGVCL+PGVCL+UGVCL+DGVCL)

(2) Torrent Power Ltd. (A,bad + Surat)

(3)Torrent Energy Ltd. (Dahez, SEZ)

(4) Jubilant Infrastructure Ltd.

(5) Aspen Infrastructure Ltd.

(6) Kandla Port Trust

(7) MPSEZ Utilities Pvt. Ltd.

RPO Compliance 2012-13

(1) GUVNL - MUs consumed during 2012-13- 65711 MUs								
	RPO-2012-13 %	Required MUs	Shortfall MUs of 2011-12 carried forward	Total MUs required to be purchased in 2012-13	Revised RPO %	Purchased MUs	Shortfall, MUs	RPO Achieved %
Solar	1.00	657	147	804	1.22	1162	-358	1.77
Non Solar	6.00	3943	689	4632	7.05	3387	1245	5.15
(2) TPL (Ahmedabad + Surat) MUs consumed during 2012-13- 10110 MUs								
Solar	1.00	101	47.83	149	1.47	0.09	149	0.001
Non Solar	6.00	606.60	2.25	609	6.02	385.39	223	3.812
(3) Torrent Energy (Dahej)- MUs consumed during 2012-13 - 67.09 MUs								
Solar	1.00	0.671	0	0.671	1.00	0	0.67	0.000
Non Solar	6.00	4.025	0	4.025	6.00	1	3.03	1.491

RPO Compliance – 2013-14 (April to September)

(1) GUVNL- Consumption of Units During 2013-14 (April to September) - 31742 MUs							
	RPO 2013-14 %	Required MUs	Purchased MUs	REC`s Purchased Mus	Total MUs up to Present Quarter	RPO Achieved %	Shortfall in MUs
Solar	1.00	317	629	0	629	1.98	-312
Non Solar	6.00	1904	1908	0	1908	6.01	-4
(2) TPL (Ahmedabad + Surat) - Consumption of Units During 2013-14 (April to September) - 5617.47 MUs							
Solar	1.00	56.17	0.96	1	1.96	0.03	54.22
Non Solar	6.00	337.05	56.95	70	126.95	2.26	210.10
(3) Torrent Energy (Dahej)- Consumption of Units During 2013-14 (April to September) - 42.39 MUs							
Solar	1.00	0.42	0	0	0	0	0.42
Non Solar	6.00	2.54	0	0	0	0	2.54
(4) MPSEZ Utilites Pvt. Ltd. - Consumption of Units During 2013-14 (April to September) - 89.38 MUs							
Solar	1.00	0.89	0	0	0	0	0.89
Non Solar	6.00	5.36	0	0	0	0	5.36

RPO Compliance- 2013-14 (April to September)

(5) **M/s. Jubilant Infrastructure Ltd:** M/s. Jubilant have signed an agreement with DGVCL for purchase of power for the year 2013-14. Hence, RPO is not applicable to them.

(6) **M/s. Aspen Infrastructure Ltd:** M/s. Aspen have been exempted for the RPO compliance for the year 2012-13. Further they have requested GERC, to exempt them from RPO compliance.

(7**) M/s. Kandla Port Trust** has not submitted the details for the RPO Compliance for the Q1 & Q2 quarters of the year 2013-14.

THANK YOU

Presentation to Co-ordination Forum

Gujarat Power Sector Scenario

Gujarat : Power Scenario

Total Capacity (as on 01-04-12)	**:**	**15306 MW**
Capacity added in 2012-13	**:**	**2964 MW**
Total Capacity (as on 01-1-14)	**:**	**18270 MW**
State	**:**	**7063 MW** (39%)
Centre share	**:**	**3600 MW** (20%)
IPP	**:**	**7607 MW** (41%)

Coal: 11720	***Gas: 4172***	***Hydro: 779***	***Lign: 1040***	***Nucl: 559***
64.15%	22.84%	4.26 %	5.69 %	3.06%

Projected Peak Demand in 2014 (@ 8% growth)	***13,590 MW***
Installed Capacity Required by 2014 (at 80% PLF)	***17,000 MW***
Planned Capacity Addition by 2014	***1336 MW***
Capacity Available by 2014	***19,606 MW***
(Deficit) / Surplus by 2014	***2606 MW***

Capacity Added in 2012-13

Name of Project	Loc.	Dev.	Sector	Fuel	MW
Ukai Extn. Unit-6	Gujarat	GSECL	State	Coal	500
Mundra UMPP (Unit 2,3,4 &5)	Gujarat	TATA	Private	Coal	1444
ACB (India) Ltd (Unit 2)	Chhattisgarh	ACB	Private	Coal	100
Essar Power Gujarat Ltd (Unit 1)	Gujarat	EPGL	Private	Coal	500
Mouda TPP (Unit1)	Maharashtra	NTPC	Central	Coal	120
Vindhyachal STPP IV (Unit1)	MP	NTPC	Central	Coal	120
Sipat STPS Stage I (Unit 3)	Chhattisgarh	NTPC	Central	Coal	180
Total					2964

