MINUTES OF THE THIRTY THIRD MEETING

OF

FORUM OF REGULATORS (FOR)

VENUE : "CONFERENCE HALL"
MEGAPODE RESORT
PORT BLAIR
(ANDAMAN & NICOBAR ISLANDS).

DATES : 07TH – 08TH DECMBER, 2012

The meeting was chaired by Dr. Pramod Deo, Chairperson, CERC/FOR. The list of participants is at **Annexure-I**.

Shri Sushanta K. Chatterjee, Deputy Chief (Regulatory Affairs), CERC extended a warm welcome to all members of the Forum.

The FOR thereafter took agenda items for consideration.

Agenda Item No. 1 : Confirmation of the Minutes of the 32nd Meeting of "FOR" held during 28th – 29th August, 2012 at New Delhi.

The Forum noted and endorsed the minutes of the 32nd Meeting of FOR held at New Delhi during 28th – 29th August, 2012 as circulated. After brief discussion, the minutes were confirmed

Agenda Item No. 2 (A) : Discussion : Issues on RPO Compliance, Monitoring and Enforcement.

Shri Sushanta K. Chatterjee, Deputy Chief (RA), CERC briefed the Members about the issues on RPO compliance, monitoring and enforcement. It was informed that RPO compliance holds key to development of Renewable Energy Sources in the country today. Given the enthusiasm in the country for investment in the green energy segment, the stakeholders are looking forward to support from the State Electricity Regulatory Commissions on creating and sustaining demand through setting RPO at appropriate levels and more importantly by ensuring compliance of the RPO targets set for the obligatory entities. After discussion, the following was agreed –

- The format for monitoring on RPO compliance (**enclosed** as **Appendix-"A"**) was endorsed.

- Large consumers (say industrial and commercial consumers) be required to meet their RPO obligations independent of the distribution companies.

- Alternatively, such consumers may fulfil their RPO by purchase of green energy through the distribution companies and costs towards such purchases be passed on directly to such consumers.

- The Forum noted that this would be very much in line with the spirit of the Act and the policy as opined by the Attorney General of India.

- On the issue raised by MERC Chairperson regarding inter-changeability of solar and non-solar RPO, it was felt that such inter-changeability, especially, compliance of non-solar RPO by solar power purchase would not be desirable till solar power achieves grid parity. At the same time, this might adversely affect promotion of other renewable energy generation sources.

- Excess purchase of solar power (i.e., purchase of solar power over and above solar RPO) can, however, be compensated separately by allowing

REC credit to DISCOMs for such excess purchase. CERC may consider bringing about suitable changes in its REC Regulations towards this end.

Agenda Item No. 2 (B) : Consideration / Adoption of Study Report on Incentives for RPO Compliance.

A presentation was made by the representative of M/s. Mercados Energy Markets India Pvt. Ltd., Gurgaon (Haryana) (copy **enclosed** at **Annexure – II)**. The Forum noted and appreciated the issues highlighted including the need inter alia for ensuring compliance of RPO. After discussion, the study report on "Incentives for RPO Compliance" was endorsed.

Agenda Item No. 3 : Consideration of Study Report on Retail Sale Competition.

Shri Sushanta K. Chatterjee informed the Forum about the study initiated on "Retail Sale Competition" in pursuance of the decision of the Forum and at the urgent request from Government of India (GOI) Committee on proposed Amendment to the Electricity Act, 2003. The Forum noted the engagement of the Consultant on single sourcing as per CERC Regulations and felt the need for greater debate and discussion on issues around retail sale competition. A presentation was made by the representative of M/s. PricewaterhouseCoopers, Gurgaon (Haryana) (copy **enclosed** at **Annexure – III)**. After discussion, the following was agreed –

- Need for development of framework for segregation of network and supply business in distribution was noted.

- ❖ The framework suggested in the draft report was noted as one of the models for bringing about retail sale competition.

- ❖ As highlighted in the presentation by M/s. PWC, the Members also felt that there are a number of issues which need to be debated and addressed before finalising the definitive model for competition in the distribution sector.

- ❖ Experiences of Maharashtra (Mumbai) in this regard may need to be studied and issues like universal service obligation, feeder separation, standards of performance, costs implications etc. should be discussed in detail and broad recommendations be made.

- ❖ Smaller States, especially, the hilly States may need separate treatment and the report should duly factor in the requirements for such States in the context of retail sale competition.

The study report after incorporating the above suggestions may be circulated to the FOR Members for comments. If need be, this issue may be brought up for discussion in the next/subsequent meeting of the Forum.

Agenda Item No. 4 : Consideration of the Report on Cost Benefit Analysis of DSM.

A presentation was made by the representative of M/s. ABPS, Mumbai (Maharashtra) (copy **enclosed** at **Annexure – IV)**. The Forum noted and appreciated different aspects highlighted in the Report in relation to cost benefit analysis of DSM. After discussion, the Forum endorsed the report on "Cost Benefit Analysis of DSM".

Agenda Item No. 5 : **Other Issue –**

(i) Letter received from KERC, Bangalore (Karnataka).

The Forum noted the reference from KERC. It was highlighted that this issue has been discussed earlier in the Forum.

(ii) A concept paper on setting up a dedicated "Institute of Chartered Regulatory Analysts (ICRA)" was circulated by MERC, Chairperson during the meeting. It was informed that similar concept paper on creation of Regulatory Research Institute (RRI) has already been evolved by the Forum of Indian Regulators (FOIR). Expression of Interest (EOI) has also been invited for setting up of RRI. As decided in the meeting, copies of the concept paper circulated by MERC, Chairperson and as also the concept note evolved by the FOIR are **enclosed** as **Appendix-"B"** and **Appendix-"C"** for comments and discussion in the next FOR meeting.

Chairperson, WBERC offered to host the next meeting of Forum in the month of February, 2013. It was decided to hold the same during 15th – 17th February, 2013 in West Bengal.

The Forum appreciated the efforts of JERC for Goa and UTs for the arrangements made for the meeting.

A vote of thanks was extended by Shri Sushanta K. Chatterjee, Deputy Chief (RA), CERC. 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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/ ANNEXURE – I /

LIST OF PARTICIPANTS ATTENDED THE THIRTY THIRD MEETING OF

FORUM OF REGULATORS (FOR)

HELD DURING 07TH – 08TH DECEMBER, 2012 AT PORT BLAIR.

S. No.	NAME	ERC
01.	Dr. Pramod Deo Chairperson	CERC – in Chair.
02.	Shri A. Raghotham Rao Chairperson	APERC
03.	Shri Digvijai Nath Chairperson	APSERC
04.	Shri Jayanta Barkakati Chairperson	AERC
05.	Shri Umesh Narayan Panjiar Chairperson	BERC
06.	Shri Manoj Dey Chairperson	CSERC
07.	Shri P.D. Sudhakar Chairperson	DERC
08.	Dr. P.K. Mishra Chairperson	GERC
09.	Shri R.N. Prasher Chairperson	HERC
10.	Shri Subhash Chander Negi Chairperson	HPERC
11.	Shri S. Maria Desalphine Chairperson	J&KSERC
12.	Shri Mukhtiar Singh Chairperson	JSERC
13.	Dr. V.K. Garg Chairperson	JERC for Goa & All UTs except Delhi
14.	Shri V.P. Raja Chairperson	MERC
15.	Shri Anand Kumar Chairperson	MSERC
16.	Shri Satya Prakash Nanda Chairperson	OERC

17.	Ms. Romila Dubey Chairperson	PSERC
18.	Shri Manoranjan Karmarkar Chairperson	TERC
19.	Shri Jag Mohan Lal Chairperson	UERC
20.	Shri Prasad Ranjan Ray Chairperson	WBERC
21.	Shri Vishwanath Hiremath Member	KERC
22.	Shri P. Parameswaran Member	KSERC
23.	Shri S. Nagalsamy Member	TNERC
24.	Shri Shree Ram Member	UPERC
25.	Shri Sushanta K. Chatterjee Deputy Chief (RA)	CERC

Study on Preparing Incentive Structure for States for Fulfilling Renewable Purchase Obligation (RPO) Targets

33rd Meeting of Forum of Regulators (FOR)

Final Presentation

7th December 2012

Port Blair

Contents

- Part A: RPO Incentivisation
  - Why Incentivization of RPO compliance?
  - Methodology
  - Assessment of RPO Achievement Capability
  - Identification of incentive needs
  - Cost economics comparison of various RPO compliance routes
  - Incentive framework structure – Supply & Demand States
  - Implementation challenges in REC Mechanism
- Part B: RPO Implementation
  - Status of RPO and Compliance
  - RPO applicability framework suggestions
  - RPO Compliance monitoring

RPO Incentivisation

Why Incentivization of RPO Compliance?

EA 2003 emphasizes renewables market expansion by creating a quota for RE in the electricity procurement mix.

Hurdles

1. Relatively higher cost of renewable energy in the transition period
2. Variability in generation requiring great operational flexibility by utilities.
3. Lack of transmission availability and costs of such facility

Most states are unable/unwilling to comply with their RPO targets due to extra cost to be incurred. Forum of Regulators appointed AF-Mercados EMI to study above issues and propose an incentive framework .

Methodology

Differentiating between the resource rich and resource deficit states

Assessment of alternate options for the utilities for complying with the RPO requirements

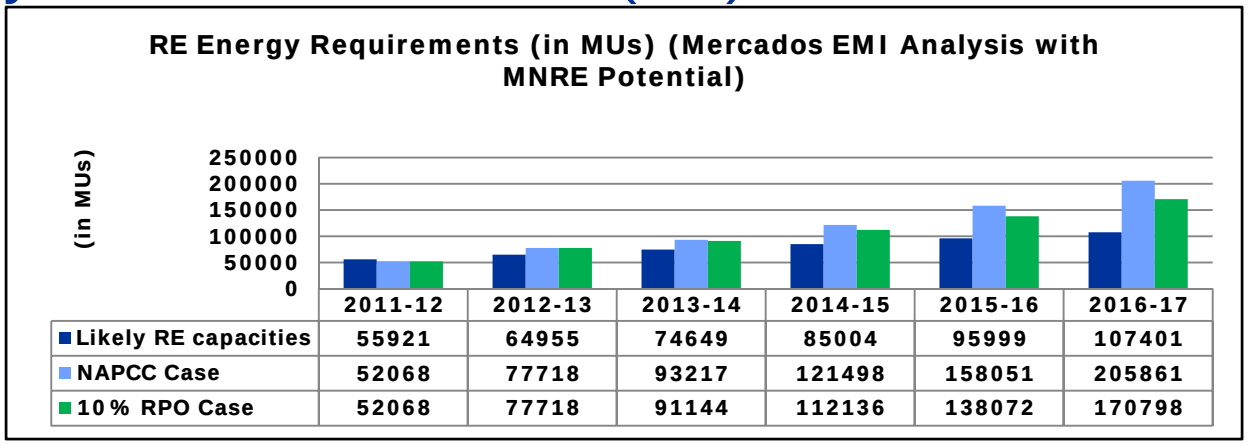
Comparison of cost economics for resource rich and resource deficit states and identification of superior options for these categories

Developing an incentive framework to the expand the capacity on required scale

Assessment of likely RPO Achievement (1/2)

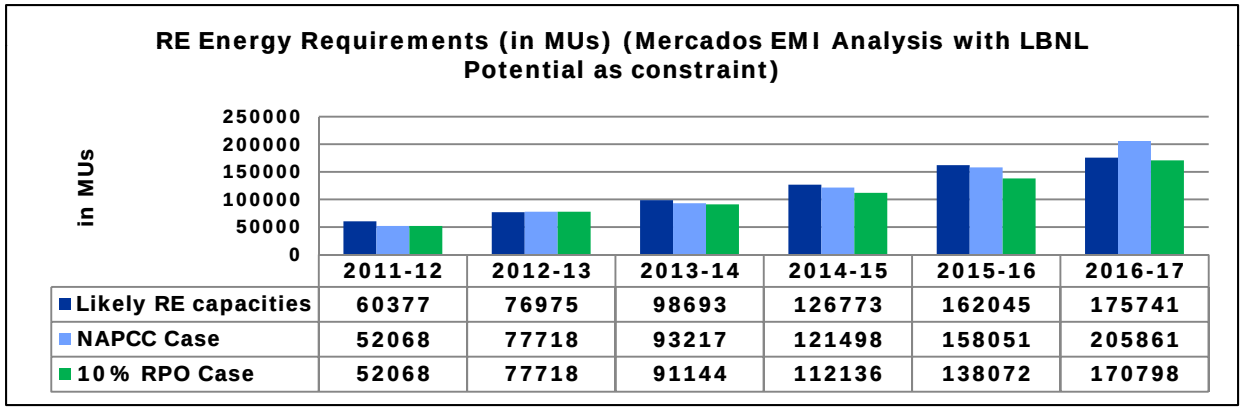
Resource Rich States^^

Case 1: *Wind Resource Potential Constraint by MNRE Estimates*



	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Likely RE capacities	55921	64955	74649	85004	95999	107401
NAPCC Case	52068	77718	93217	121498	158051	205861
10% RPO Case	52068	77718	91144	112136	138072	170798

Case 2: *Wind Resource Potential Constraint by LBNL (Original estimates)*



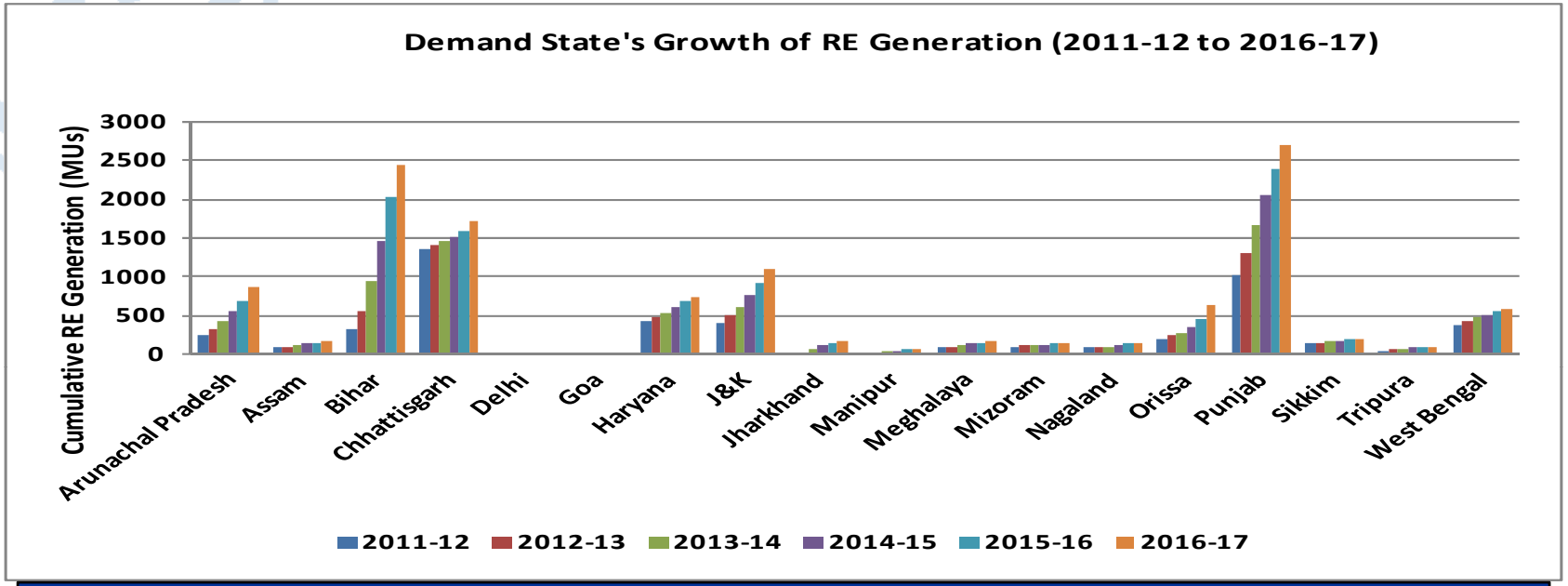
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Likely RE capacities	60377	76975	98693	126773	162045	175741
NAPCC Case	52068	77718	93217	121498	158051	205861
10% RPO Case	52068	77718	91144	112136	138072	170798

- **Various studies on wind indicate a very large potential, the resource availability is unlikely to pose a constraint; limitations would be more in terms of infrastructure or commercial issues.**
- **Resource rich states can fulfill their RPO targets by purchasing electricity and balance by RECs as supply and demand gap is not significant.**

NOTE - *^^ States having renewable energy potential of more than 1500 MW (Gujarat, Maharashtra, TN, Himachal Pradesh etc.)*

Assessment of likely RPO Achievement (2/2)

Resource Deficit States**



- ✓**Because of higher, supply-demand gap, resource deficient states can fulfill their RPO targets by**
  - **a) Procuring directly green power through ISTS, or**
  - **b)Buying RECs**
- ✓**Buying directly would require establishment of transmission infrastructure. This subject (Green corridor) has been studied independently by PGCIL.**

Note – *** States having renewable energy potential of less than 1500 MW (Delhi, Goa, Punjab, West Bengal etc.)*

Identification of incentive needs

Resource Rich States

Cost Elements	FiT Route	APPC Route
Energy Cost (FiT)	Yes	-
APPC cost	-	Yes
REC Cost	-	Yes
Transmission cost	Yes	Yes
Transmission losses	Yes	Yes
Balancing power cost	Yes	Yes

Note: *Comparison between wind FiT and cost of alternate cost of power procurement is provided in* ***Annexure – 1***

Resource rich states need to be incentivised:

- For fulfilling its own RPO (FiT route), and
- Helping resource poor states to fulfil their RPO target(APPC route).

