

**MINUTES OF THE THIRTY SEVENTH MEETING**  
**OF**  
**FORUM OF REGULATORS (FOR) HELD AT NEW DELHI**

**DATE** : 21<sup>ST</sup> AUGUST, 2013

**LIST OF PARTICIPANTS** : At Annexure-I (enclosed).

**Business Session – I :**

The meeting was chaired by Shri Prasad Ranjan Ray, Chairperson, WBERC and senior most Chairperson, FOR. The meeting was also attended by Shri V.S. Verma, the Senior most Member of CERC. WBERC Chair welcomed the Members of the Forum in the 37<sup>th</sup> Meeting of the FOR. As per the practice, Chairpersons of the State Electricity Regulatory Commissions who joined after the last meeting of the FOR, viz., Shri Narayan Singh, Chairperson, CSERC and Shri Naba Kumar Das, Chairperson, AERC were also welcomed and introduced to the Members of the FOR. He also conveyed special thanks to the contribution made by the Members, FOR who retired after the 36<sup>th</sup> Meeting of the Forum.

The FOR thereafter took agenda items for consideration.

**Agenda Item No. 1 : Confirmation of the Minutes of the 36<sup>th</sup> Meeting of “FOR” held during 19<sup>th</sup> – 20<sup>th</sup> April, 2013 at Srinagar (Jammu & Kashmir).**

The Forum noted and endorsed the minutes of the 36<sup>th</sup> Meeting of FOR held at Srinagar (Jammu & Kashmir) during 19<sup>th</sup> - 20<sup>th</sup> April, 2013.

After discussion, the minutes were confirmed

**Agenda Item No. 2 : To Consider and Approve the Balance Sheet and the Audited Accounts of “FOR” for the year 2012-13.**

The balance sheet and the audited accounts were considered and approved.

**Agenda Item No. 3 : Grid Operation and Security – Review of Status**

A presentation was made by Shri S.K. Soonee, CEO, POSOCO/NLDC (copy **enclosed** at **Annexure – II**). In his presentation, he highlighted the initiatives taken on grid security and operation after the incidences of grid failure in 2012. He mentioned about the impact that gradual tightening of frequency band had on the grid frequency and decline in UI volume after the incidences of grid failures. He highlighted the need for primary response to avoid large fluctuations in frequency and particularly in view of Synchronization of Southern Grid by March 2014, Integration of renewable generation, Interconnection of neighbouring countries and Impact of frequency

variation on Line flows & voltages. He also emphasised on the need for protection audit on regular basis, capacity building of system operators and formulation of reliability standards for Indian Power Grids. CEO, POSOCO explained the draft deviation settlement mechanism proposed by CERC. The new mechanism has volume limits on deviation from schedule and mandates zero crossing at least once every 6 time blocks.

In the context of the proposed amendments to CERC Regulations on Deviation Settlement Mechanism, some Members articulated the need for addressing the concerns of the RE resource rich States in terms of load management due to variation in wind and solar. The volume limit for overdrawal may need be reviewed to provide for special dispensation for RE resource rich States to manage variability of RE generation.

Shri V.S. Verma, Member, CERC explained the rationale behind tightening of frequency band and higher UI charges to discourage overdrawal. He urged upon the SERCs to dissuade the discoms from overdrawing from the grid in the interest of grid security.

In the end, CEO, POSOCO laid emphasis on the need for effective compliance monitoring & enforcement by SERCs, the provisions related to grid security in the following areas –

- Ensuring adequacy in all time horizons
- Avoid overdrawals/underdrawals & control tie line flows

- Free Governor Operation
- Defense mechanism such as under frequency relays and protection systems to be maintained in healthy condition
- Availability of data telemetry to concerned SLDC/RLDC/NLDC
- Financial discipline by way of prompt payments to the pool.

The Forum noted the suggestions.

**Agenda Item No. 4 : Renewable Purchase Obligations (RPO) – Status of Compliance.**

A presentation was made by Shri Rakesh Shah, Advisor (Renewable Energy), CERC (copy **enclosed** at **Annexure – III**) on the status of compliance of Renewable Purchase Obligations (RPO).

**Agenda Item No. 5 : APTEL's Order on OP No.1 of 2011 on Tariff Revision by SERCs : Status Update.**

FOR Secretariat informed the Forum about the developments on APTEL's Orders and submission made by FOR Secretariat after the Tribunal's Judgement on OP NO.1 of 2011.

## **Business Session – II :**

### **Arrival of Hon'ble Minister of State (I/C) for Power.**

Shri Prasad Ranjan Ray, Chairperson, WBERC and senior most Chairperson of FOR and Shri V.S. Verma, Senior most Member of CERC welcomed the Hon'ble Minister of State (I/C) for Power Shri Jyotiraditya Madhavrao Scindia on his arrival.

In his address, Shri Jyotiraditya Madhavrao Scindia, Hon'ble Minister of State (I/C) for Power welcomed all the Members of the Forum. The Hon'ble Minister said that policy makers and Regulators are co-partners in the process of reforms. There is, therefore, a need for coordinated efforts for the larger interest of development of the power sector.

The Hon'ble Minister stated that the power sector plays a major role in the economic growth of the country and there is a tremendous pressure on the policy makers and Regulators to bring it back on track. He emphasised on the need to encourage generation, guarantee off take of power and generate revenue in the power sector. He urged the Regulators to be fair and balanced in the interest of both the investors and the consumers. He also requested the Regulators to be alert, vigilant, active and helpful for the development of this sector.

The Hon'ble Minister took up three specific issues for discussion and sought considered views and cooperation of the Regulators.

**Agenda Item No. 6 :                      Issues raised by Ministry of Power**

The following three issues raised by Ministry of Power were taken up for discussion, viz. :-

- **Renewable Purchase Obligation: Status of compliance- Suggestions for more effective enforcement**
- **Adequacy of Power Supply: Issues of Stranded Capacity and Reliability**
- **Competition in the retail sale of electricity in India**

**Issue No.1 : Renewable Purchase Obligation: Status of compliance- Suggestions for more effective enforcement**

**Discussion -**

Some State Commissions have taken progressive steps for monitoring and enforcement of RPO. For instance, in Punjab the SERC has approved separate expenditure in the ARR, for RPO compliance including procurement of REC. The Members felt that specific provisions should be made in the Act providing for deterrence against non compliance of RPO. In this regard, it was informed that CERC in its Statutory Advice has already brought to the notice of the Ministry of Power about the need for specific provisions in the Act from compliance of RPO. The Hon'ble Minister urged the State Commissions to enforce RPO and assured that the Ministry of Power was committed to strengthening the Regulators for this, including by amending the Act, if required, for this purpose.

**Consensus** –

- ❖ The Forum agreed on the need for stricter action against non-compliance of RPO targets.
- ❖ The practices as in Punjab – of providing for separate funds under ARR for RPO compliance including through purchase of REC could be considered by other States.
- ❖ The provisions in the existing regulations of imposing non-compliance charge etc. should be invoked by the Regulators.
- ❖ Ministry of Power should be requested to bring about amendment in the Act empowering the regulators separately to impose penalty for non-compliance of RPO.