Capacity Addition Plan 2013-14

Project	Dev.	Sector	Fuel	MW	Likely COD/ Status
Pipavav CCPP	GPPC	State	Gas	700	Unit 1 declared ready for operation. Unit 2 to be ready by Feb-14. No gas allocation.
Mouda (Unit 2)	NTPC	Central	Coal	120	March 14
Vindhyachal IV (Unit 2)	NTPC	Central	Coal	120	March 14
Dhuvaran CCPP Ext – 3	GSECL	State	Gas	396	Mar 14. No gas allocation
Total				1336	

Capacity Addition Plan 2014-15

Project	Dev.	Sector	Fuel	MW	Status
Sikka Unit 3&4	GSECL	State	Coal	500	Boiler Erec. initiated, likely COD by July-14 & Sept-14
Bhavnagar Energy Co Ltd. (Unit 1 & 2)	BEECL	State	Lignite	500	Delay due to geological variance, likely COD by Aug-14 & Nov-14
Total				1000	

Capacity Addition Plan

In MW

Year	State	Central	Private	Total	Cum. Add.
Capacity as on 01.1.2014					18270
13-14	1096	240	-	1336	19606
14-15	1000	-	-	1000	20606
15-16	800	856	1900	3556	24162
16-17	500	1240	-	1740	25902
Total	3396	2336	1900	7632	

Gujarat - Renewable Capacity in MW

(As on 1.1.2014)

Source	Installed Capacity	PPA Signed
Wind	3231*	2225**
Solar	857	882##
Biomass	31#	30
Small Hydel	7	9.60
Total	4126	3147

- *Including 1234 MW WTG set up for wheeling of power for captive use/ 3rd party
- **Including PPA of 205 MW under REC Mechanism
- # includes 1 MW plant set up for wheeling of power
- # # Net Capacity of PPA signed (90 MW capacity of Solar PPA terminated)

Power purchase from Renewable Sources

RPPO for FY 2013-14 – Provisional (Upto Dec)

(In Million Units)

	Wind	Solar	Others	Total
% RPPO for 2013-14	5.50%	1.00%	0.50%	7.00%
RE purchase required as per approved sale of 65749 Mus	2712	493	247	3452
Actual RE power purchased	2500	991	49	3540
RPPO fulfilled	5.07%	2.01%	0.10%	7.18%
Shortfall	212	-498	197	89

Power Scenario of Gujarat

Particulars	2010-11	2011-12	2012-13	2013-14 (upto Dec)
Total Energy Catered (MUs)	71256	78651	87723	64489
Daily Max. Energy Catered (MUs)	237.4	251.8	274.6	286.2
Daily Max Catered (MW)	10461	11209	12348	12577
Wind Energy Generation (Mus)	2815	3960	5436	4026
Daily Max wind Energy (MW)	1350	1711	2208	2096
Average Frequency (Hz.)	49.82	49.80	49.93	50.03

Transmission & Distribution Losses

DISCOM	GERC approved for 2012-13		Actual for 2012-13	
	Distribution loss	Transmission loss	Distribution loss	Transmission loss
DGVCL	12.00%	4.25%	11.56%	3.89%
MGVCL	12.50%		12.89%	
PGVCL	27.00%		29.90%	
UGVCL	13.00%		14.50%	

- 3 out of 4 State DISCOMs are having their losses below 15%
- Overall T&D losses in the state has been brought down from 30.90% in FY 2003-04 to 21.28% in FY 2012-13
- Transmission system availability of 99.46% for FY 2012-13

Demand/supply scenario as per 17th EPS

(MW)

Year	Cap. Add. during the year	Cumulative Capacity available (Installed Capacity)	Demand as per 17th EPS Report
As on 01.1.2014	-	18270	
2013-14	1336	19606	16296
2014-15	1000	20606	17351
2015-16	3556	24162	18475
2016-17	1740	25902	19670

Open Access in Gujarat

- **Adequate infrastructure to cater all categories of consumers & for granting open access**
- **Long Term Open Access – 21 LTOA Users**
- **Short Term Open Access**
  - **Advance / Day Ahead / Intra Day**
  - **410 STOA Users**
- **Medium Term Open Access**
  - **3 Months to 7 Years**
  - **16 MTOA users**
- **In FY 12-13, as against total 4816 no. of OA applications received, 4634 approvals were granted by SLDC**
- **Industrial consumers purchased 1491 Mus, 3978 Mus & 3744 Mus in FY 11-12, FY 12-13 & FY 13-14 (Upto Sep) through open access**