Resource Deficit States

Cost Elements	FiT Route*	IPPC Route
Energy Cost (FiT)	Yes	-
APPC cost	-	-
REC Cost	-	Yes
IPPC	-	Yes
Transmission cost	Yes	Yes (Supply state)
Transmission losses	Yes	Yes (Supply state)
Balancing power cost	Yes	-

Resource deficient states need to be incentivised to fulfil their own RPO targets.

Note: * *This will involve inter-state transfer of power.*

For the purpose of the study we have considered two set of supply-demand states(Rajasthan/Punjab & Karnataka/Delhi), however for the purpose of illustration only Rajasthan (Supply State) and Punjab (Demand State) are considered here.

Cost Economics Comparison of RPO compliance routes

Rajasthan (Supply State)

	Wt av cost of power procurement from balancing capacity & APPC incl Transmission Loss	Transmission infrastructure cost (variable RE +balancing capacity)	Cost of procurement including transmission infrast & backup power cost (APPC route) (I)	REC (II)	Total cost of procurement through APPC+REC route (III)	Cost of procurement including transmission infrastructure & backup power cost (FiT route) (IV)	(III) -(IV)
@ Floor Price	3.68	0.43	4.11	1.50	5.61	5.22	0.38
@ Av. Price	3.68	0.43	4.11	2.4	6.51	5.22	1.28
@ Forebearance Price	3.68	0.43	4.11	3.3	7.41	5.22	2.18

FiT route is more attractive for resource rich state at all the REC price points.

REC route is attractive at Floor price of REC while FiT route is attractive at Average and Forbearance price.

Punjab (Demand State)

	IPPC+REC	FiT
IPPC	3.34	-
REC	1.50	-
FiT	-	4.63
Transmission cost	0.14	0.24
Transmission loss	0.04	0.12
Sub-Total	**5.02**	**4.99**
Balancing Energy	-	0.29
TOTAL	**5.02**	**5.28**

	2011-12
@ Floor Price	**(0.25)**
@ Av. Price	**0.65**
@ Forbearance Price	**1.55**

Note: *Cost of power procured under FiT includes balancing power cost*

Suggested Interventions

FISCAL INTERVENTIONS

- Incentive for resource rich states for:
  1. meeting own state RPO target (for procuring at FiT) minimum being the NAPCC target;
  2. beyond RPO target to be provided (for procuring at APPC) for the additional costs for transmission and balancing
- Incentives for resource deficient states for meeting their own RPO in lieu of the additional costs of RE till grid parity is achieved
- State should freely choose preferred mode based on least cost of compliance
- Principle of leverage to be applied for incentivisation
- Minimum RPO levels to be required for state utility to benefit from the incentive scheme

GoI/State Governments may be advised to make available funds available from NCEF and other sources for incentivisation

Incentive Mechanism – Resource Rich (Supply) States

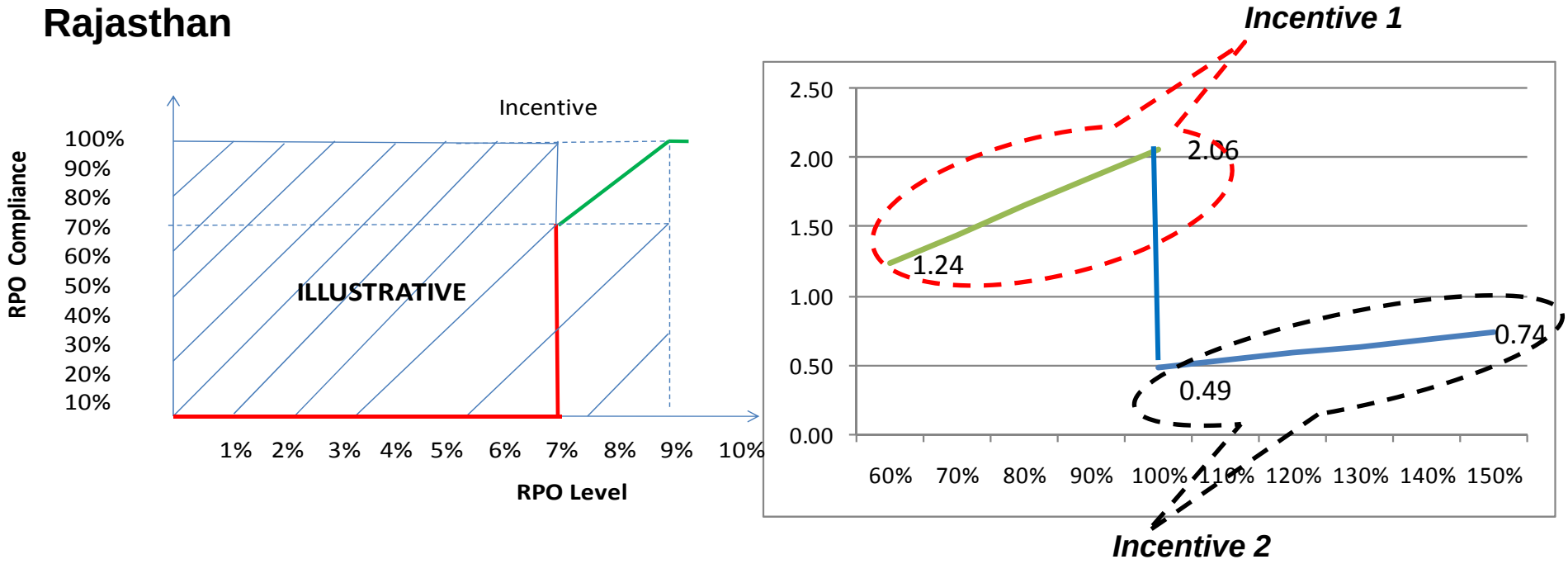
Incentive 1: For own compliance (for FiT purchase),

A graded incentive starting from a specific level of achievement (say 70% of NAPCC target) and up to 100% of RPO achievement.

Incentive 2: For generation beyond RPO target (for APPC purchase),

A graded incentive for generation beyond RPO target to help resource deficient states comply with their targets.

Rajasthan



Note: The incentive indicated above are considered at floor price of RECs.

Since RPO target of Rajasthan for 2011-12 was less than NAPCC target, hence, RPO target of 9% is considered for illustration.

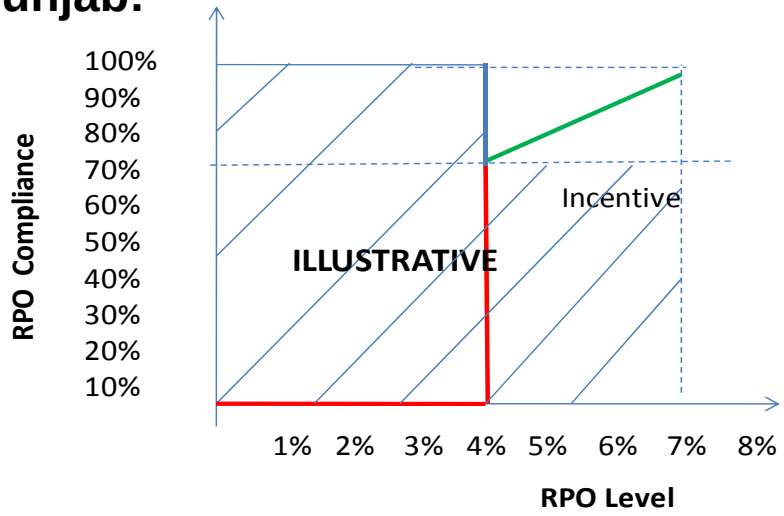
Total indicative incentive requirement is provided in Annexure – 2.

Incentive Mechanism – Demand States (2/2)

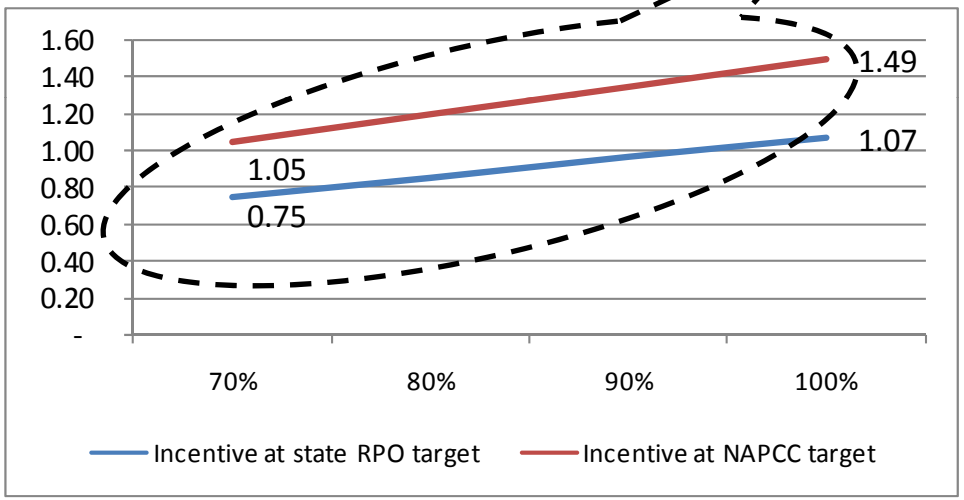
Incentive 3: (For own compliance, at IPPC+REC purchase)

A graded incentive starting from a specific level of achievement (say 70% of RPO target) up to 100% of RPO achievement.

Punjab:



Incentive 3*



**Threshold RPO for applicability of incentive is considered as 4%. Since RPO for Punjab is 2.37% (lesser than 4% threshold), we have considered a target of 5% for illustration.*

Note: *The incentive indicated above are considered at floor price of RECs.*

Total indicative incentive requirement is provided in Annexure – 2.

Suggested Interventions

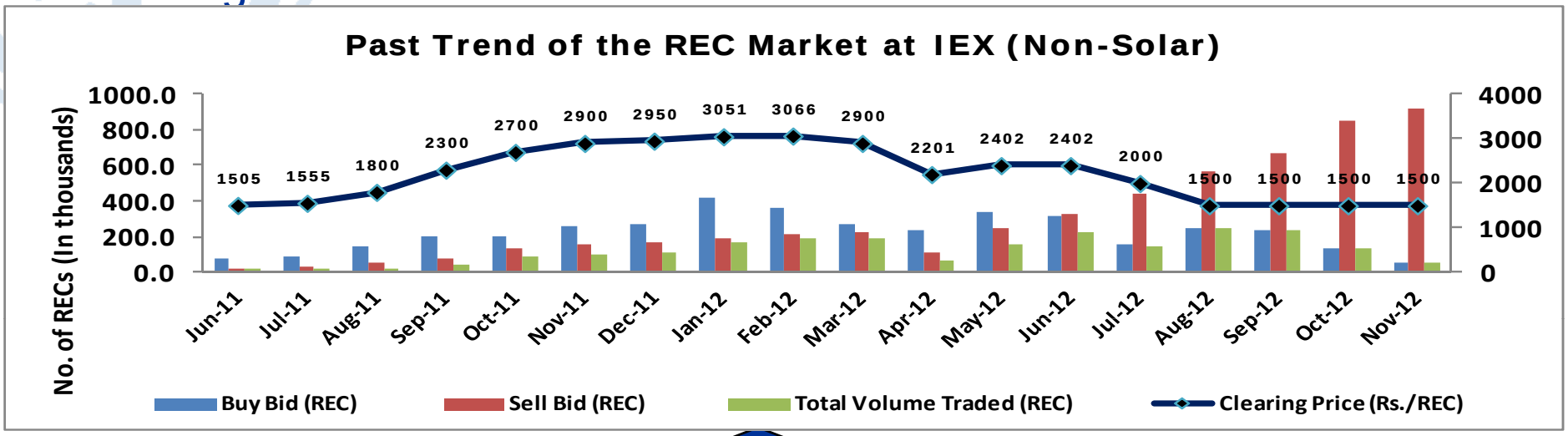
INSTITUTIONAL INTERVENTIONS

- Creation of large balancing areas and potentially separate System Operations organisation for RE
- Identification of balancing resources and providing sufficient incentives for them to be available for RE balancing
- Better scheduling and forecasting procedures – capacity building support in this regard
- Suitable training for the system operators - certification should be made mandatory.

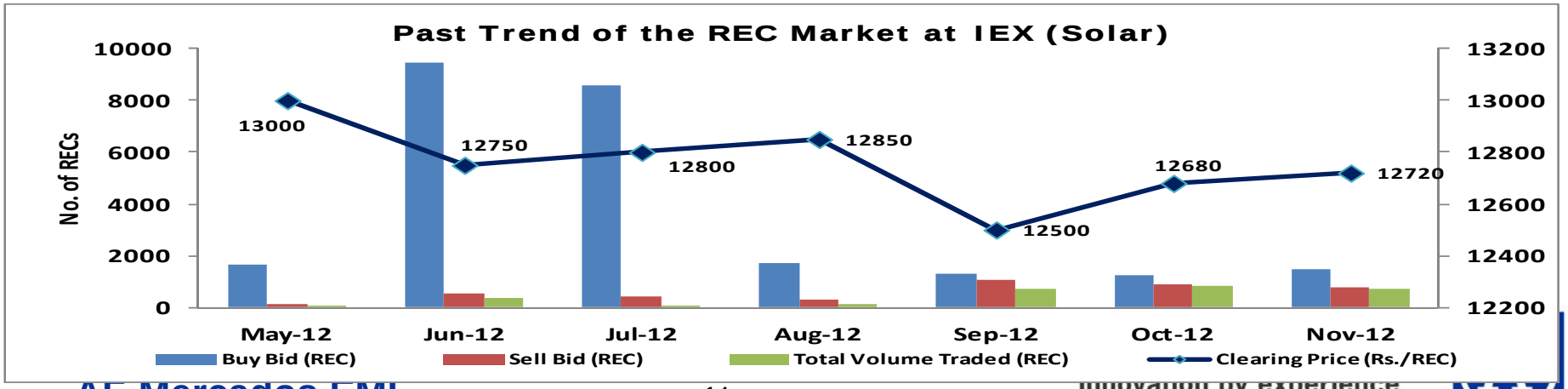
OTHER POLICY AND REGULATORY INTERVENTIONS

- Subsidized allocation of gas for supply rich renewable energy rich states.
- Some flexibility can be built around Take-or-Pay (ToP) structure of the Gas Supply Agreements.
- Re-design of existing REC framework to enable obligated entities to fulfill their RPOs.