**Issue No.2 : Adequacy of Power Supply: Issues of Stranded Capacity and Reliability**

**Discussion** -

The Forum was informed that more than 10,000 MW of capacity is stranded in the country due to shortage of fuel and inadequacy of demand from distribution utilities. This results in load shedding which in turn induces use of diesel generation for back up supply. Joint Secretary (R&R), Ministry of Power pointed out two specific areas requiring regulatory intervention viz., (a) ensuring compliance of universal service obligation by the discoms by procuring adequate power; and (b) guaranteeing reliability of power supply to willing consumers by levying regulatory/reliability charges, as is being done in Andhra Pradesh, Haryana and Orissa. It was pointed out that adequacy of power supply i.e. 24×7 power supply would require strengthening of transmission system as the capacity of the current transmission system would be a constraint. The Hon'ble Minister requested the Regulators to enforce adequacy of procurement of power.

**Consensus** –

- ❖ The Forum appreciated the need for ensuring adequacy of supply by the discoms.
- ❖ The measures taken by some SERCs in the form of reliability charge for ensuring/guaranteeing reliable supply to willing consumers could be tried by other SERCs.

**Issue No.3 : Competition in the retail sale of electricity in India**

**Discussion** -

The Hon'ble Minister appreciated the concept paper prepared by the Forum on separation of Carriage and Content in Distribution. He informed the Forum that the Ministry of Power was working on the concept paper to make separation of carriage and content a reality. There was a unanimous endorsement to the proposition of separation of Carriage and Content at the Distribution level. The Forum requested the Ministry of Power to bring about separate amendments for this at the earliest. Chairperson, WBERC suggested as follows –

- The concept is appreciated but can be implemented only with active support and involvement of the State Government. Extensive consultation should be done with the stakeholders, as was done in the context of Electricity Act, 2003.
- Regulatory intervention required after such amendment will not be an issue but for this, the Regulatory Commissions need to be strengthened. Vacancies in the positions of Chairperson and Members of SERCs are not filled up timely thereby weakening the regulatory system. If bold steps are expected of the Regulators, they should be strengthened and adequately supported by skilled manpower. It was agreed that a note indicating the status in this regard would be sent to the Hon'ble Minister of State for Power. The Hon'ble Minister also requested the Forum to



suggest the ways in which the composition of the SERC could be strengthened.

Shri V. S. Verma, Member, CERC pointed out that it was necessary to address the issues of tariff design and cross subsidy to make retail sale competition a success. The Hon'ble Minister requested a separate note in this regard.

**Consensus** –

- ❖ The Forum unanimously endorsed the proposal of separation of Carriage and Content in distribution. The need for separate amendment for this was reiterated.
- ❖ Wide consultation with stakeholders would be desirable for this.

A vote of thanks was extended by Shri V.S. Verma, Senior most Member of CERC. He conveyed deep appreciation and gratitude to the Hon'ble Minister for his presence and interaction with the Regulators. He conveyed his sincere thanks to all the dignitaries present in the meeting. He also thanked the staff of “FOR” Secretariat for their arduous efforts at organizing the meeting.

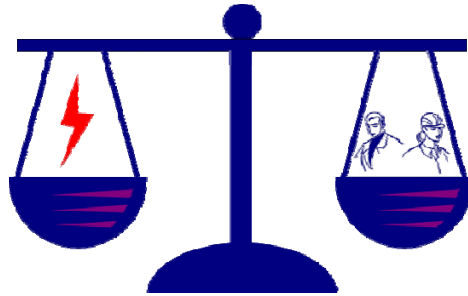
The meeting ended with a vote of thanks to the Chair.

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**LIST OF PARTICIPANTS ATTENDED THE THIRTY SEVENTH MEETING**  
**OF**  
**FORUM OF REGULATORS ( FOR )**  
**HELD ON 21<sup>ST</sup> AUGUST, 2013 AT NEW DELHI**

S. No.	NAME	ERC
01.	Shri Prasad Ranjan Ray Chairperson	WBERC – in Chair.
02.	Shri V.S. Verma Member	CERC
03.	Shri Digvijai Nath Chairperson	APSERC
04.	Shri Naba Kumar Das\ Chairperson	AERC
05.	Shri Umesh Narayan Panjiar Chairperson	BERC
06.	Shri NarayanSingh Chairperson	CSERC
07.	Shri P.D. Sudhakar Chairperson	DERC
08.	Shri R.N. Prasher Chairperson	HERC
09.	Shri Subhash Chander Negi Chairperson	HPERC
10.	Shri A. Chhawnmawia Chairperson	JERC for Mizoram & Manipur (M&M)
11.	Shri T. M. Manoharan Chairperson	KSERC
12.	Shri Rakesh Sahni Chairperson	MPERC
13.	Shri Anand Kumar Chairperson	MSERC
14.	Shri Satya Prakash Nanda Chairperson	OERC
15.	Shri D.C. Samant Chairperson	RERC

16.	Shri T.T. Dorji Chairperson	SSERC
17.	Shri R. Ashoka Chari Member	APERC
18.	Shri Pravinbhai Patel Member	GERC
19.	Shri T. Munikrishanaiah Member	JSERC
20.	Shri S.K. Chaturvedi Member	JERC for all UTs except Delhi
21.	Shri Vishwanath Hiremath Member	KERC
22.	Shri V.L. Sonavane Member	MERC
23.	Shri Virinder Singh Member	PSERC
24.	Shri S. Nagalsamy Member	TNERC
25.	Shri C.S. Sharma Member	UERC
26.	Ms. Meenakshi Singh Member	UPERC
27.	Shri Sushanta K. Chatterjee Joint Chief (RA)	CERC
<b>SPECIAL INVITEES</b>		
01.	Shri Pradeep Kumar Sinha Secretary	MOP
02.	Shri Ashok Lavasa Additional Secretary	MOP
03.	Ms. Jyoti Arora Joint Secretary	MOP
04.	Shri S.K. Soonee CEO	POSOCO/NLDC