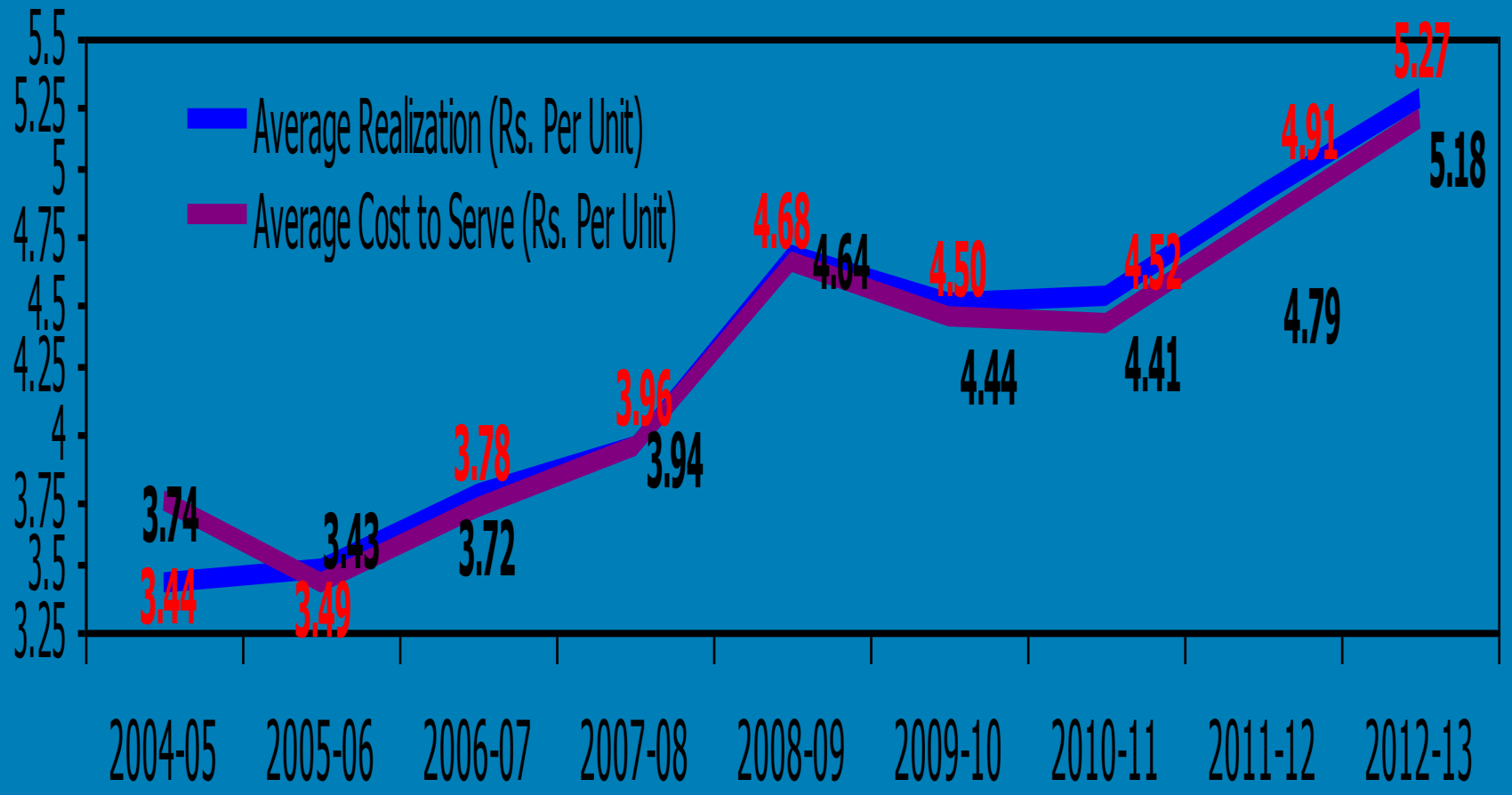
Thank You

Gujarat - Average Revenue Realization (ARR) vs Average Cost to Serve (ACS)

(Rs/unit)

Year	ARR	ACS	Avg. cost of power purchase
2007-08	3.96	3.94	2.59
2008-09	4.68	4.64	3.12
2009-10	4.50	4.44	2.86
2010-11	4.52	4.41	3.04
2011-12	4.91	4.79	3.37
2012-13	5.27	5.18	3.61

Gap between Cost & Realization



Capacity Addition Plan 2015-16

Project	Dev.	Sector	Fuel	MW	Status
UMPP – Tilaiya	JIPL	Private	Coal	300	Delay in Land Acq.
Wanakbori Ext Unit 8	GSECL	State	Coal	800	Environment Clearance obtained in Dec-13. EPC award in progress
Mouda Stage II	NTPC	Central	Coal	240	EPC awarded to BHEL
Lara	NTPC	Central	Coal	140	Pre-awarding activities initiated
Kakrapar Ext	NPCIL	Central	Atomic	476	Civil work in progress
Shapoorji Pallonji Energy	SPEGL	Private	Imp Coal	800	MoEF clearance obtained on 30.11.12. Land Acq. & EPC award pending
Essar Power Gujarat Ltd.	EPGL	Private	Imp Coal	800	Land Acq. completed & EPC awarded. Env. Clearance Pending.
Total				3556	

Capacity Addition Plan 2016-17

Name of Project	Dev.	Sector	Fuel	MW	Status
GIPCL Exp Stg III	GIPCL	State	Lignite	500	Pre-awarding activities in progress
Lara	NTPC	Central	Coal	140	
Dhuvaran STPP Stage I	NTPC	Central	Coal	660	
Khargone STPP	NTPC	Central	Coal	220	
Gadarwara STPP Stage I	NTPC	Central	Coal	220	
Total				1740	