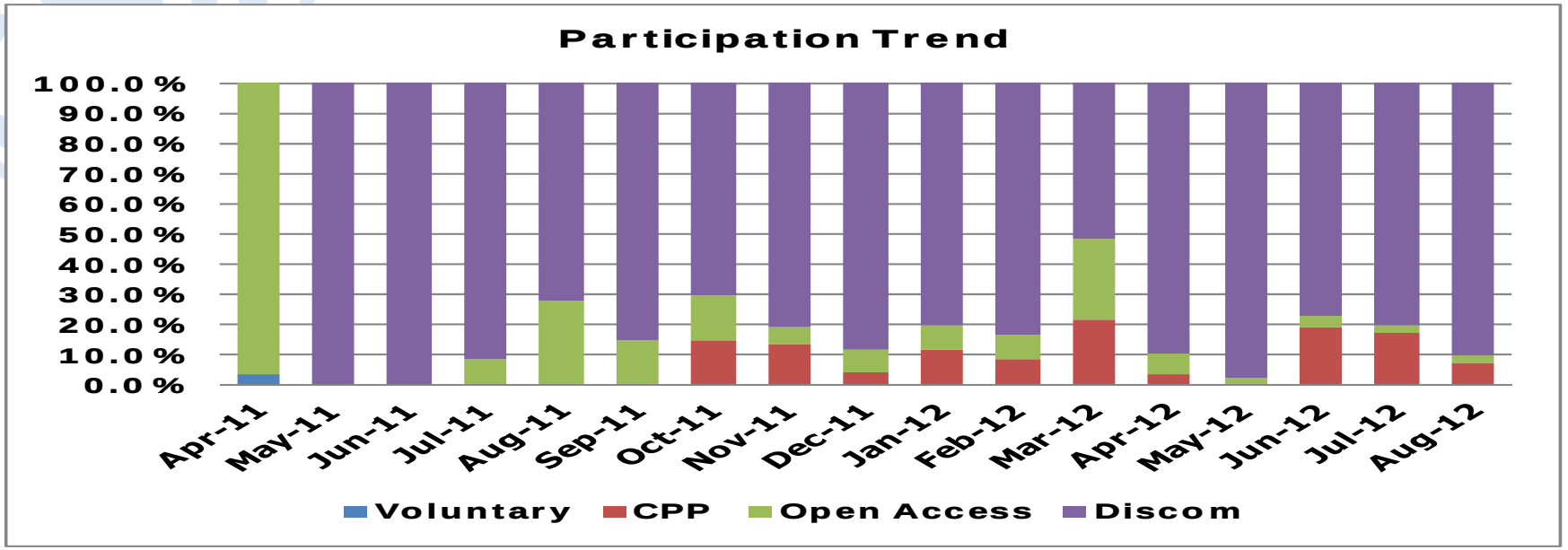
REC framework has the ability to facilitate compliance by resource deficit states but faces implementation challenges……



Prices have come down considerably - possible reason : non-compliance of RPO/Lack of interest in REC



Current Status of REC Market

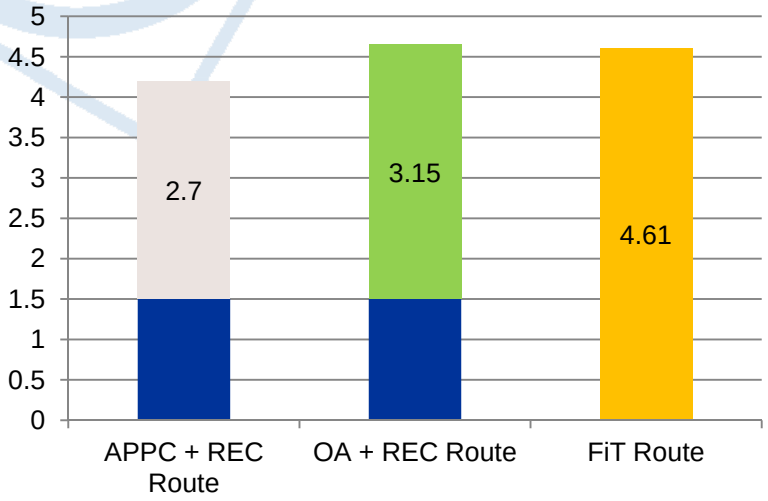


- Buyers : Largely distribution companies **in terms of volume**, however few captive consumers are also participating.
- Discoms participation is **very low in number** (Torrent, Tata Power, REL, Chandigarh, DDN, JUSCO)
- Government Discoms are still absent in the market

RPO Incentivisation

Issue – Supernormal profit for RE Generators?

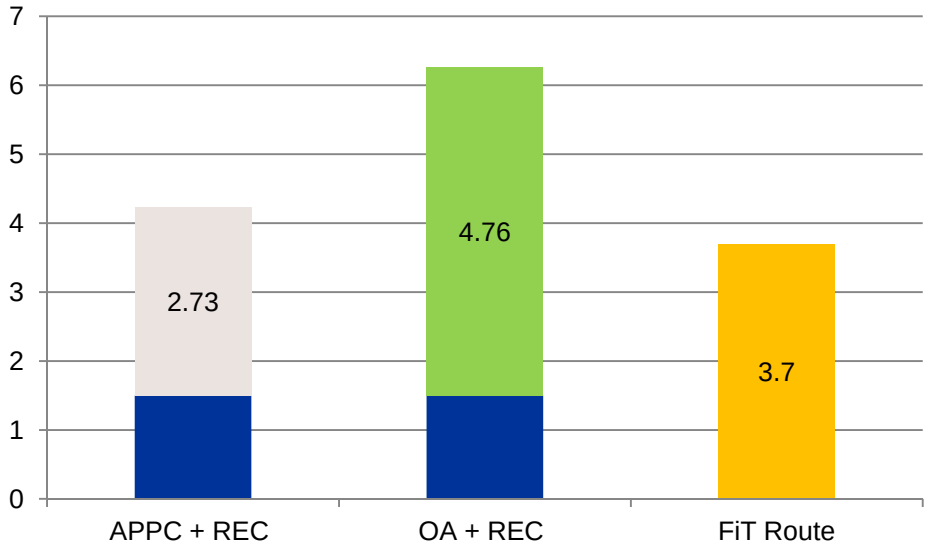
Gujarat



	APPC + REC	OA + REC	FiT Route
REC Price	1.5	1.5	-
APPC/OA/ FiT	2.7	3.15	4.61
Total	**4.2**	**4.65**	**4.61**

*90% of average 2011-12 Px price considered as OA price

Karnataka



	APPC + REC	OA + REC	FiT Route
REC Price	1.5	1.5	-
APPC/OA/ FiT	2.73	5.85	3.7
Total	**4.23**	**7.35**	**3.7**

- **Super-profit in Karnataka is on account of network congestion**
- **This is not a RE/REC related issue ; this is a power market issue. Additional RE generation is only serving to (partially) reduce prices**
- **With SR grid interconnection with NEW Grid in 2014, this issue is expected to abate**

Issues in REC mechanism

DEFINITIONAL AND PROCEDURAL ISSUES

- APPC definition - certain amount of ambiguity at present
- Issue of eligibility for RECs on availing waiver of electricity duty
- Lack of clarity in the eligibility criteria for issuance of REC on self consumption of electricity by a RE generator/CPP
- Issue regarding treatment of PPA entered through competitive bidding and not through cost plus tariff determined by regulators
- Seasonal PPA in case of bagasse based co-generation not eligible
- Time period for applying for issuance of REC against corresponding generation
- Minimum capacity eligibility criteria for REC registration
- Issuance of REC from date of generation and not registration
- Clarity regarding retaining RECs for own compliance or for group companies
- Allowing utilities to trade additional volumes in excess of RPO through REC

These issues are proposed to be addressed in the second amendment to REC Regulations of CERC and Detailed Rules of Nodal Agency

Issues in existing framework

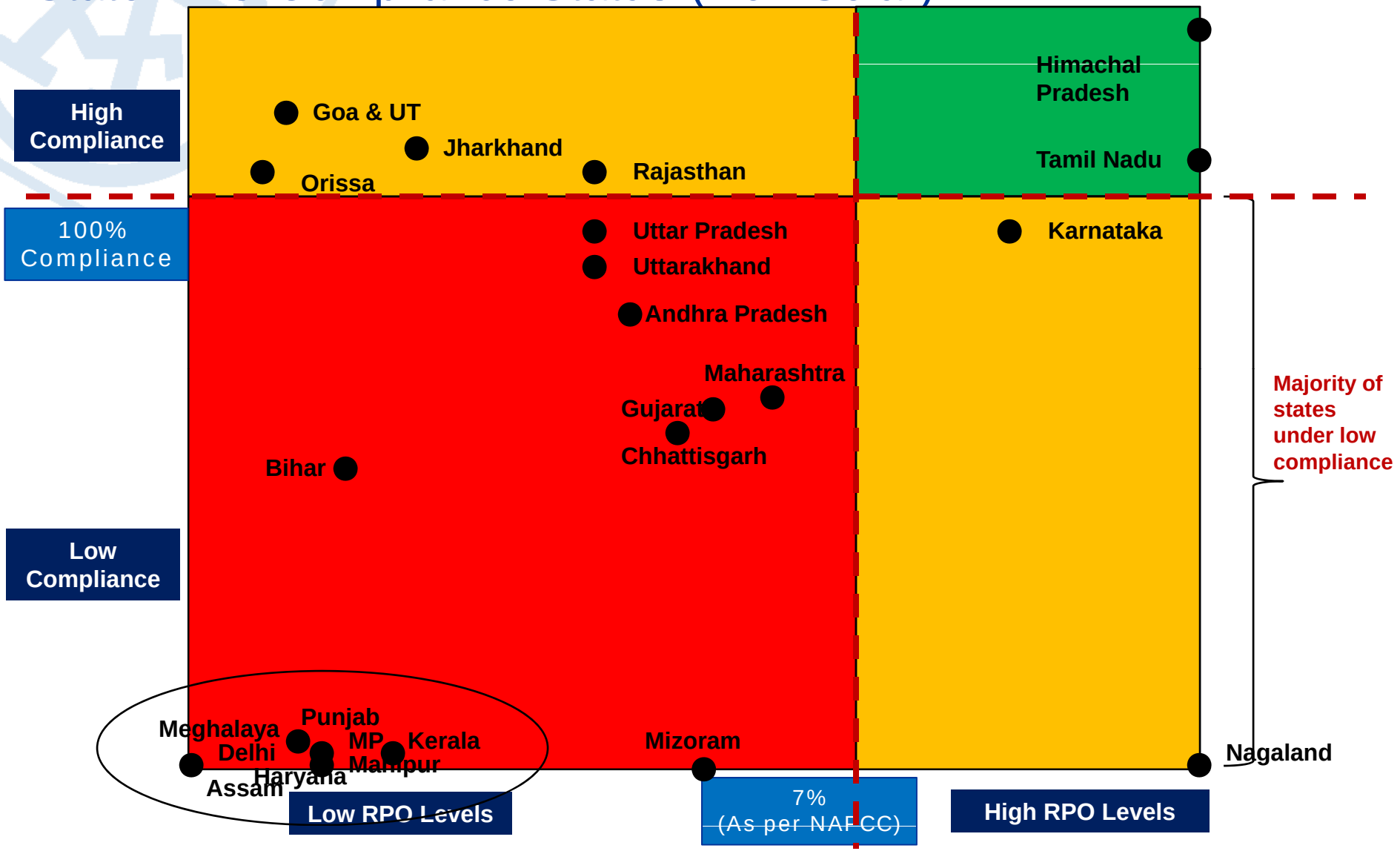
STRUCTURAL ISSUES

1. Refinement of floor/forbearance mechanism
2. Creation of buyout mechanism for unsold RECs
3. Allowing intermediaries in REC market and permitting off-market deals
4. Vintage/Source based REC pricing – use of multipliers
5. REC for off-grid/standalone generation
6. Changes to REC validity period
7. REC as a universal RPO imbalance settlement mechanism

Several of these issues have to be handled in unison and not in an isolated manner

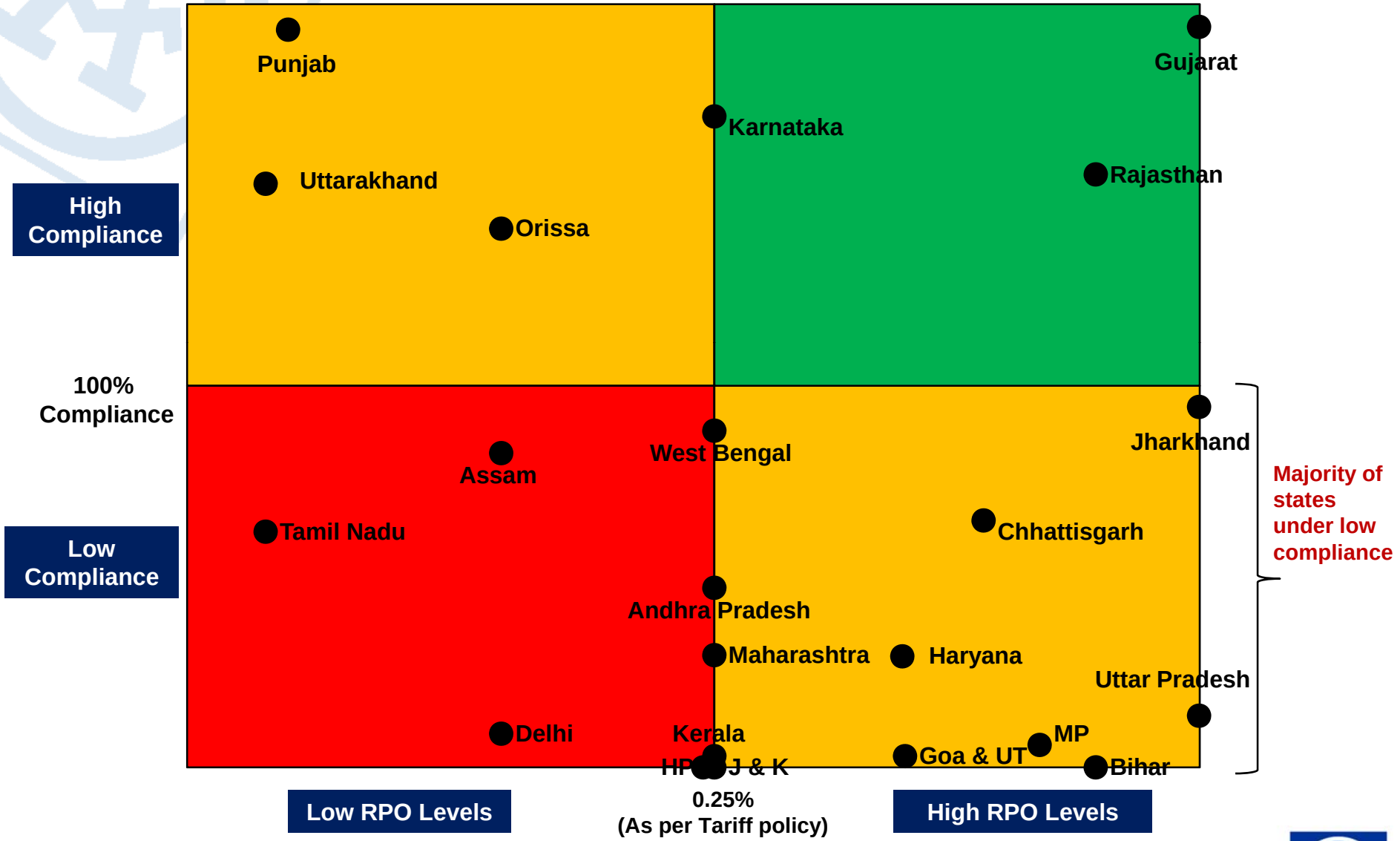
RPO Implementation

State RPO Compliance Status*(Non-Solar)