# Presentation on Grid Operation & Security

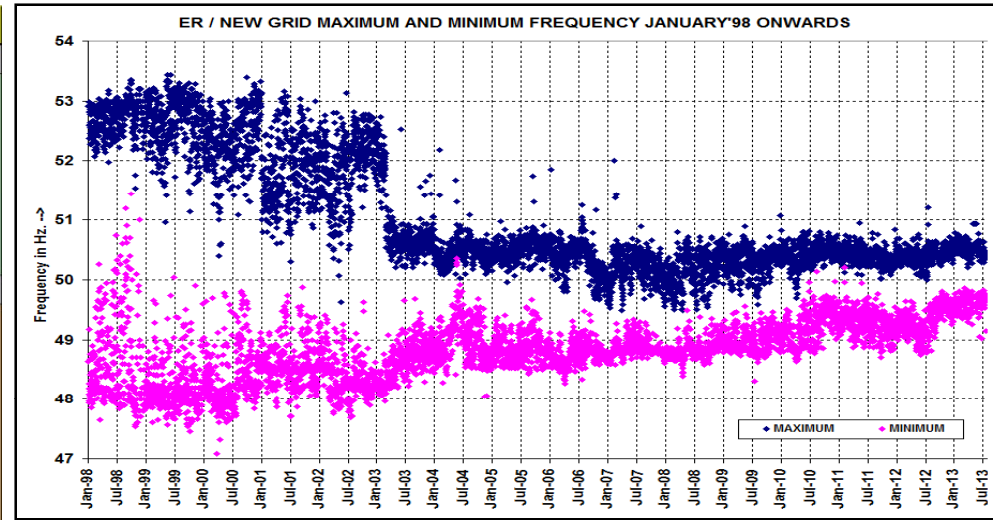
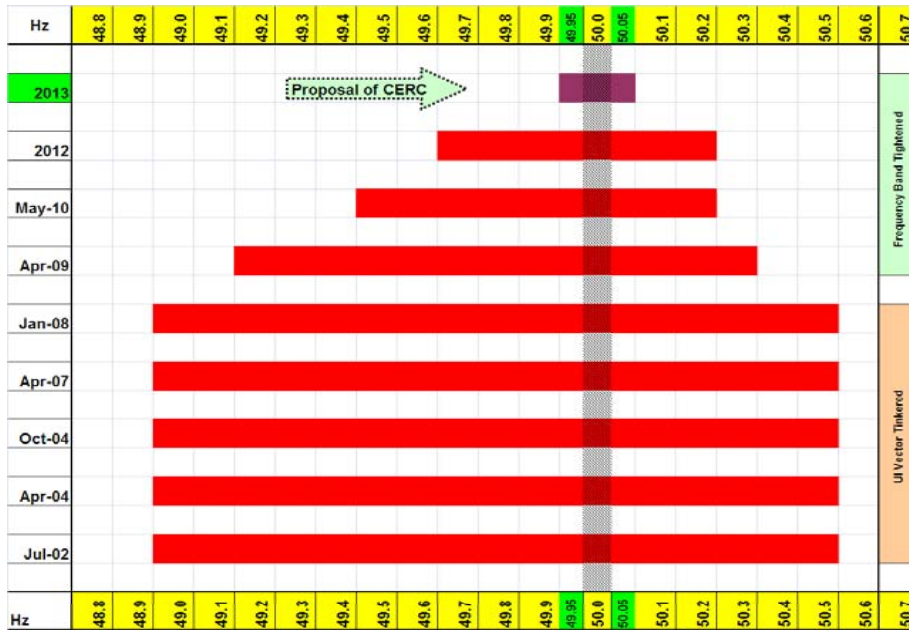
**37<sup>th</sup> Meeting of Forum of Regulators**

**21<sup>st</sup> August, 2013**

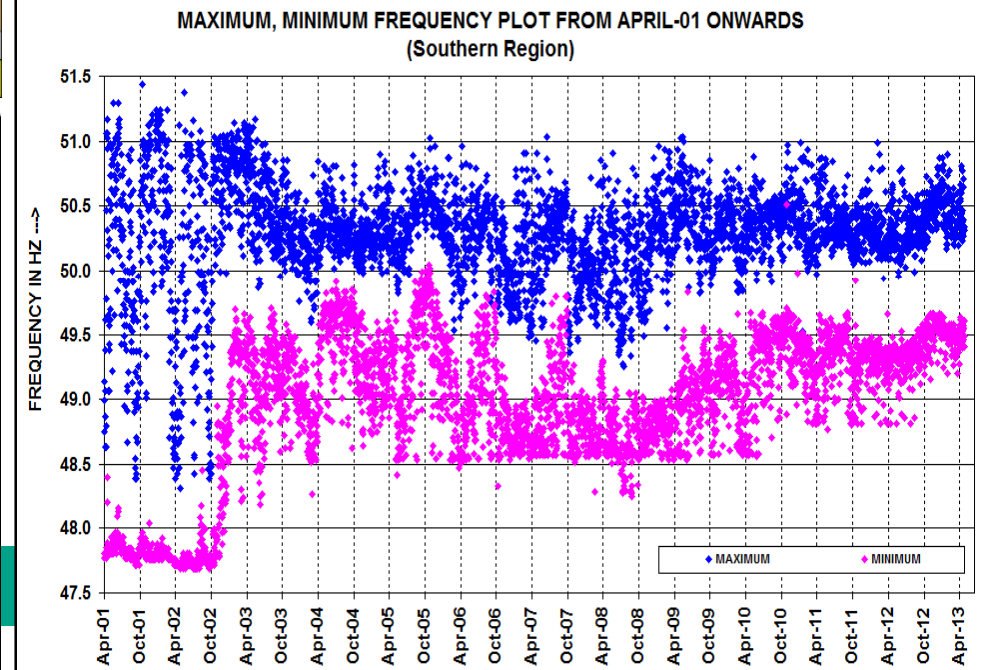
# Grid Operation and Security

- Gradual tightening of frequency band
- Frequency Control
  - Primary Response
  - Frequency Response Characteristics
- Handling deviations
  - Proposed deviation settlement mechanism
- Protection Systems & Defense Plan
- Capacity Building
- Reliability Standards
  - International Practice
- Compliance Monitoring & Enforcement in States

# Gradual Tightening of Frequency Band



Country/Interconnection	Nominal Frequency (Hz)	Permissible frequency band	
		Hz	%
Eastern Interconnection (US)	60	59.95 - 60.05	+/- 0.08 %
Western Interconnection (US)	60	59.856 - 60.144	+/- 0.24 %
Nordic Countries	50	49.90 - 50.10	+/- 0.20 %
Europe	50	49.80 - 50.20	+/- 0.40 %
<b>India (Existing)</b>	<b>50</b>	<b>49.70 - 50.20</b>	<b>+ 0.40 / - 0.60%</b>
<b>India (Proposed)</b>	<b>50</b>	<b>49.95 - 50.05</b>	<b>+/- 0.1 %</b>