*Note: * Level of RPO compliance has been computed based on the approved ARR petitions for FY12*

State RPO Compliance Status (Solar)



Issues in existing framework

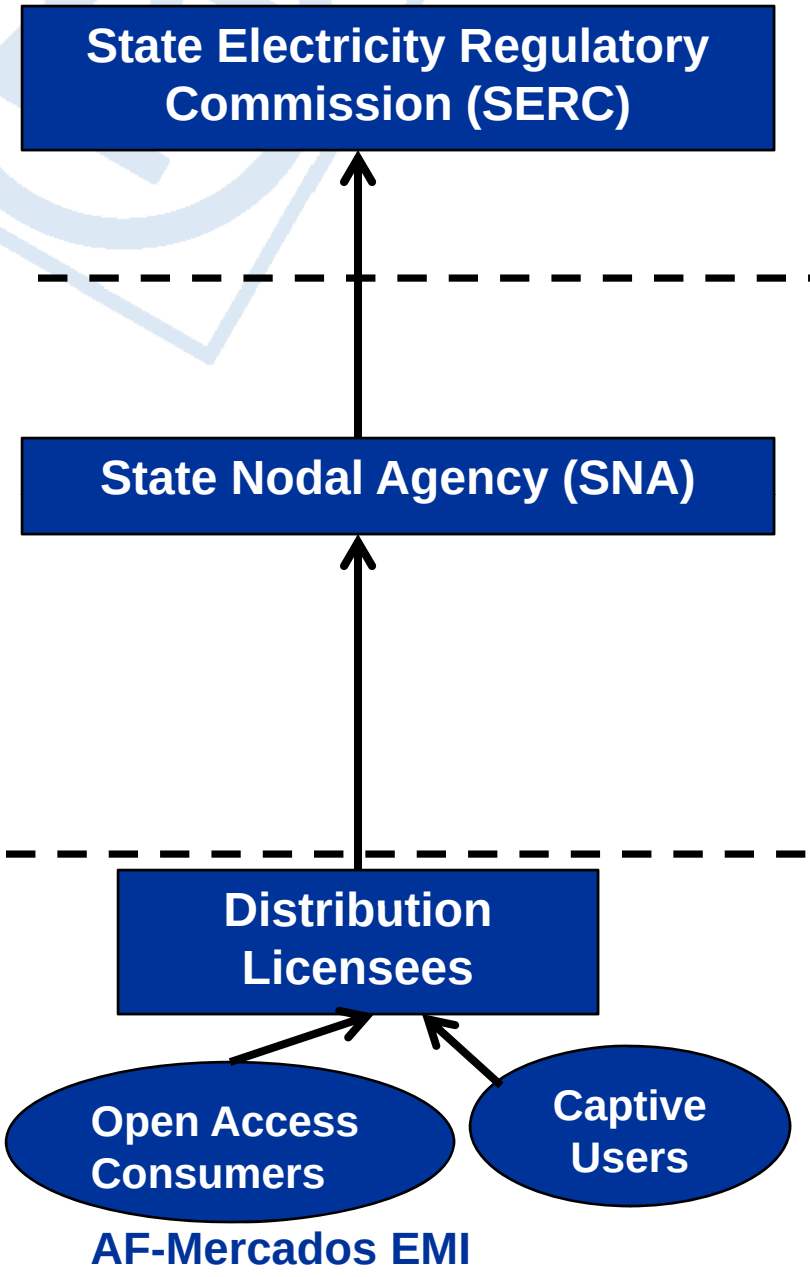
ESTABLISHMENT AND ENFORCEMENT RELATED ISSUES

RPO Level/ Obligations	Establishment of minimum RPO level **Obligations for large customers (direct or through Utility)**
Compliance Monitoring	Monthly compliance monitoring by SNA/SERC
Compliance requirement	Quarterly or bi-annual compliance requirements instead of annual compliance
Enforcement	Adequate enforcement on all obligated entities for being eligible for incentivisation

SERC has principal jurisdiction on these aspects

Direct obligation for large customers will obviate many issues related to RPO compliance including financial condition of utilities, compliance capabilities and enforcement of penalties.

Monitoring and Enforcement Framework for RPO



- Shall direct SNA to prepare a detailed list of obligated entities.
- To mandate quarterly/bi-annual enforcement of RPO mechanism.
- Based on the quarterly compliance report, it shall direct the SNA to collect the penalties.

- Shall obtain information regarding RPO compliance from obligated entities. *Incase of CPP and OA Consumers, SNA to gather information from Discoms/ Electrical Inspectorate.*
- Shall prepare a summary statement of RE procurement and publish in their website on quarterly basis.
- Shall collect data of yearly estimated RE procurement and purchase of RECs from OE.
- Shall reconcile the information of REC procurement from the registry and submit a report on RPO compliance by 30th April of each year to SERC.
- Shall prepare a list of OE and furnish the same on bi-annual basis to the SERC.

- Discoms shall submit the report of Quarterly RPO Compliance to the State Agency
- Discoms shall submit the information, for reporting of the Yearly Estimated RE requirement to SNA

Standard formats for submitting compliance related information to be agreed upon.

Next Steps

Suggested Next Steps….

- ✓ RPO Incentivisation
  - ✓ Statutory advice under Electricity Act needed for implementation of incentive framework for RPO compliance
  - ✓ Detailed rules for disbursement of incentives linking incentives with compliance.
  - ✓ Issue of second amendment to REC regulations by CERC
- ✓ RPO Monitoring
  - ✓ **Establishment of direct obligations for large consumers through regulation**
  - ✓ **Establishment of monitoring and enforcement mechanism for minimum RPO compliance**
  - ✓ Implementation of the finalised framework in a time bound manner - Actual penalization in fair and transparent manner when the need arises

THANK YOU

ANNEXURES

Annexure - 1

Comparison of Wind FiT and Cost of alternate power

States	Wind FiT (Rs./Kwh)	Average Cost of procurement from alternate sources*(Rs/Kwh)
Gujarat	4.61	3.53
Karnataka	3.70	3.53
Rajasthan	5.18	3.53
Tamil Nadu	3.51	3.53

**Includes average cost of power procurement from thermal power plants under Case – 1 bidding. (Rs. 3.34/Kwh) and transmission cost of Rs. 0.19/Kwh.*

Annexure – 2 (1/2)

Illustrative incentive "requirement"

Supply States

	Rajasthan		Karnataka	
Incentive range	1.24	2.06	0.71	1.42
FiT Route	573	953	375	751
Incentive range	0.49	0.74	0.37	0.55
APPC Route	227	342	196	291

•RPO target of Rajasthan is considered as 9% for illustration. Actual RPO target set by state for 2011-12 was 4.5%
•RPO target (for 2011-12) of 9.75% for Karnataka is considered
* Incentive variation is at Floor Price of REC

- Under FiT route (for own state compliance), the lower limit of above range indicates the incentive at 70% compliance while the upper limit indicates incentive at 100% compliance of RPO target set by the state
- Under APPC route (for helping resource deficient states comply with RPO target), the lower limit of above range indicates the incentive beyond 100% compliance while the upper limit indicates incentive at 150% compliance of RPO target set by the state

Demand States

	Punjab		Delhi	
Incentive range	0.75	1.07	0.73	1.04
IPPC+REC Route	183	262	99	141

•RPO target of Punjab is considered as 5% for illustration. Actual RPO target set by state for 2011-12: 2.37%
•RPO target of Delhi for above illustrative calculation is considered as 5%. Delhi did have RPO target for 2011-12
* Incentive variation is at Floor Price of REC

- The above levels of incentives are applicable at 100% compliance of NAPCC targets

International Experience

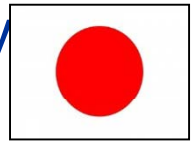
UK has a two year validity of Renewable Obligation Certificates (ROCs) and a penalty re-cycling mechanism

RPO implementation	**RPO obligation**	▪ Policy formulated in 2000 ▪ 15.4% RPO till 2015-16 ▪ 20% renewable RPO till 2020
	Solar targets	▪ No solar specific targets in RPO enforcements ▪ 22GW of solar power by 2020
	Compliance	▪ Implementing body: OFGEMS ▪ Yearly penalties exist but are redistributed to compliant utilities in the proportion of their share of total ROCs bought in the country
REC trading	**Price**	▪ Two ROCs for 1MWh solar produced ▪ Buyout price INR3,200/ROC (£36.99/MWh) ▪ (2010-11).
	Validity	▪ 2 years
	Volumes	▪ Data specific to solar ROCs is unavailable ▪ Overall 24,884,608 ROCs issued in 2010-11

Source: Industry Reports

International experiences for Japan and Australia is provided in the Annexure 3

Annexure - 3
Japan has defined penalties for non-compliance, quarterly accounting for compliance and a carry over of obligations



RPO implementation	**RPO obligation**	▪ Policy formulated in 2003 ▪ Target to install 16TWh of renewable energy by 2016
	Solar targets	▪ No solar specific targets in RPO enforcements
	Compliance	▪ Penalty of up to JPY1m (INR 0.7m) on interim and annual basis ▪ There is also a quarterly compliance mechanism ▪ 20% carry over of obligation is permissible
REC trading	**Price**	▪ Tradable New Energy Certificates (NEC) with a forbearance price of JPY11 (INR7.59)
	Validity	▪ 2 years
	Volumes	▪ NA

Source: BRIDGE TO INDIA market analysis

Australia has a differentiated non-compliance penalty enforcement and allows re-cycling of penalties

RPO implementation	**RPO obligation**	▪ Policy formulated in 2000 ▪ 45,000GWh (or 20%) RPO till 2020
	Solar targets	▪ No solar specific targets in RPO enforcements
	Compliance	▪ Monetary as well as civil penalties for severe non-compliance ▪ Severity based on reasons for non-compliance ▪ Re-cycling of penalties over three years ▪ Carrying forward a part of penalty to the next year
REC trading	**Price**	▪ Solar Credits REC multiplier of around 1.5 for small solar installations ▪ INR1,378/STC[1] and INR1,952/LGC[2]
	Validity	▪ 1 Year
	Volumes	▪ NA

[1]Small-scale technology certificate (STC) [2]large-scale generation certificate; 1 LGC = 1MWh of renewable electricity generated above the power station baseline; Based on BRIDGE TO INDIA market analysis

Annexure - 4
Suggested Formats for RPO compliance (1/3)

Format for preparing list of Obligated Entities (by SNA):

List Of Obligated Entities for the duration of [MM/YYYY TO MM/YYYY]					
Sr. No	Name of the Obligated Entity	Category of the Obligated Entity			Remarks
		DISCOM	CPP	Open Access	
1					
2					
3					
.					
n					

To be submitted to State Commission on bi-annual basis

For reporting yearly estimated RE requirement by OE:

Compliance Year	Consumption (Est.) (A)	Total Non Solar/ Solar RPO Obligation (say @7% of A)	Estimated Purchase of Electricity from non –Solar/Solar resources (B)	Estimated Purchase of Non- Solar /Solar RECs from PX (C)	Estimated Total Non Solar Procurement (B +C)
	MUs	MUs	MUs	MUs	MUs
2012-13					

Annexure - 4
Suggested Formats for RPO compliance (2/3)

Format for report of Quarterly RPO Compliance to the State Agency by OE

Compliance Year 2012-13	Consumption	Total Non Solar /solar RPO of the Month	Non Solar/Solar RPO upto Previous Month	Non Solar/solar RPO Cumulative upto The Month (1)	Non- solar/solar RE Purchase for the month		Total Purchase of Non-Solar/ Solar of the Month	Non solar /Solar RE purchase upto previous Month	Total Non solar/Solar RE purchase upto the Month (2)	Short If Any (1-2)
					Non-Solar /Solar RE at Pref. tariff	Non-Solar/ Solar REC				
Q 1	MUs	MUs			MUs	MUs	MUs	MUs	MUs	MUs
April										
May										
June										
Total										

Annexure - 4
Suggested Formats for RPO compliance (3/3)

Format for report of Yearly RPO compliance to the State Agency by OE

Compliance Year 2012-13	Consumption	Total Non Solar/solar RPO of the Month	Non Solar /solar RPO Upto Previous Month	Non Solar /solar RPO Cumulative Upto The Month (1)	Non- solar/solar RE Purchase for the month		Total Purchase of Non-Solar/solar of the Month	Non solar/solar RE purchase upto previous Month	Total Non solar/solar RE purchase upto the Month (2)	Short If Any (1-2)
					Non-Solar RE at Pref. tariff	Non-Solar REC				
	MUs	MUs			MUs	MUs	MUs	MUs	MUs	MUs
April										
May										
June										
.										
.										
February										
March										
Total										

Energy Utilities & Mining

Introducing Competition in Retail Supply in India

Forum of Regulators

For Discussion

7 December 2012

pwc

Agenda

- Objective
- Current market Structure (India)
- International Experience
- Recommended Market Structure for India
- Implementation Roadmap

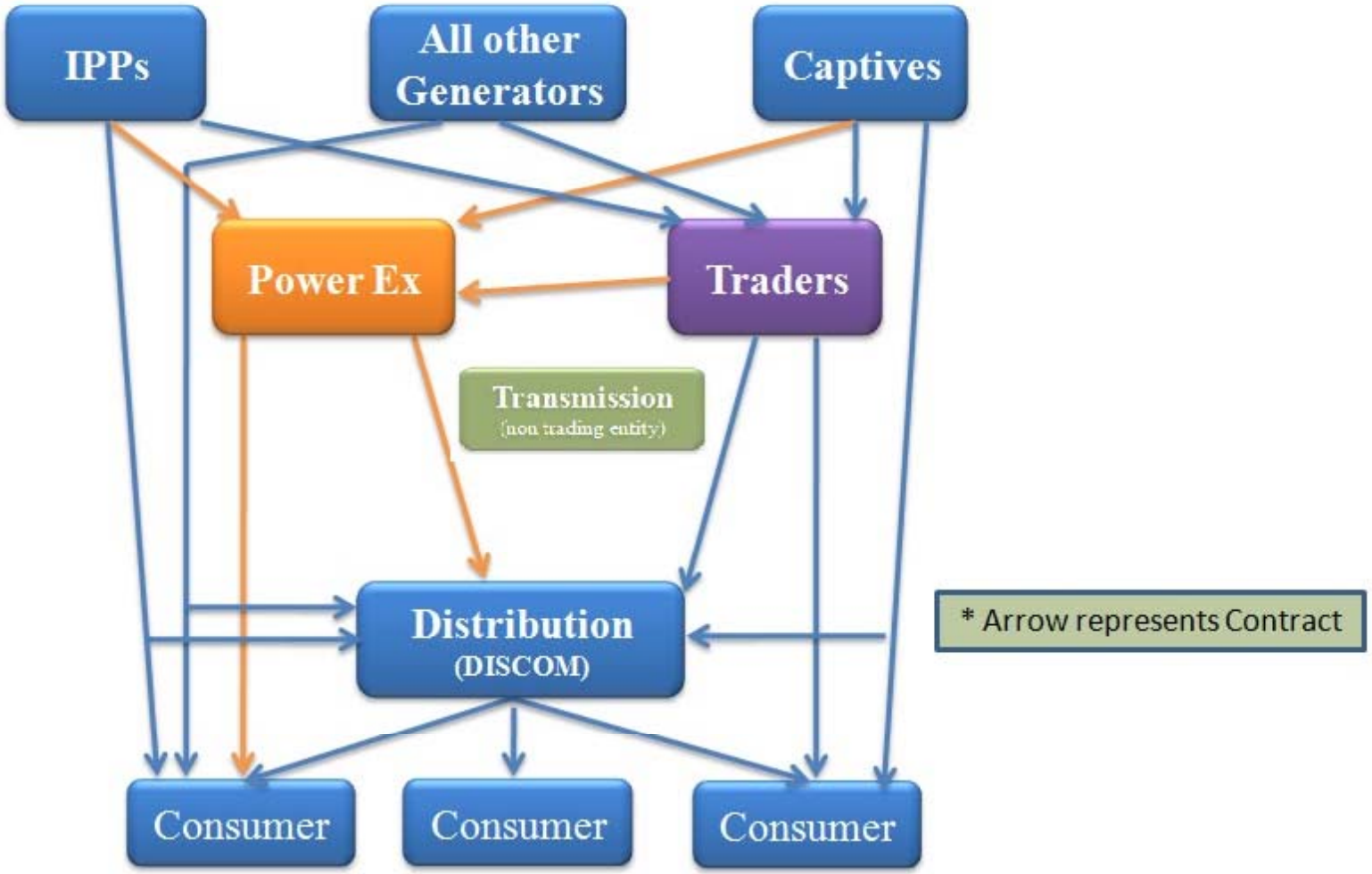
Section 1
Objective of the Assignment

Objective of the Assignment

- Review international experiences (with primary focus on the UK) and study the best practices in dealing with issues such as:
  - Various existing models of retail competition in electricity supply
  - Phasing of competition in retail sale
  - Clarity of roles and responsibilities across distribution and retail supply
  - Tariff determination and pricing of retail electricity
  - Distribution network ownership issues
  - Management of transition from existing system to retail competition
  - Any other related issue in implementation.
- Suggest alternatives for separation of network and supply businesses in distribution in India with due regard to the power sector scenario in India
- To recommend a competitive retail supply model suitable for India
- Identify crucial bottlenecks in the implementation of retail competition in India and generate discussion on vital questions which are to be debated with relevant stakeholders

Section 2
Current Market Structure - India

Current Market Structure – India



Section 3
International Experience

- Liberalisation Blueprint
- Case Study I - UK
- Case Study II – Australia
- Case Study III- Argentina
- Case Study IV - Philippines

Liberalisation Blueprint

1. Vertical Separation

- Separation of Potentially competitive (Generation and Retail supply) business segments from the Regulated (Transmission and Distribution) segments

2. Horizontal Restructuring - Generation

- To create adequate number of generators to make a competitive wholesale market and negating market power of a dominant generator.

3. Horizontal Integration – Transmission

- Transmission facilities to encapsulate 'natural' wholesale markets. Creation of **Single Independent** TSO.

4 . Wholesale Markets

- Creation of voluntary public wholesale spot energy and operating reserve markets

5.Demand Side Institutions

- Creation of Demand side institutions that allow customers to react to variations in wholesale prices, thus integrating demand side responses into wholesale and retail markets

Liberalisation Blueprint (Contd.)

6. Efficient Transmission Access

- Regulation to ensure efficient transmission access to wholesale buyers and sellers so that scarce resources can be allocated amongst competing network users

7. Unbundling of Retail and Network (Wheeling) Tariffs

- Separation of energy retail tariff from energy network (wheeling) tariff to enable separation of businesses.

8. Policy measures for 'Regulated' Customers

- If some market segments (for e.g customers < 300 kW) are chosen not be opened to competition then regulatory and policy measures to ensure supply are needed

9. Regulatory agencies for T&D businesses

- Regulatory agencies to regulate these businesses, their costs, service quality, their standards etc with an aim to define their tariffs .

10. Transition Plan

- A Transition plan is needed for movement between old and new system. Later section of this presentation is an attempt to suggest such a plan.

International Experience: United Kingdom … (1)

Time Period	Details
July 1989	The Electricity Act, 1989
1 April 1990	• Vesting Day: A new industry structure introduced in England and Wales. CEGB split into 3 generating companies (National Power, Powergen and Nuclear Electric) and a transmission company (National Grid Company). • The England & Wales Electricity Pool began trading • Customers with peak loads of more than 1 MW (about 45% of the non-domestic market) allowed to choose their supplier (Approx 5000 in number)
Dec 1990	All 12 RECs floated on the LSE
March 1991	Flotation of National Power and Powergen (60% shares of each sold, remaining 40% share of the government sold off in March 1995)
April 1994	Customers with peak loads of more than 100 kW allowed to choose their supplier (Approx 45,000 in number)
1994 to 1996	Growing concerns about price manipulation led the regulator to require the two generating companies to sell some of their generating capacity to reduce their market share. By 2000 there were eight leading generating companies and Offer introduced an amendment to their licences, a Market Abuse Limitation Clause, which required them to commit themselves not to indulge in "abuse of substantial market power in the setting of wholesale electricity prices."

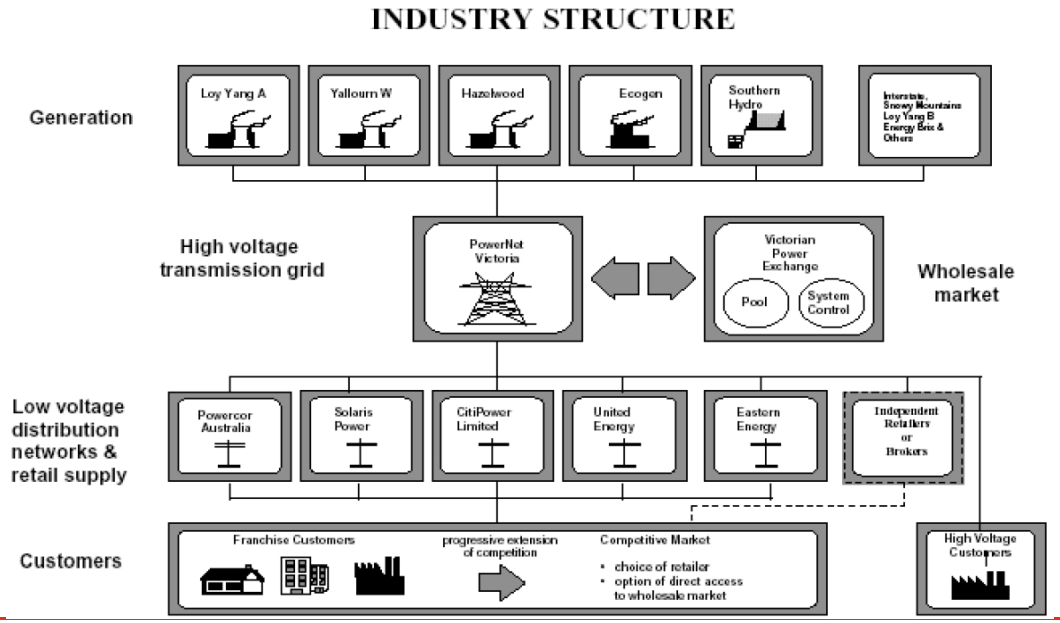
International Experience: United Kingdom … (2)

Time Period	Details
May 1998	Beginning in May 1998, RETA (Review of Electricity Trading Arrangements) was launched with the stated aim of developing an entirely new wholesale market mechanism to replace the Pool.
Sept 1998 – May 1999	The remaining part of the electricity market (i.e. below the 100 kW peak load) opened up to competition (Nearly 26 million in number)
2000	Utilities Act, 2000
2000 - 2001	Operationalization of New Electricity Trading Arrangements (NETA) which finally began trading on 27 March 2001
October 2001	Implementation of the licensing provisions of the Utilities Act, 2000. Complete segregation of electricity distribution and supply with Section 30 (2) mandating that "the same person may not be the holder of both a distribution licence and a supply licence." Hence two different types of supply licences (PES licences and second-tier supply licences) replaced with one type of supply licence, and the distribution company may not hold a supply licence at all.
2005	Expansion of NETA into the British Electricity Transmission and Trading Arrangements (BETTA), bringing Scotland into the market for the first time

International Experience: Victoria, Australia ... (1)

Time Period	Details
Up to the 1970s	Up to 1970, the electricity sector in Australia was completely monopolistic with the government owning most of the assets and State Electricity Commission of Victoria (SECV) was the governing body then.
1982	Debt to the extent of $3.4 Billion
1983	Appointment of a CEO for whom commercial viability was a prime concern
1987	Commercial Strategy formed which emphasized on the commercial principles of customer service and efficiency.
1992	New Liberal Government with a mandate to reform public utilities and liberalise utility markets
1992	The Council of Australian Government (COAG) created a National Competitive Market for Electricity under the National Competition Policy.
1993	A team of consultants was appointed to determine the structural changes to be made. It was then determined that disaggregation of SECV into Generation, Transmission and Distribution and Retail was required to be carried out in order to introduce competition in the electricity sector.
1993	Under the Electricity Act of 1993, three new government companies were formed out of the SECV viz. Generation Victoria (Generation), National Electricity (Transmission) & Electricity Services Victoria (Distribution and Retail)

International Experience: Victoria, Australia … (2)

Time Period	Details
1994	• Generation and Distribution/Retail companies were divided into 5 companies each based on their geographical location, in order to introduce a fully contestable market. • Transmission was also split into two companies viz. Power Net Victoria (a pole and wire company to maintain and manage the high voltage grid) and VicPower Exchange (to administer and monitor the wholesale electricity market and ensure safe supply) • Office of Regulator General (ORG) was established to oversee the electricity sector as an independent regulatory body. The role of the ORG was to regulate prices, oversee service efficiency and facilitate market-based competition.
1995	

International Experience: Victoria, Australia … (3)

Time Period	Details
1995	The five distribution/retail were sold off to international purchasers predominantly and the licenses for the same were issued by ORG, with the same obligations as those applicable to the former Govt. owned entities.
May'96 - Jun'99	Generation companies also sold off to private purchasers
1995 - 1999	Between 1995 and 1999, the former SECV's assets were individually sold off to private owners. The sale of Victoria's electricity assets coincided with the broader economic agenda of privatizing Victoria's assets in order to combat the State's significant level of debt and the perceived inefficiencies of state-owned industries.
1998	The proposed National Competition Policy got implemented with the establishment of the New Electricity Market – an interconnected wholesale generation grid linking Victoria, Queensland, New South Wales, the Australian Capital and South Australia.

The final stage of reform was the introduction of Full Retail Competition to consumers, where retailers would compete to sell electricity services to consumers outside their designated geographic region.

Period	*Consumer segment opened up*	*Load details*	*Approx consumers*
Dec 1994	Large industrial consumers	> 5 MW	47
Jul 1995	Large commercial consumers	1 – 5 MW	330
Jul 1996	Medium industrial / commercial users	750 kW– 1 MW	2000
Jul 1998	Small industrial / commercial users	160 – 750 kW	> 8000
Jan 2002	Domestic; Small business consumers	Under 40 kW	2,000,000

International Experience: Argentina ... (1)

Before

- One of the first countries to restructure the electricity industry, following on from Chile and UK
- In 1989 Argentina had 3 state owned utilities offering generation, transmission and distribution services. Some provincial utilities (distributors) and electricity cooperatives also existed
- Spot prices were around $45/MWh in 1992
- T&D losses ~ 25%

After

- Between 1992-95, 25 state operated companies privatised
- Highly competitive generation market - By 2000, there were 43 companies owning 96 plants (60 Thermal, 34 Hydro and 2 Nuclear)
- Spot prices fell to ~ $27/MWh in 2000
- T&D losses ~7% in 1999
- Improved supply hours

International Experience: Argentina … (2)

- **1990** – Removal of Government from **direct** operation in electricity industry and introduction of competition
- **1992 –** Act to restructure and privatize industry passed.
  - The Act divided the electricity industry into generation, transmission, and distribution
  - Generation became competitive
  - Transmission and distribution became regulated private monopolies.
- Generation companies privatized. Conventional electricity (thermal and hydroelectric) facilities were sold separately, making each privatized generation facility an independent power producer.
- Creation of independent market regulator (ENRE), Wholesale electronic market (MEM) and its independent operator (CAMMESA)
- ENRE was charged with enforcing laws, regulations and concession terms, setting distribution service standards, resolving disputes between electricity companies, overseeing CAMMESA, and setting maximum electricity prices.
- The MEM is a power pool aggregating electricity supply from all generation sources, comprising:
  - A term market consisting of agreements for which quantities, prices and conditions are negotiated directly between buyers and sellers;
  - A spot market with hourly prices taking into consideration economic production costs; and
  - A balancing market.

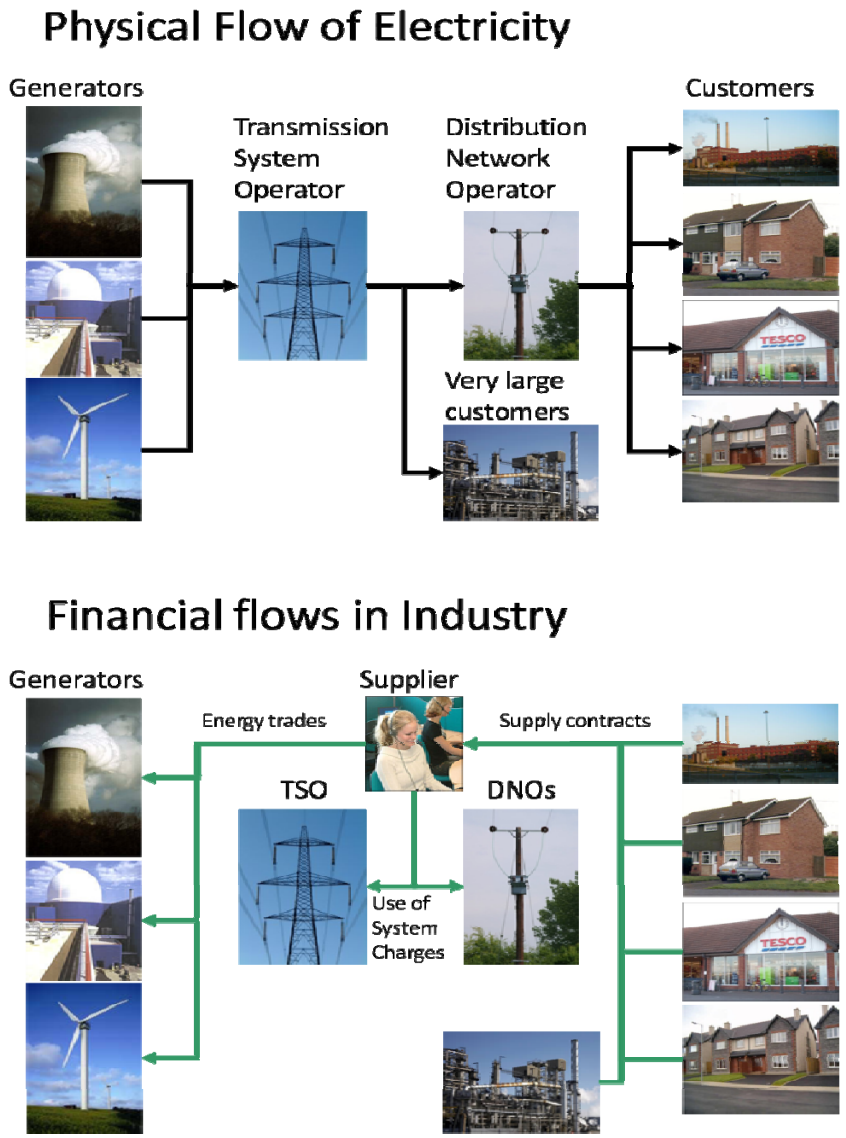
International Experience: Argentina ... (3)

- CAMMESA administers the wholesale market. It is a non-profit corporation equally owned by the federal government and four associations representing generators, transmitters, distributors, and major users. It is in charge of scheduling and dispatching generators in accordance with the power demand, on the basis of using marginal costs and availability offered by generators, employing those generators offering the lowest marginal costs first.
- The law also established a Federal Energy Council to advise the Secretary of Energy and the Congress and administer the National Fund of Electricity, which is used for regional subsidies.
- Power generation companies are not allowed to own majority shares in Argentina's three transmission companies.
- The transmission & distribution companies have to provide open access to their systems for the power generators on a regulated basis.
- Distribution companies are organized as regional monopolies and permitted to buy electricity from the MEM or through contracts with power generation companies.
- The energy market was liberalized for customers with demands greater than 5MW, this has been successively reduced to 30KW. These customers are free to contract directly with generators and can participate directly in the generation market.
- Tariff for Regulated customers (below 30 KW) is calculated by a formula that takes into account the wholesale prices, seasonality, capacity and local charges, if any.