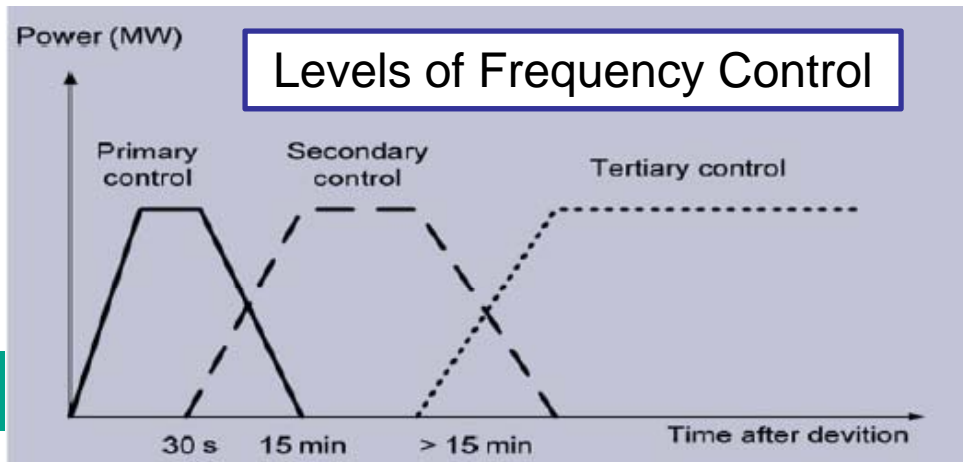


# Frequency Control

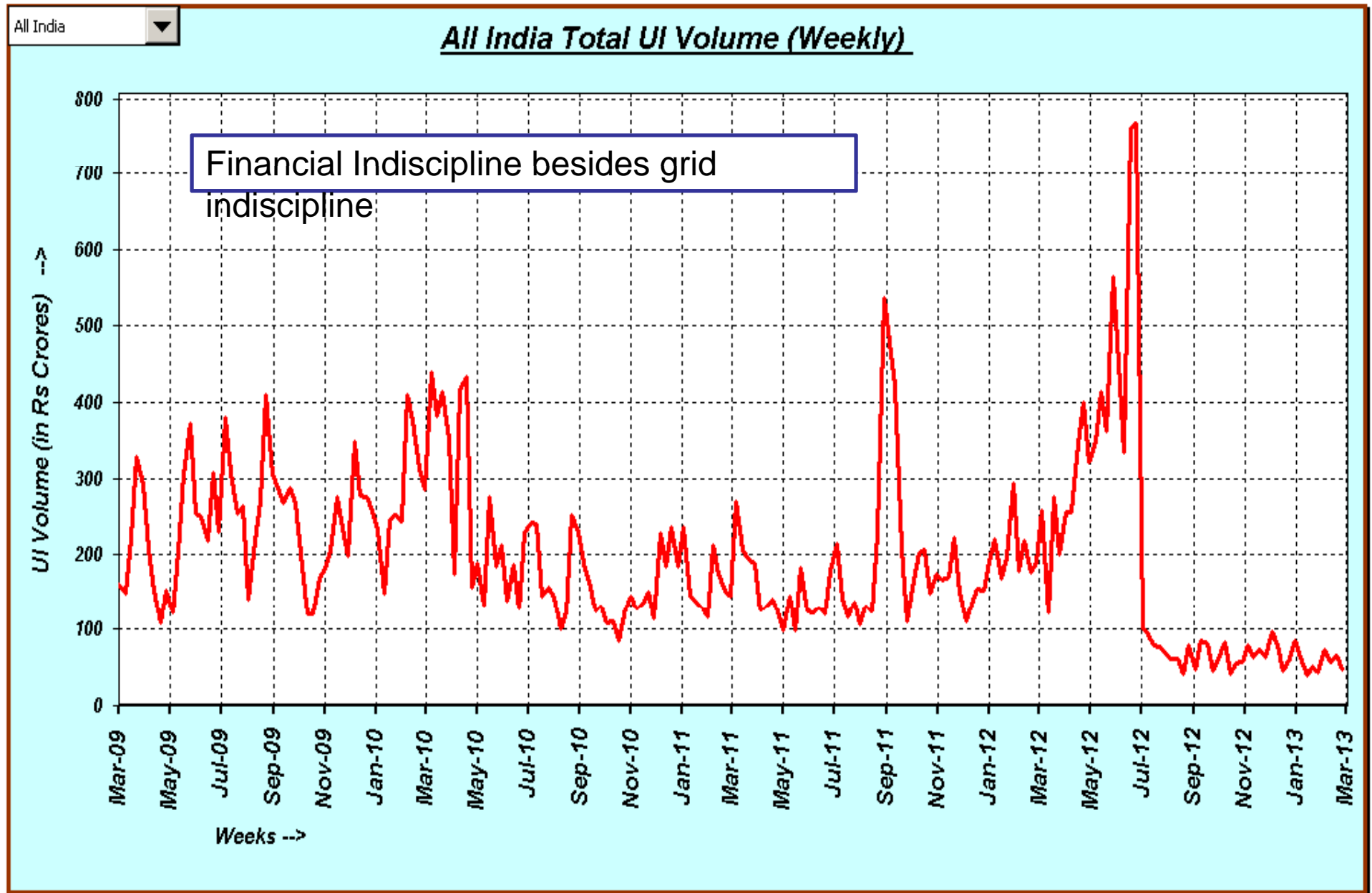
- **Importance of primary response (Section 5.2 of IEGC)**  
RGMO wef 1st Aug 2010 in IEGC 2010
- Frequency Response Characteristics (FRC)
  - NEW grid FRC = 2230 MW/Hz
  - Southern Grid FRC = 1373 MW/Hz
  - Expected FRC of 'NEWS' grid = 3600 MW/Hz
- Primary response by all generators essential – Presently < 10% response

## Need for Primary Response

- Synchronization of Southern Grid by March 2014
- Integration of renewable generation
- Interconnection of neighbouring countries
- Impact of frequency variation on Line flows, voltages
- Avoids large fluctuations in frequency



# Decline in UI Volume





# Deviation Settlement Mechanism

- Handling imbalances an essential part of electricity market design
- As per the existing UI Regulations
  - No volume limit on UI above 49.8 Hz.
  - Perverse signal for over drawal/under drawal or under injection/over injection without any regard to other grid parameters like transfer capability, voltage, angle, etc.
- Draft CERC Deviation Settlement Mechanism 2013
  - Repeals earlier CERC UI Regulations
  - Tightening of operational freq. band to 49.95-50.05 Hz
  - Volume limits on deviation from schedule
  - Zero crossing at least once every 6 time blocks

# Protection Systems & Defense Plan

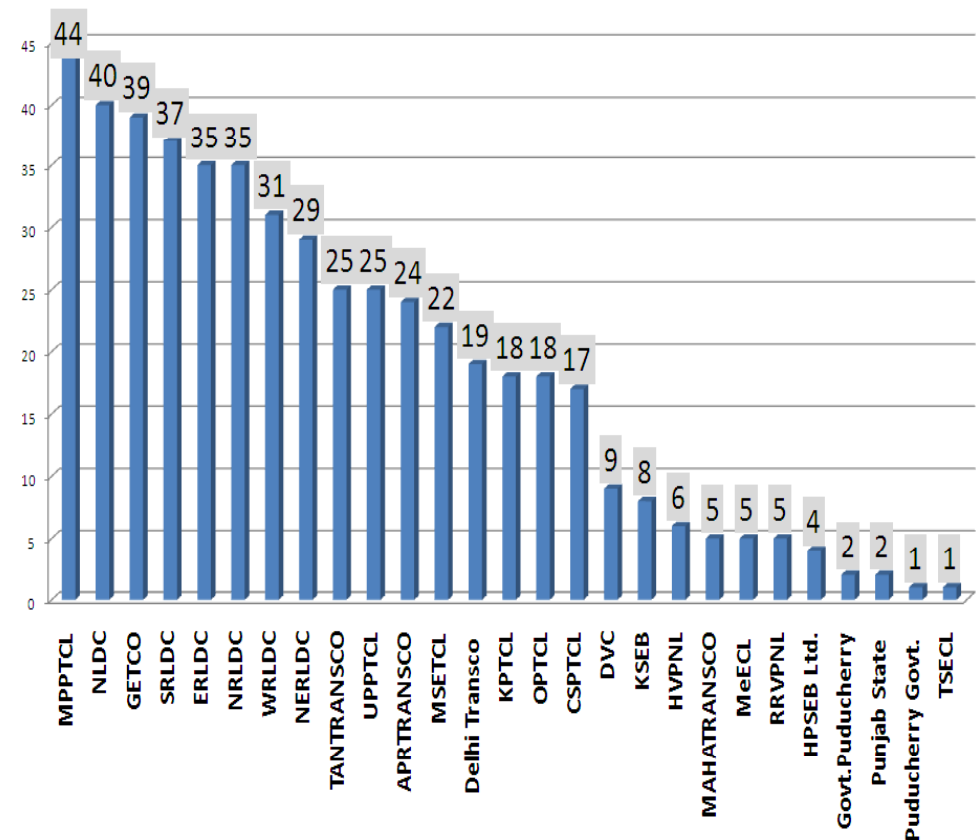
- Large outages in the grid
  - Outage of entire generating station complex
  - Outage of entire substation along with all lines/ICTs
  - Events of multiple trippings
- Protection Audit in all Regions
  - Carried out for 132 stations in NR, 212 stations in WR, 194 stations in SR, 56 stations in ER & 135 stations in NER
  - Rectification of identified problems being undertaken
  - Present exercise a one time process
  - Need for audit on a regular periodic basis
  - SERCs may direct respective SLDCs/STUs in this regard