Section 4
Recommended Market Structure - India

Recommended Market Structure

OLD



RECOMMENDED

Transition (from Open Access to Supplier) – Key points

- Physical flow of electricity does not change.
- What changes is how the electricity contracts and trades are done to facilitate a market of suppliers. Open competition in Wholesale (Generation) and Retail markets and regulation in Transmission and Distribution.
- At first glance it might appear that Open Access is being taken away and suppliers are being introduced at the cost of customer choice. This is not true. In fact introduction of suppliers is better for the customer:-
  - Suppliers will be procuring power from generators for a pool of customers so will be able to get better rates than 1-2-1 open access purchase
  - Regulated entity – The supply business will be licensed and therefore the supplier will be duty bound with regards to guarantee of supply, supply code etc
  - Having dedicated suppliers will help with focussed scheduling and system stability
  - Suppliers will provide better service to customers than 1-2-1 relationship in open access

Proposed retail competition model

- The model would start off as a hybrid model wherein only one segment of consumers (1 MW & above load) would be initially open to competition.
- Gradually the market would be made competitive for all consumers.

International Experience

- **United Kingdom**: UK also began with a hybrid model with the Distribution Network Operator (DNO) supplying electricity to all consumers below 1 MW for the initial phases of the reforms process (1990-1994). The retail competition was extended to consumers with load between 1 MW and 100 kW during the period from 1994 t0 1998-99, and after May 1999, the retail supply market was finally made fully competitive with domestic households also allowed to choose their own retailer.
- **Philippines**: Philippines has also planned a phased-out model like the UK, beginning with a hybrid model before retail competition is finally extended to all consumers.
- **Australia**: In Australia too, a phased reform was undertaken, which began with the privatization of the Australia's State Electricity Commission over a period of about 25 years from 1980s onwards.

Section 5
Implementation Roadmap for India

- Recommended timeline and key changes
- Issues and Recommendations

Implementation Roadmap – Phase I

Phase I
(0 – 3 Years)

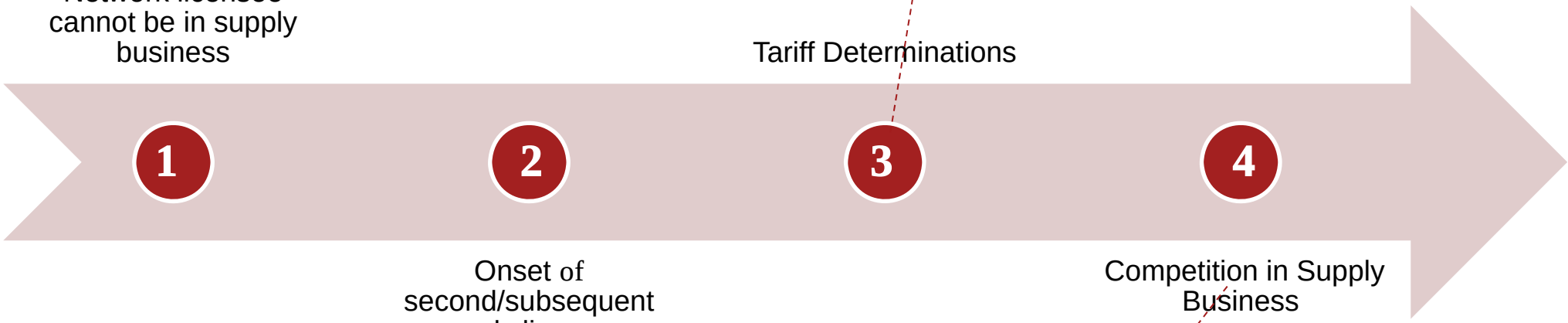
- Capacity market for durations of 1-3 years to be created
- Capacities untied/released can participate in this market
- NLDC to be enabled for this

1. Segregation of Business and Employees
2. Separation of Licenses (Same Ownership)
   1. Supply
   2. Network
3. Transfer of PPA to Supply License
4. Tariff Determinations
   - Network Business: Regulated Tariff (Voltage-wise)
   - Supply Business: Regulated (with supply margin linked to losses)
   - Consumers of 1 MW and above will have the choice to take supply through open access from generator, trader or CPPs (with cross subsidy surcharge)
5. Reduction of Cross Subsidies
6. Develop-ment of Capacity Market
7. Applications invited for subsequent licensees
   - Deemed licensee (1st licensee) to be the Provider of the Last Resort

Implementation Roadmap - Phase II

Phase II (3-6 Years)

- Network Business: Regulated (incentive based)
- Supply Business:
  - De-regulated for 1 MW & above consumers.
  - Regulated for consumers below 1 MW (with concept of supply margin linked to loss reduction)
  - No surcharge (as cross subsidy and losses would have been reduced substantially in the 1st phase and due to other design changes)



- Competition between deemed supply licensee and second/subsequent supply licensee: former will have cheaper power purchases but high losses while the latter will have higher power purchases but lower losses and operation costs.

Implementation Roadmap - Phase III

Phase III (Beyond 6 Years)

Further de-regulation of Supply Business –

- Deregulation of less than 1 MW and up to 100 kW first and subsequently any consumer
- Treatment of PPA and tariff determination/deregulation on similar principles as for phase II

Phasing and Operationalization

Phasing and Operationalization : Phase-I, Step 1

Step 1: Separation of Businesses

- Separation of wheeling and retail supply businesses is essential in order to accurately allocate costs, fixed assets, debt servicing, losses, etc. to the two functions. This includes:
- Maintenance of separate accounts
- Segregation of assets in order to correctly assess the GFA of each business
- Asset valuation for the purpose of asset segregation
- Allocation of employees to each function
- Allocation of distribution losses: Since the DNO is envisaged to own the network up to the consumer meter, technical losses can be attributed to the DNO whereas losses on account of commercial factors such as theft should be to the retailer's account. Allocation of losses is essential because normative loss targets shall be set for the distribution business at the time of regulatory approval of distribution tariff. Hence, the baseline loss data needs to be in place and agreed upon.
- Dealing with financial losses: In view of the huge accumulated losses currently on the books of accounts of Discoms, it may be recommended that a Special Purpose Vehicle (SPV) be formed to take over all existing losses as on Day Zero (01.04.2015). Thereafter, a regulatory surcharge may be levied on consumers of both incumbent Discoms as well as retail suppliers, all of which would be directed towards the SPV.

Phasing and Operationalization : Phase-I, Step 1

Step 1: Separation of Businesses – Issues and Recommendations

Dealing with existing Distribution Franchisees	•Point for discussion: In future, how to deal with existing distribution franchisees? • May be allowed to continue operations at existing terms & conditions but their contract may not be extended.
Data for determining baseline losses	• Regulators may be encouraged to direct distribution utilities to carry out segregation of feeders and/or achieve 100% metering so that distribution losses may be accurately estimated. • Distribution utilities also need to be directed to start maintaining voltage-wise asset registers to determine voltage wise losses • Regulators may start specifying loss reduction trajectories for Discoms at the division level, circle level and voltage level, so as to achieve desirable levels of efficiency by the time retail competition is rolled out.
Segregation of employees	• A manpower requirement/optimization study may be undertaken to help in optimizing manpower by phasing out certain posts once they fall vacant. • A Government-funded Voluntary Retirement Scheme (VRS) is essential since efficiency in operations would be impossible to achieve unless unproductive/sub-productive employees are offloaded.

Phasing and Operationalization : Phase-I, Step 1

Step 1: Separation of Businesses – Issues and Recommendations

Loss of cross subsidy for incumbent Discom

- In India, competitive market consumers may be loaded with a cross subsidy surcharge in initial years, to make operations viable for incumbent distribution companies with regard to its captive (i.e. non competitive) retail market
- Government may provide some sort of a viability gap funding in order to compensate incumbent Discom for the loss of high-tariff consumers, in view of the fact that tariffs cannot be increased substantially for Domestic category.
- Alternatively, a pool can be created on the lines of Philippines wherein, no matter whether the consumer has shifted to the new retailer or is still connected to the incumbent retailer, a pre-decided (regulated)per unit charge can be recovered under a separate head of cross subsidy surcharge, till the time the cross subsidy is phased out gradually.
- Cross-subsidies should be determined on the basis of voltage-wise cost to serve, for a true picture of the cross-subsidy burden being borne by some categories
- ***Points for discussion:***
  - If cross subsidy is continued, how will it affect the retail competition?
  - In case of cross subsidy removal, what about Domestic tariffs?
  - Should the government provide a viability-funding gap assistance?
  - To compensate for loss of cross subsidy, can states levy some sort of cess on the total electricity consumed by consumers of other categories?

Phasing and Operationalization : Phase-I, Step 1

Step 1: Separation of Businesses – Issues and Recommendations

Illustration – Levy of Universal Charge to deal with loss of cross subsidy

Category	Revenue (Rs Cr)	Sales (MU)	Tariff Y1 (Rs/Unit)	Tariff Y2 (Rs/Unit)	Tariff Y3 (Rs/Unit)
Domestic	17.56	82.00	2.14	2.38	2.65
Average CoS			*3.91*	*4.10*	*4.30*
Industrial	40.84	67.38	6.06	6.19	6.32
Total	**58.40**				
Transition Year 1					
Category	**UC (Rs/Unit)**	**Rev from UC (Rs Cr)**	**Less per unit**	**Net realization**	**Realization by utility**
Domestic	0.30	2.46		2.44	20.02
Industrial	0.30	2.02	0.67	5.70	38.38
Total		**4.48**			**58.40**
Transition Year 2					
Category	**UC (Rs/Unit)**	**Rev from UC (Rs Cr)**	**Less per unit**	**Net realization**	**Realization by utility**
Domestic	0.50	4.10		2.88	23.62
Industrial	0.50	3.37	1.11	5.58	37.61
		7.47			**61.22**
Transition Year 3					
Category	**UC (Rs/Unit)**	**Rev from UC (Rs Cr)**	**Less per unit**	**Net realization**	**Realization by utility**
Domestic	0.70	5.74		3.35	27.43
Industrial	0.70	4.72	1.55	5.47	36.85
		10.46			**64.28**

Phasing and Operationalization : Phase-I, Step 2

Step 2: Preliminary Operationalization

Separation of Licenses

This would demarcate the roles & responsibilities of the two functions, as shown below:

Distribution Network Business:

- This business shall own the distribution network.
- The distribution network operator would have the following responsibilities:
  - Network planning (up to the consumer meter)
  - Capital expenditure on building and augmentation of the distribution network
  - Operation & maintenance of the network such as network reinforcement & replacement, improved overhead line repair, etc.
  - Fault restoration
  - Customer care for all technical problems

Retail Supply Business:

- This business shall provide the last mile connectivity to consumer's point of supply
- The retail supplier would have the following responsibilities:
  - Power procurement and management of existing contracts
  - Existing power trading
  - Supply to consumer
  - Meter reading, meter-related operations
  - Consumer billing
  - Collection of revenue from consumers
  - Credit contracts
  - Customer care for meter, billing, collection related issues

Phasing and Operationalization : Phase-I, Step 2

Step 2: Preliminary Operationalization

Transfer of Existing PPAs to Supply Licensee	• With the separation of licences and responsibilities, procurement of power would become the supply licensee's responsibility. • All existing PPAs signed between generators and the erstwhile DISCOM shall be transferred to the incumbent supply licensee of the area as it is.
Area and Tenure of License	• In the initial stages, the entire state could be treated as one contiguous area of licence, otherwise private suppliers may not show interest in operating in rural areas or areas with economically weaker population. • Competition can be ensured by issuing licences to several entities for the same licence areas. • Licences may be provided for an initial period of 25 years, unless revoked, after which re-demarcation of supply areas may be considered.
Pricing of Electricity	• Network Business: Regulated Tariff (Voltage-wise) • Supply Business: Regulated Tariff (with a concept of supply margin linked to losses). The supply margin can be crucial in attracting private players to the retail sector once the sector is thrown open to competition, since players will compete by increasing efficiencies. • Consumers of 1 MW & above can take supply under open access, but will have to bear a cross subsidy surcharge.

Phasing and Operationalization : Phase-I, Step 2

Step 2: Preliminary Operationalization

Timeline for disposal of Open Access applications	• It may be recommended that all open access consumer applications be decided (either accepted or rejected with sufficient reason in writing) within a period of 1 month from the date of receipt of application.
Depth of Generation Capacity Market	• Medium term capacity market to be created for duration of 1-3 years. • Capacities un-tied/released can participate in this market. National Load Dispatch Centre to be enabled for this
Market share of generators	• Divestment of generating companies may not be an option for India, at present. • However, it must be kept in mind that for a truly competitive electricity market, the significant market shares of mammoth entities such as NTPC, NHPC, etc. should be monitored and preferably reduced.

Phasing and Operationalization : Phase-I, Step 3

Step 3: Invite applications for second/subsequent supply license

After completion of two years from Day Zero, the designated Authority / Monitoring Committee shall invite applications for Second/Subsequent supply licence.

Points for discussion:

- Need for necessary supply license for generating companies
- What will be the nature and composition of the authority that will invite applications? Would it be state-wise (one for each state), region-wise or pan-India? Under the current regulatory framework, such an authority can only be constituted at the state level.
- As discussed before, what should be the area and tenure of supply licences?
- Would there be any eligibility criteria for supply licence applicants (net worth, quantum of tied up power, prior technical experience, etc.)
- Within how many days to dispose of (i.e. either accept/reject) supply licence applications?
- Would there be any public consultation in the entire process of issuing second/subsequent supply licences and if so, at what stage?

Recommendation

- The designated Authority / Monitoring Committee shall be responsible for either accepting or rejecting with detailed reasons any application for Second/Subsequent Supply License within 2 months from date of receipt of application.
- Initially, the entire state could be treated as one contiguous area of licence, otherwise private suppliers may not show interest in operating in rural areas or areas with economically weaker population.

Phasing and Operationalization : Phase-II, Step 4

Step 4: Putting retail competition into implementation

Ownership separation	• This would ensure that the distribution network licensee cannot be in the retail supply business any longer.
	• ***Points for discussion:***
	  • How to undertake asset valuation in order to divest the retail supply function?
	  • Should the basis of asset valuation be specified, and if so whether it should be historic cost, current cost, or the "regulatory asset valuation"?
	  • Given the current financial position of distribution companies in the country, how to ensure divestment of such loss making entities? Divestment is a must since the distribution network operator can no longer have the same ownership as the retail supply function.
	  • What if there are no takers for a particular area's supply licence?
	  • Can competitive bidding be undertaken for selling off retail supply functions?

Introduction of retail competition	• Onset of second/subsequent supply licences. • Retail competition would be introduced in a phased manner with 1 MW & above consumers first being given the opportunity to choose their own retail supplier from the competitive market. • ***Point for discussion:*** Since initially only 1 MW consumers will be allowed to choose their retailer, will the Second licensee be allowed to connect to any other consumer (less than 1 MW), who asks for a new connection? It is recommended that this not be allowed.