## Capacity Building of System Operators

- Three levels of Certification
  - ‘BASIC LEVEL’, ‘SPECIALIST LEVEL’, ‘MANAGEMENT LEVEL’
- Training Imparted
  - Basic Level by NPTI
    - 1<sup>st</sup> Phase (2011)- 240
    - 2<sup>nd</sup> Phase (2012)- 240
  - Specialist Level “Regulatory Framework”
    - 2013- 85 Certified System Operators imparted Training
- Training Planned
  - Specialist Level “Power System Reliability”
    - 2013- 6 batches planned of 40 participants each

### Certified System Operators in 1<sup>st</sup> & 2<sup>nd</sup> Basic Level

#### Exam



# Reliability Standards

## International Experience (USA)

- Focus on Reliability post US disturbances in 1965 and 2003
- North American Electric Reliability Council (NERC)
  - Voluntary Compliance of Reliability Standards
- Electric Reliability Organization
  - Mandated by Electric Power Act of 2005
  - Mandatory Compliance of Reliability rules
  - Primary Role is in framing Standards
- Compliance Monitoring & Enforcement
  - Self Certification, Self Reporting, Periodic Data Submission, Exception Reporting
  - Compliance Audits, Spot Checking
  - Complaints
- Penalties up to \$ 1 million/ violation / day

## Need for Indian Power Grids

- Formulation of Reliability Standards
- Development of a 'Reliability Monitoring Agency'
- Effective Compliance Monitoring & Enforcement at both inter-state and intra-state levels

**Penalty Amount Table**  
**Setting the Initial Penalty Range**

VRFs: extent to which bulk-power system is jeopardized by violation  
 VSLs: extent of deviation from standard

Violation Risk Factor (VRF)	Violation Severity Level (VSL)			
	Lower	Moderate	High	Severe
Lower	\$1,000 – \$3,000	\$2,000 – \$7,500	\$3,000 – \$15,000	\$5,000 – \$25,000
Medium	\$2,000 – \$30,000	\$4,000 – \$100,000	\$6,000 – \$200,000	\$10,000 – \$335,000
High	\$4,000 – \$125,000	\$8,000 – \$300,000	\$12,000 – \$625,000	\$20,000 – \$1,000,000

## Reliability Standards by NERC (USA)

- Communications (COM) (2)
- Critical Infrastructure Protection (CIP) (9)
- Emergency Preparedness and Operations (EOP) (7)
- Facilities Design, Connections, and Maintenance (FAC) (9)
- Interchange Scheduling and Coordination (INT) (9)
- Interconnection Reliability Operations and Coordination (IRO) (15)
- Modelling, Data, and Analysis (MOD) (14)
- Nuclear (NUC) (1)
- Personnel Performance, Training, and Qualifications (PER) (4)
- Protection and Control (PRC) (18)
- Resource and Demand Balancing (BAL) (9)
- Transmission Operations (TOP) (9)
- Transmission Planning (TPL) (4)
- Voltage and Reactive (VAR) (4)

**Total 114 Reliability Standards !!**

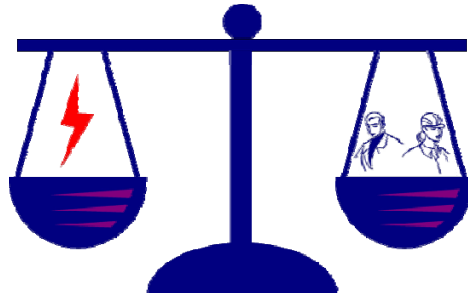
# Compliance Monitoring & Enforcement in States

- Section 82(1)(h) of Electricity Act 2003
  - “specify State Grid Code consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79”*
    - State Grid Codes specified by all State Commissions
- Enforcement of provisions related to Grid Security
  - Ensuring adequacy in all time horizons
  - Avoid overdrawals/underdrawals & Control tie line flows
  - Free Governor Operation
  - Defense mechanism such as under frequency relays and protection systems to be maintained in healthy condition
  - Availability of data telemetry to concerned SLDC/RLDC/NLDC
  - Financial discipline by way of prompt payments to the pool

**Need for effective compliance monitoring & enforcement by  
SERCs**



*Thank You*



# Presentation on Renewable Purchase Obligations : Status of Compliance

**37<sup>th</sup> Meeting of Forum of Regulators**

**21<sup>st</sup> August, 2013**



## Renewable Purchase Obligation Target

S.	STATE	2012-13	2013-14	2014-15	2015-16	2016-17
1	Andhra Pradesh	5.00%	5.00%	5.00%	5.00%	5.00%
2	Arunachal Pradesh	4.20%	5.60%	7.00%		
3	Assam	4.20%	5.60%	7.00%		
4	Bihar	4.00%	4.50%	5.00%		
5	Chattisgarh	5.75%				
6	Delhi	3.40%	4.80%	6.20%	7.60%	9.00%
7	Gujarat	7.00%				
8	Haryana	2.00%	3.00%			
9	Himachal	10.25%	10.25%	10.25%	11.25%	12.25%
10	Jammu Kashmir	5.00%				
11	Goa & UT	3.00%				
12	Jharkhand	4.00%				
13	Karnataka	10%/7%				
14	Kerala	3.63%	3.99%	4.39%	4.83%	

## Renewable Purchase Obligation Target

S.	STATE	2012-13	2013-14	2014-15	2015-16	2016-17
15	Madhya Pradesh	4.00%	5.50%	7.00%		
16	Maharashtra	8.00%	9.00%	9.00%	9.00%	
17	Manipur	4.75%				
18	Mizoram	7.00%				
19	Meghalaya	1.00%				
20	Nagaland	8.00%				
21	Orissa	5.50%	6.00%	6.50%	7.00%	
22	Punjab	2.90%	3.50%	4.00%		
23	Rajasthan	7.10%	8.20%			
24	Sikkim					
25	Tripura	2.00%				
26	TamilNadu	9.00%				
27	Uttarakhand	10.00%				
28	Uttar Pradesh	6.00%				
29	West Bengal		4.00%	4.50%	5.00%	5.50%