Phasing and Operationalization : Phase-II, Step 4

Step 4: Putting retail competition into implementation

Technical Issues

- Separation of distribution and retail supply would require advanced metering, at least in the initial stages till the time there is sufficient power availability.
- Alternatively the customer with new supplier can be put on an independent feeder
- Or, The customer with new supplier would agree to load shedding in the area, as determined by the DNO.
- ***Points of discussion:***
  - What should be the timeline for reorganising the electrical network including advanced metering systems? (Should be completed at least for 1 MW & above consumers within 3 years from Day Zero, i.e. by the time retail competition is ushered in)
  - Who will bear the costs of investing in reorganising the electrical network including advanced metering systems?
  - Should a separate operator manage metering?
  - Impact of stranded investment cost of existing meters?

Phasing and Operationalization : Phase-II, Step 4

Step 4: Putting retail competition into implementation

Timeline for readying infrastructure

- Delay in implementing IT, metering or related infrastructure could affect timelines of introducing retail competition.
- For discussion: Should there be penalty clauses for not achieving groundwork targets (essential for introducing retail competition) and if so, the modalities of imposing these penal clauses

Duty to Supply

- It could be considered to do away with the 'duty to supply electricity' and instead make provisions for 'duty to connect' for the DNO.
- New connection requests (by applicants who are eligible to avail of retail competition) would be sent to the DNO who will inspect the premises, sanction the load, make available the necessary network, etc.
- ***Point for discussion:***
  - If the retailer is obliged with a 'duty to supply' and pricing is not regulated, then to avoid the duty to supply, the retailers may quote higher tariffs. Also, there may be cartelization among the retail suppliers.
  - Hence, there is a need for price capping and competitive market watchdog/regulator.

Phasing and Operationalization : Phase-II, Step 4

Step 4: Putting retail competition into implementation

Standard of Performance	• SOP can be withdrawn for retail suppliers supplying to competitive market consumers since their service standards would be regulated in other ways, e.g. through inclusion in agreements with consumers.

Federal structure	• The federal structure of India may lead to challenges in implementation of retail competition on the following counts:
	  • Political will to separate ownership of distribution business
	  • Possibility of segregation of such large businesses in one go across the country

Provider of last resort	• Provider of the last resort has the obligation of offering electricity against some specified tariff to any customer, irrespective of load characteristics or payment record. • The deemed licensee (incumbent) i.e. 1st licensee can be the Provider of Last Resort • If this provision for a Provider of Last Resort is maintained, would there also be a penalty clause, i.e. would the deemed licensee be penalized for not providing last resort supply?

Phasing and Operationalization : Phase-II, Step 4

Step 4: Putting retail competition into implementation

Power procurement by competitive retailer

- Competitive retail supplier to procure power from the market or through bilateral trading, to supply to its market of consumers
- Rate of power purchase will determine the retail supplier's competitiveness to a large extent, along retail supply margin

Components of retail supplier's tariff

- Wheeling charges: Regulator determined
- Power purchase cost: As tied up / arranged by the retail supplier
- Retail Supply Margin: Fixed costs such as employee costs, interest costs, administrative expenses, etc.

Additional:

- Universal charge: Towards reducing cross-subsidy
- Regulatory surcharge: Towards the SPV that will take over all existing financial losses

Phasing and Operationalization : Phase-III, Step 5

Step 5: Further opening up of the Retail Supply Business

Further Opening Up of the Supply Business

- Subsequently, the retail supply business shall be made competitive for more and more consumer segments, with competition being introduced in phases.
  - Deregulation of less than 500 kW to 1 MW segment
  - Deregulation of less than 100 kW to 500 kW segment
  - Deregulation of consumers below 100 kW, including small commercial and domestic consumers
- ***Points for discussion:***
  - Once separation of the businesses is done and Retail Competition is introduced, would the market still be regulated with the regulatory body capping the Maximum Retail Price? In the initial stages when competition is low, could there be fears of a cartelization between generators and suppliers or among suppliers? *Recommendation*: SERC may set a price cap for Retail Supply Margin (RSM)
  - Will there be regulatory control over the Quality of Service or would it be survival of the fittest? In the latter case, is it possible that the overall quality deteriorates across all the Retailers due to the lack of any regulatory control? *Recommendation*: SERC may set a minimum benchmark for QoS and may review conditions frequently.
  - Will the pricing strategy be controlled? E.g. some retailers might come up with two-tier pricing, offering more discounts to the consumers switching over than the prices being offered to the existing consumers, or vice-versa?

Phasing and Operationalization : Phase-III, Step 5

Step 5: Further opening up of the Retail Supply Business

Further Opening Up of the Supply Business

- ***Points for discussion:***
  - How will the transition issues be taken care of?
    - The transfer of services from one retailer to another, in case a consumer decides to switch: How would the two retailers (old and new) co-ordinate with the physical transfer of the connection apart from the legal formalities?
    - In case of any dispute, how will the transfer of connection occur? E.g. if the consumer has not cleared the dues with the previous retailer. *Recommendation*: Ideally security deposit should take care of outstanding dues. In any case, the second licensee should not be bothered about dues owed to the incumbent Discom / previous retailer.
    - Will the same meter be used for the billing purpose or would the new retailer install its own meters?
    - How will consumer awareness be generated to encourage consumers to switch, when faced with competitive options?
    - How can consumers be protected from misleading marketing campaigns?

Thank you!

Forum of Regulators

Presentation on
Cost Benefit Analysis for DSM Programme

Cost Benefit Analysis Guidelines

- Background
- Approach for Cost Benefit Analysis Guidelines
- Costs and Benefits in DSM
- Criteria for Regulatory Approval
- Categorisation of DSM Programmes
- Example – Solar Water Heating (SWH) System
- Proposed Guidelines for Cost Benefit Analysis

Background

- Energy Conservation (EC) Act 2001, Electricity Act 2003, Statutory policies under EA 2003, viz National Electricity Policy & Tariff Policy contains certain provision aimed towards promotion of EE & DSM
- Forum of Regulator (FOR) report on DSM and Energy efficiency identifies several recommendations for implementation of EE & DSM measures (September 2008)
- FOR decided to develop consensus on institutional structure for DSM
- Institutional structure and Model Draft DSM Regulations were approved in 2010
- Working Group on EE & DSM considered reports on following activities in 2011
  - Cost Benefit Analysis
  - Evaluation, Monitoring & Verification
- This presentation covers "Guidelines for Cost Benefit Analysis"

Status of DSM Regulations

Following is the status of the DSM Regulations in different states:

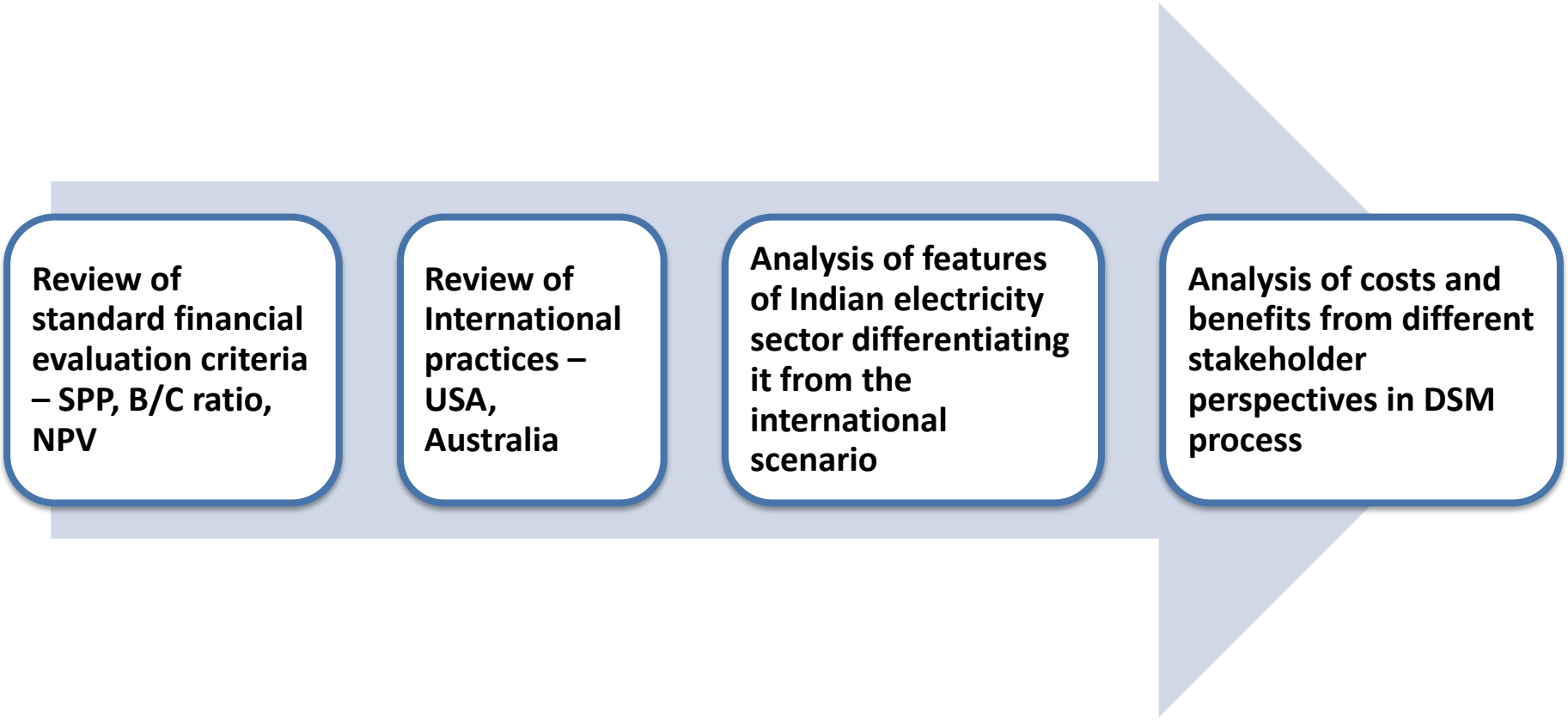
Draft Regulation issued :

1. Bihar
2. Delhi
3. Haryana
4. Kerala
5. Orissa
6. Tamil Nadu

Final Regulation issued:

1. Assam
2. Gujarat
3. Himachal Pradesh
4. J&K
5. Jharkhand
6. Manipur & Mizoram (JERC)
7. Maharashtra
8. Punjab
9. Tripura

Approach for Cost Benefit Analysis Guidelines



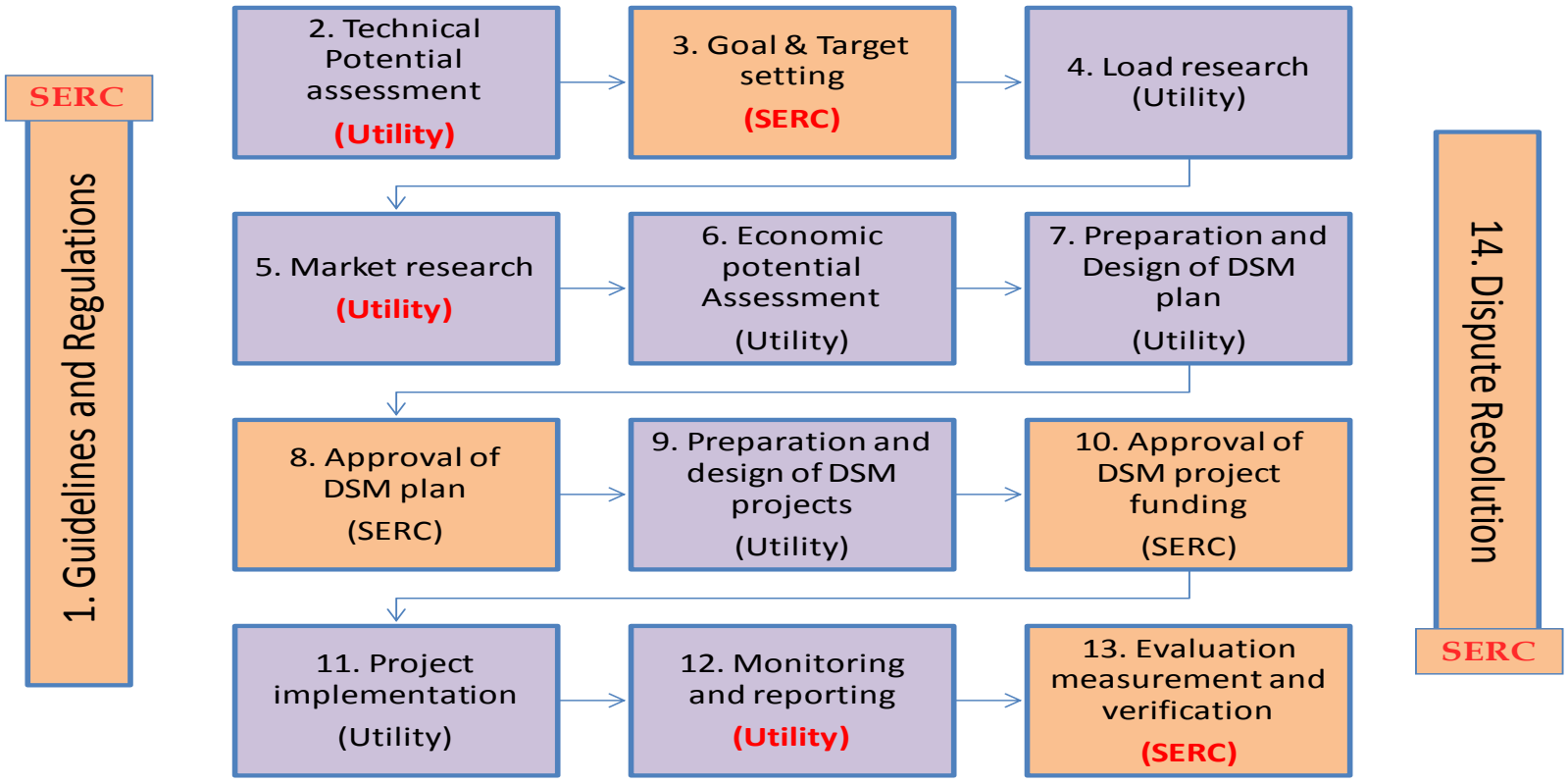
Review of Financial Evaluation Criteria

- Costs and benefits of any investment are measured in terms of cash flows
- Once the streams of costs and benefits of an investment project are defined, the next step is to judge the project on the criteria defined for assessing viability
- Three most commonly used criteria are;
  - Payback period,
  - Net Present Value (NPV) and
  - Benefit Cost ratio (B/C)
- Regulators use these criteria for approval of CAPEX.