## Solar Purchase Obligation Target

<b>S.</b>	<b>STATE</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
1	<b>Andhra Pradesh</b>	0.25%	0.25%	0.25%	0.25%	0.25%
2	<b>Arunachal Pradesh</b>	0.10%	0.15%	0.20%		
3	<b>Assam</b>	0.15%	0.20%			
4	<b>Bihar</b>	0.75%	1.00%	1.25%		
5	<b>Chattisgarh</b>	0.50%				
6	<b>Delhi</b>	0.15%	0.20%	0.25%	0.30%	0.35%
7	<b>Gujarat</b>	1.00%				
8	<b>Haryana</b>	0.75%	1.00%			
9	<b>Himachal</b>	0.25%	0.25%	0.25%	0.25%	0.25%
10	<b>Jammu Kashmir</b>	0.25%				
11	<b>Goa &amp; UT</b>	0.40%				
12	<b>Jharkhand</b>	1.00%				
13	<b>Karnataka</b>	0.25%	0.25%	0.25%		
14	<b>Kerela</b>	0.25%	0.25%	0.25%	0.25%	

## Solar Purchase Obligation Target

S.	STATE	2012-13	2013-14	2014-15	2015-16	2016-17
15	Madhya Pradesh	0.60%	0.80%	1.00%		
16	Maharashtra	0.25%	0.50%	0.50%	0.50%	
17	Manipur	0.25%				
18	Mizoram	0.25%				
19	Meghalaya	0.40%				
20	Nagaland	0.25%				
21	Orissa	0.15%	0.20%	0.25%	0.30%	
22	Punjab	0.07%	0.13%	0.19%		
23	Rajasthan	0.75%	1.00%			
24	Sikkim					
25	Tripura	0.10%				
26	TamilNadu	0.05%				
27	Uttarakhand	0.05%				
28	Uttar Pradesh	1.00%				
29	West Bengal		0.10%	0.15%	0.20%	0.25%

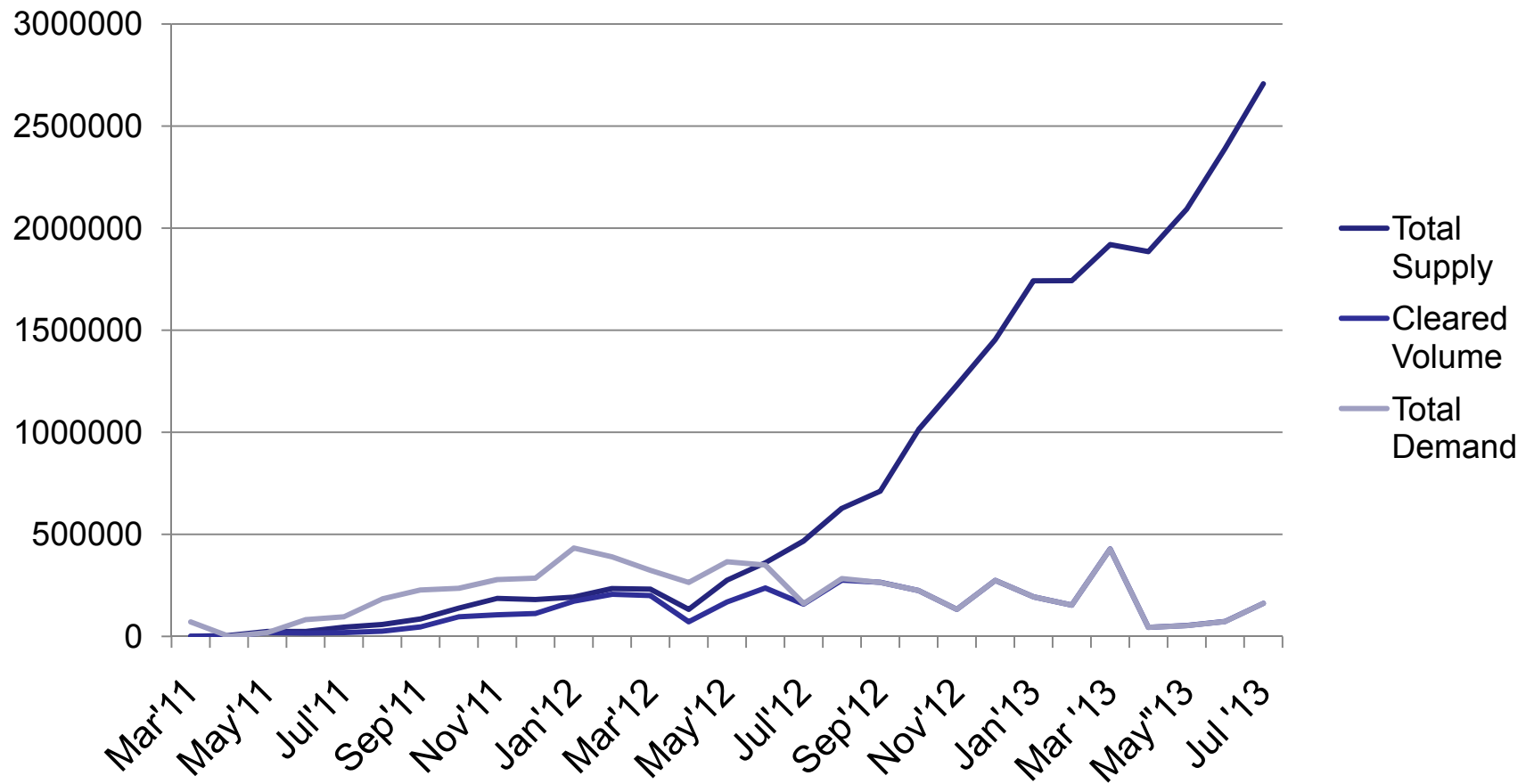
## Status of RPO compliance: FY 2012-13

1. Total Power consumed in the country: 8,40,496 MUs
2. Total Non-Solar Power required: 45,829 MUs
3. Total Solar Power required: 3,763 MUs
4. Total Non-Solar RPO specified: 5.45% (FY 2012-13)
5. Total Solar RPO specified: 0.45% (FY 2012-13)
6. Total Non-Solar Power and REC purchased: 31,416 MUs
7. Total Solar Power and REC purchased: 681 MUs
8. Total Non-Solar Power obligation not fulfilled : 14,414 MUs
9. Total Solar Power obligation not fulfilled: 3,082 MUs
10. Total Non-Solar RPO fulfilled: 3.74% (FY 2012-13)
11. Total Solar RPO fulfilled: 0.08% (FY2012-13)

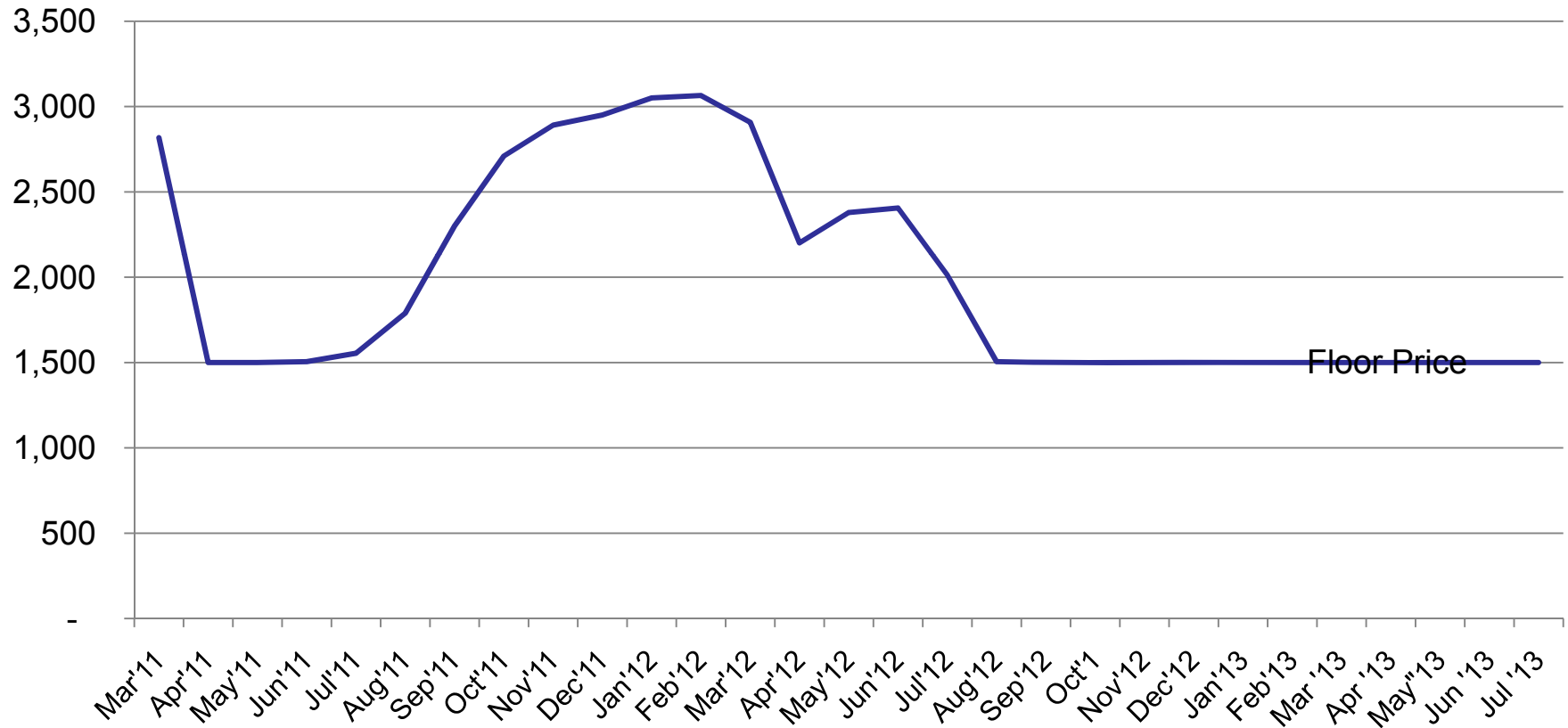
# Month-wise Non-Solar REC Report

Month, Year	Opening Balance	REC Issued	REC Redeemed	Closing Balance	MCP In Rs./REC	Amount Transacted in Rs. Crore
July,2012	1,73,777	3,82,384	1,58,220	3,97,941	2,014	31.86
August,2012	3,97,941	4,74,594	2,73,893	5,98,642	1,505	41.23
September,2012	5,98,642	5,68,124	2,64,446	9,02,320	1,500	39.67
October,2012	9,02,320	6,14,478	2,22,700	12,94,098	1,500	33.41
November,2012	12,94,098	3,92,485	1,32,352	15,54,231	1,500	19.85
December,2012	15,54,231	3,82,391	2,73,644	16,62,978	1,500	41.05
January,2013	16,62,978	3,04,238	1,93,337	17,73,879	1,500	29.00
February,2013	17,73,879	3,14,917	1,52,952	19,35,844	1,500	22.94
March,2013	19,35,844	2,68,323	4,27,871	17,76,296	1,500	64.18
April,2013	17,76,296	2,59,299	44,459	19,91,136	1,500	6.67
May,2013	19,91,136	2,49,221	52,968	21,87,389	1,500	7.95
June,2013	21,87,389	2,92,928	72,486	24,07,831	1,500	10.87
July,2013	24,07,831	4,62,962	1,61,402	27,09,391	1,500	24.21
August,2013	27,09,391	26,717	0	<b>27,36,108</b>		
<b>Total :</b>		<b>66,58,922</b>	<b>39,22,814</b>			<b>771.92</b>

# NON SOLAR REC STATUS



# Non-SOLAR REC Market clearing price

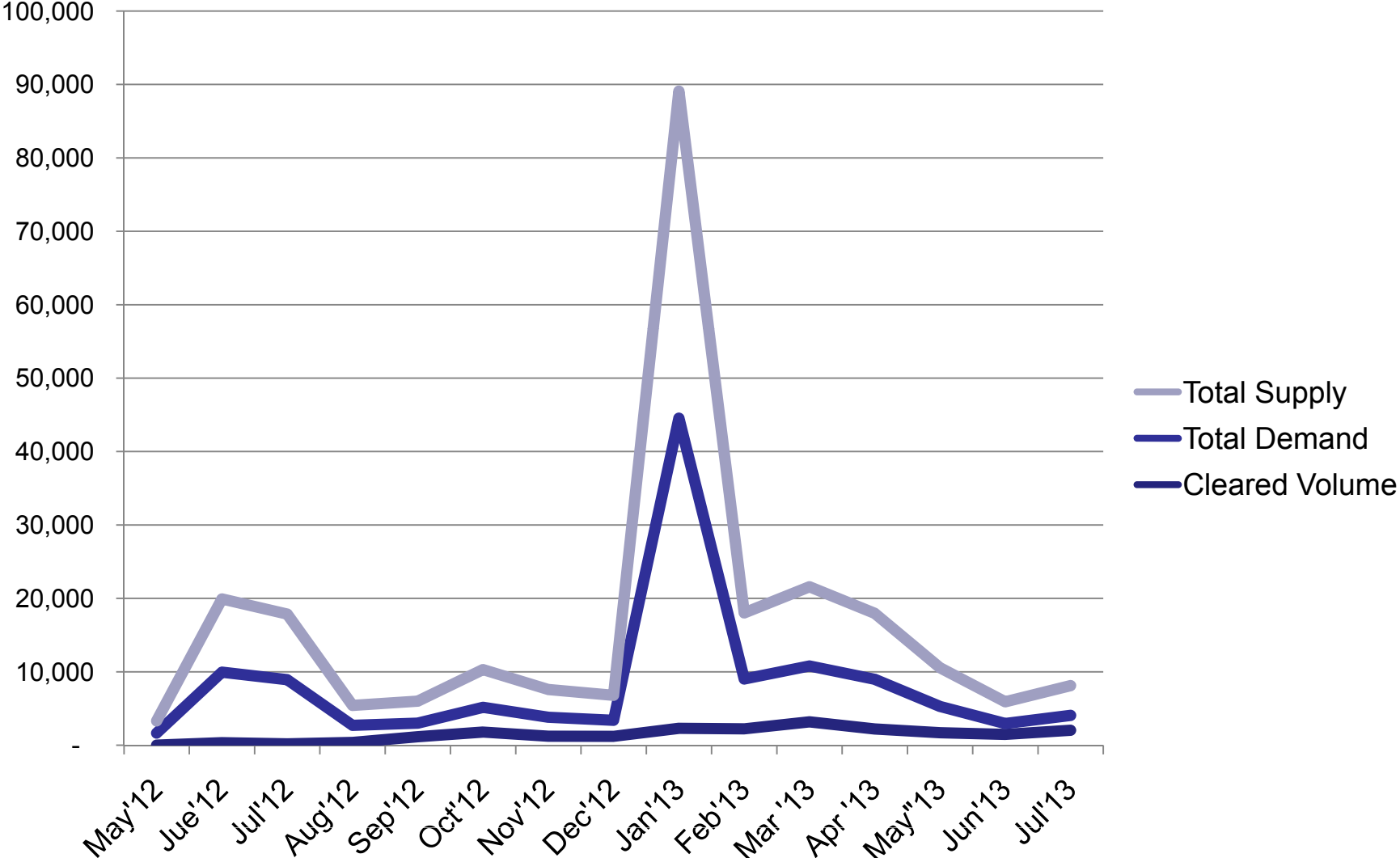




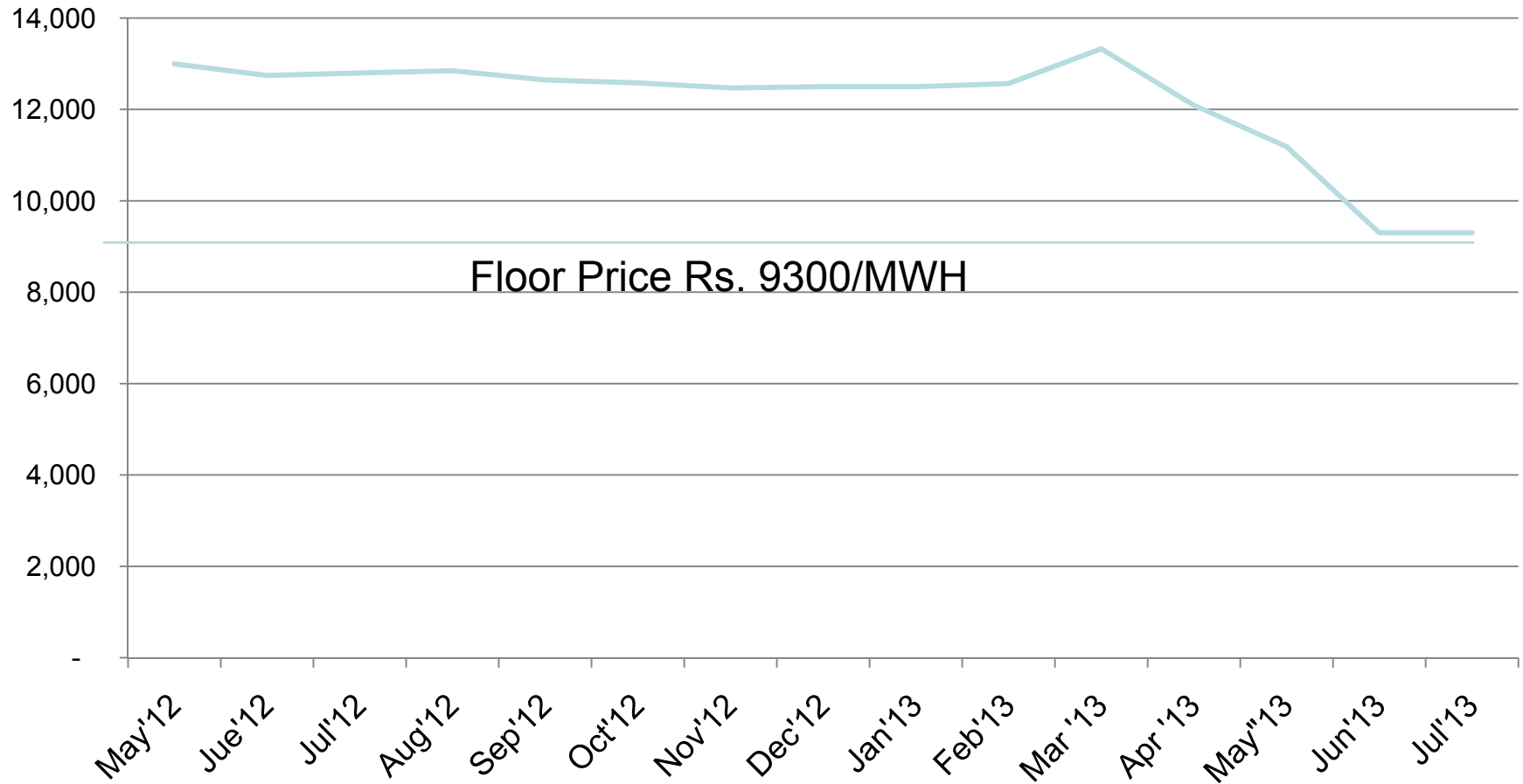
## Month-wise Solar REC Report

Month, Year	Opening Balance	REC Issued	REC Redeemed	Closing Balance	MCP In Rs./REC	Amount Transacted in Rs. Crore
July,2012	221	328	179	370	12,800	0.23
August,2012	370	190	379	181	12,850	0.49
September,2012	181	1,443	1,160	464	12,647	1.47
October,2012	464	1,412	1,791	85	12,582	2.25
November,2012	85	1,603	1,219	469	12,473	1.52
December,2012	469	992	1,208	253	12,501	1.51
January,2013	253	3,306	2,308	1,251	12,500	2.89
February,2013	1,251	1,882	2,234	899	12,569	2.81
March,2013	899	2,917	3,183	633	13,331	4.24
April,2013	633	2,444	2,217	860	12,093	2.68
May,2013	860	3,973	1,703	3,130	11,186	1.91
June,2013	3,130	2,802	1,479	4,453	9,300	1.38
July,2013	4,453	17,227	2,029	19,651	9,300	1.89
August,2013	19,651	0	0	<b>19,651</b>		
Total :		<b>41,092</b>	<b>21,441</b>			<b>25.70</b>

# Solar REC Status



# SOLAR REC Market clearing price



# Compliance of RPO

- FOR evolved Model RPO Regulations
  - Specific provision regarding enforcement of RPOs.
  - Obligated entity to deposit in a separate fund an amount to be calculated based on the shortfall in unit of RPO and the forbearance price (ceiling price for sale) of REC.
  - SERCs may designate an agency to utilize this fund for procurement of RECs from the market.
- Section 142: Power to impose penalty for non-compliance of provisions of Regulations.

# Compliance of RPO

- Most of the SERCs have adopted the provision of model regulations for enforcement of RPOs. However, this provision has not been invoked by the SERCs so far.
- Some SERCs have allowed carry forward of RPO compliance in the event of the non-compliance of RPO by the obligated entities in their States.



*Thank You*