Lessons from International Practices

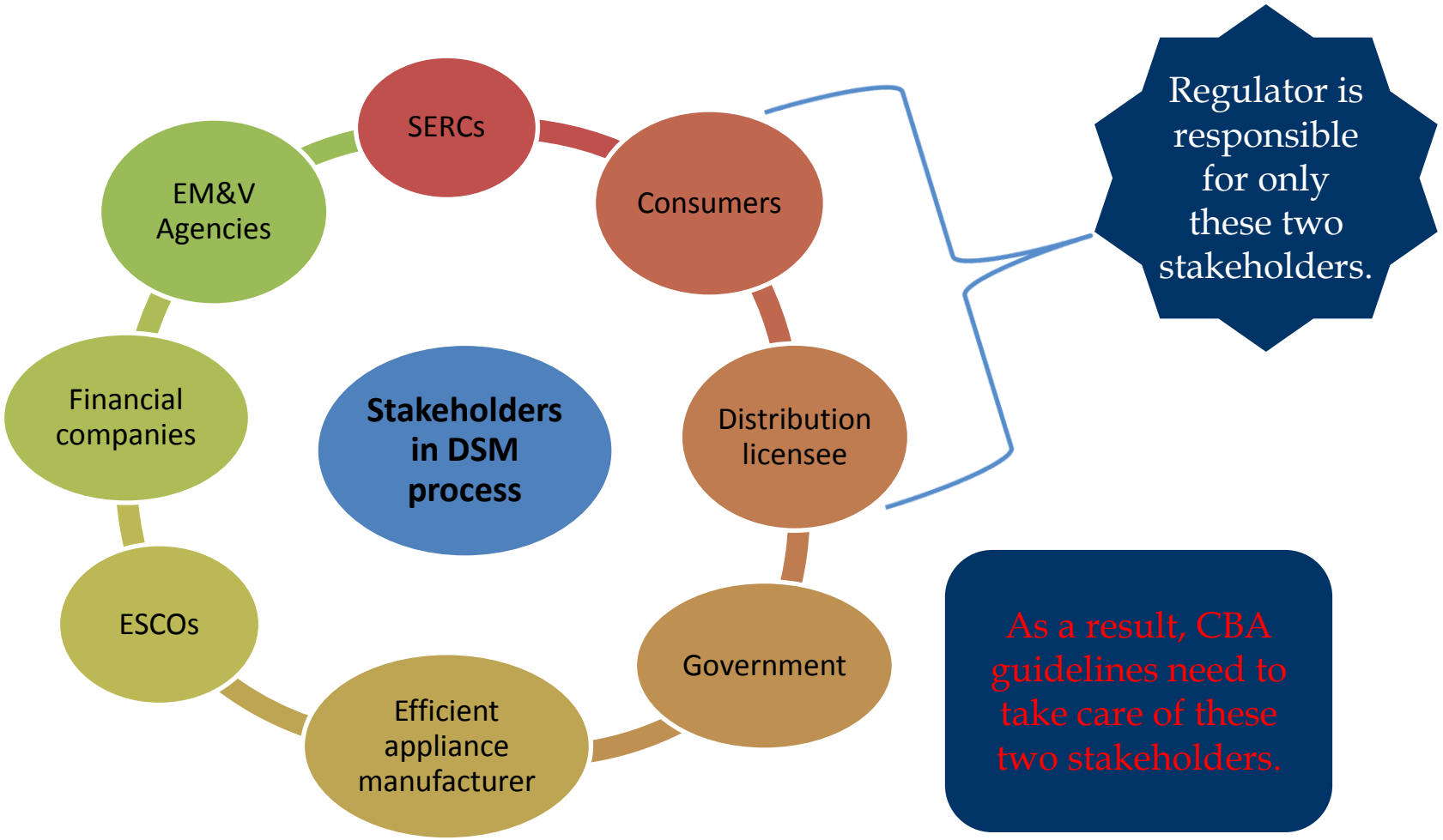
- Design and implementation of DSM programmes critically depends on the electricity sector in which these programmes operate
- Drivers for promotion of DSM depend on the factors such as generation sufficiency, generation mix, regulatory framework, maturity of the electricity sector of the country, etc
- These factors would determine 'what would constitute cost effective in India?'
- This could be significantly different for India from the countries where the cost effectiveness tests have been developed and are being used.
- Cost effectiveness assessment of DSM program typically involves analysis of the costs and benefits from the perspective of different stakeholders involved in DSM.

DSM Institutional Process



While DSM Institutional Process has only three active players, in reality several other stakeholders also play important roles.

Stakeholders in DSM Process



Distribution Licensee Perspective

- Barring a few, all other States are experiencing power deficit
- In power starved States,
  - Load shedding or additional purchase at high rates;
  - Load shedding results in loss of production or use of expensive backup power for industries; inconvenience to residential consumers
  - DSM reduces quantum and duration of load shedding and/or costly power purchase
  - Sell of saved units to other consumers – revenue neutrality
- In power surplus States, DSM increases trading opportunities
  - Reduction in additional expensive short term power purchase

Consumer Perspective

- Include participants and non-participants

	Costs		Benefits	
	Direct	**Indirect**	**Direct**	**Indirect**
Participating	Cost to purchase and install EE appliance	O&M, failure replacement etc.	Reduction in electricity bills	Better power quality and reliability
Non-participating	None	Increase in costs in case of socialisation of costs	Reduction in tariffs	Reduction in load shedding, Better power quality and reliability

- Costs are socialised to large extent. As a result, tariffs rarely reflect the costs incurred by the consumer
- Cost benefit analysis from the point of view of participating consumers need to be carried out.

Costs can be Categorized into two Broad Areas

Costs	Cost associated with activities in DSM process
Programme costs	• Preparation and design of DSM projects • Project implementation • Monitoring and Reporting • EM&V
General costs	• Technical potential assessment • Load research • Market research • Economic potential assessment • Design and development of DSM plan

To carry out Cost-Benefit Analysis, it is necessary to scrutinize Programme costs in more detail.

Benefits of DSM Programme - Licensee

- Quantifiable
  - Sell of energy saved to higher tariff consumers; reduction in tariffs for all consumers.
  - Reduction in technical losses.
  - Carbon credits generation due to reduction in GHG emissions on account of energy saved.
- Not Quantifiable
  - Improved 'Standard of Performance'
  - Optimal utilisation of generation and network assets.
  - Avoided capacity addition in generation and network assets.

Benefits of DSM Programme – Consumer & Govt.

- Consumer
  - Consumer benefits in monetary terms if he can save electricity at a cost that is less than the electricity tariff.
  - Lower probability of load shedding
  - Reduction in expenses due to backup generation facilities.
- Government
  - Optimal utilization of energy resources available within economy.
  - Reduction in subsidy payment as subsidized customers experience the same level of comfort at lower level of energy consumption.

Criteria for Cost Benefit Analysis……(1/5)

- Any DSM programme should result in overall reduction in the costs
- Benefits of the DSM Programmes should be more than costs associated with the same
- Cost Effectiveness Index – 'CEI' is designed to assess cost effectiveness from the perspective of the Distribution Licensee
- Cost of conserved energy – 'CCE' is to be used to assess cost effectiveness from the point of view of the participating consumers investing the Programme

Cost Effectiveness Index – 'CEI'……(2/5)

- CEI is based on financial evaluation technique – Benefit/Cost ratio
- CEI is the ratio of sum of present value of the benefits of DSM programme and Sum of present value of the costs of DSM programme
- CEI greater than one means that the full cost of an investment will be recovered through the benefits.

Formulae – CEI……(3/5)

$$CEI = \frac{PVB}{PVC}$$

$$PVB = \sum_{k=1}^{n} \frac{B_k}{(1 + d_{DL})^k}$$

$$PVC = \sum_{k=0}^{n} \frac{C_k}{(1 + d_{DL})^k}$$

	Definition	Example
B_k	Benefit in the 'k'th year	For distribution licensee with D-S gap, benefit should be quantified as energy saved multiplied by the average revenue realisation. Similarly, for licensee with surplus power, benefit should be quantified as energy saved multiplied average price of traded power
C_k	Cost in 'k'th year	Cost would be all costs including O&M costs incurred in that particular year
n	Life of the programme	Life of the programme or life of the efficient appliance, as appropriate
d_{DL}	Discount rate for licensee	Discount rate should be ideally Weighted Average Cost of Capital (WACC) of the utility

DSM Programmes with higher CEI should be given preference.

Cost of Conserved Energy – 'CCE'……(4/5)

- CCE is the annualised incremental cost of investment in efficient option divided by annual energy saved due to adoption of efficient option
- If Avg. Tariff – CCE > 0, DSM Programme is viable from the point of the participating consumers who is also investing in the Programme; where Avg. Tariff is Average Tariff paid by that consumer category in the year of implementation of the DSM Programme
- Capital Recovery Factor - CRF is used to determine the annualized value equivalent of the initial investment.

Formulae – CCE……(5/5)

$$CCE = \frac{(PVC_{EE} \times CRF_{EE}) - (PVC_{IE} \times CRF_{IE})}{\text{Annual Energy Saved in kWh}}$$

$$PVC = \sum_{k=0}^{n} \frac{c_k}{(1 + d_c)^k}$$

$$CRF = \frac{[d_c(1 + d_c)^n]}{[(1 + d_c)^n - 1]}$$

Parameter	Definition
PVC_{EE}	Present value of costs of efficient option
PVC_{IE}	Present value of costs of inefficient option
CRF_{EE}	Capital recovery factor for efficient option
CRF_{IE}	Capital recovery factor for inefficient option
c_k	Cost of the option borne by consumer in kth year
N	Life of the option
	Discount rate for the consumer

DSM Programmes with lower CCE should be given preference.

Criteria for Regulatory Approval

- The criterion must be in accordance with the objectives of the Electricity Act 2003
- The Act mandates the Regulator with delicate task of balancing interests of the consumers and that of the electricity industry, i.e. utilities under jurisdiction of the Regulator
- The cost effectiveness guidelines must protect the interest of the distribution licensee and consumers
- Regulatory approval is required for approval of DSM Programme costs and General costs

Categorisation of DSM Programmes……..(1/4)

- DSM Programmes can be implemented by diff. institutions
- Costs could be shared by these institutions as well as by others in any DSM Programme
- Depending on who bears the costs, DSM programmes could be categorized into following three types:
  - Type 1: Costs borne by distribution licensee
  - Type 2: Cost sharing between distribution licensee and consumers
  - Type 3: Government subsidy driven programmes

Categorisation - Examples……..(2/4)

Type of DSM programme	Examples
Type 1: Costs borne by Distribution licensee	• Typical consumer awareness programmes, e.g. programme in Mumbai, REL, TPC and BEST, Maharashtra • Pilot project to improve agricultural pump set efficiency, Southern Power Distribution Company, Andhra Pradesh Limited
Type 2: Cost sharing between licensee and consumers	• Pilot CFL Programme in Nashik by MSEDCL, Maharashtra • Mumbai Efficient Lighting Program by REL, Maharashtra
Type 3: Government subsidy/International funding driven programmes	• Bachat Lamp Yojna, BEE • Mu DSM, BEE • Pilot Ag DSM project at Mangalvedha Subdivision in Solapur District of Maharashtra, BEE, MSEDCL • Efficient Lighting Programme in Bangalore, BESCOM, Karnataka • Agricultural Pumpset Efficiency Improvement Programme in Noida, NPCL, Uttar Pradesh

Criteria for Approval of Programme Costs……..(3/4)

Type of Programme	Description	Distribution licensee	Investing Consumer
Type 1	Costs borne by Distribution licensee	CEI	NA
Type 2	Cost sharing between licensee and consumers	CEI	CCE
Type 3	Government subsidy/International funding driven programmes	CEI	CCE

In case, programme is government sponsored and consumer participation is voluntary, no approval of SERC is required.

Criteria for Approval of General Costs……..(4/4)

- General costs are real costs incurred by the licensee
- There is no direct measurable benefit associated with general costs
- It is not possible to carry out cost-benefit analysis for general costs
- General costs would be approved by Regulator on case to case basis

Example: Residential SWH Programme

DSM Programme Details:

- Objective: Reduction in winter peak demand and overall energy reduction
- Target sector: Residential sector
- DSM Measure: Replacement of electric geysers with SWH systems

Costs of the Programme:

- Design and Development of a plan for implementation
- Cost of the SWH systems and its installation for licensee
- Cost of monitoring, reporting and EM&V
- Cost of marketing/consumer education and outreach
- Operating and maintenance cost

Parameters Required at Measure Level

Parameter	Unit	Value
Capacity of electric geyser	Litres	25
Cost of electric geyser including installation	Rs	6500
Rating of electric geyser	kW	2
Life of electric geyser	years	8
One time O&M cost of electric geyser after 4 years		580
Duration of usage (@ 2hrs/day for 30 days and 10 months)	hours/year	600
Capacity of SWH required	Litres	100
Cost of SWH system for consumer (@ 50% contribution)	Rs	14282
Life of SWH system	years	16
O&M costs of SWH system (four times during the life of system)	Rs	1000
Discount rate for consumer	%	12%

Parameters at Programme Level

Parameter	Unit	Value
No. of expected participants		1000
Discount rate for distribution licensee		16%
T&D losses		15%
Avoided power purchase cost	Rs/unit	3.5
Revenue per unit from additional sales	Rs/unit	6
Inflation		6%
Fuel Escalation rate		5%

CEI and CCE

- For the following contribution from Government and licensee, the CEI and CCE is calculated
  - Govt.: 25%; Licensee: 25% Consumer: 50%
- Cost effectiveness index from the perspective of distribution licensee using the parameters at the programme level is calculated as per the formula discussed earlier – 6.6
- Cost of conserved energy from the perspective of consumers is calculated using the parameters at measure level and formula discussed earlier – Rs 1.16/unit

Conclusion

- Given the stage of DSM in Indian electricity sector, a simple and robust methodology is proposed to be adopted

- Usage of similar methodology across the country will have multi fold benefits

- Regulatory Commissions will be required to address State specific conditions while issuing guidelines for their respective States

Proposed Guidelines for Cost Benefit Analysis…(1/5)

In exercise of the powers conferred on it by the State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010, under Regulation 6.1 (iii), the State Electricity Regulatory Commission hereby issues the Guidelines for Cost Effectiveness Assessment of DSM programmes.

1.1 General

These guidelines are to be followed by Licensees as provided in their respective licenses;

i. While formulating the DSM Plan pursuant to Regulation 9.1(v) of the State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010

ii. While selection and prioritisation of various DSM programmes in the DSM Plan pursuant to Regulation 9.2(i) of the State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010 and

iii. While preparing Programme Document, for each DSM programme included in the DSM Plan pursuant to Regulation 11(i) of the State Electricity Regulatory Commission (Demand Side Management) Regulations, 2010

Proposed Guidelines for Cost Benefit Analysis…(2/5)

1.2 Applicability of the guidelines

These guidelines shall be applicable to approval of costs associated with all DSM activities in DSM process.

1.3 Period of the guidelines

The guidelines shall come into force on the date of publication of the same and shall remain in force till such time it is modified by the respective regulations. Any modification in the assessment methodology, as and when required, can be incorporated in the subsequent versions of the guidelines.

1.4 Criteria for assessment from perspective of distribution licensee

'Cost Effectiveness Index' (CEI) shall be used to assess the viability of the DSM Programme from the perspective of distribution licensee. CEI shall be based on financial evaluation technique 'Benefit/Cost ratio' (B/C ratio), which is sum of the present value of the benefits of DSM Programme divided by the sum of the present value of the costs associated with the DSM Programme.

Proposed Guidelines for Cost Benefit Analysis…(3/5)

1.5 Criteria for assessment from perspective of investing consumer

'Cost of Conserved Energy (CCE)' shall be used to assess the cost effectiveness of DSM Programme from the point of view of the participating consumers investing in the Programme. CCE is the annualized incremental cost of investment in efficient option divided by annual energy saved due to adoption of efficient option.

1.6 Criteria for approval of DSM programme costs

The criteria for approval of the DSM Programme will depend on the categorization of the DSM Programme. The criteria for the three types of programmes shall be as follows:

Type 1: Costs borne by Distribution licensee

In Type 1 DSM programme, since all the costs are borne by the licensee, if the CEI is greater than one, the programme is economically viable and should be approved by the Regulatory Commission. In case limited resources are available with distribution licensee, programmes with higher CEI should be given priority over those programmes with lower CEI.

Proposed Guidelines for Cost Benefit Analysis…(4/5)

Type 2: Costs shared between licensee and consumers

In Type 2 programmes, both CEI and CCE should be deployed to assess the cost effectiveness of the programmes. The DSM programme should be considered as cost effective only if it satisfies both criterion i.e. CEI great than one and CCE less than average tariff paid by that particular consumer category.

In case of multiple programmes satisfying both criterion and limited resources available with distribution licensee, those Programmes with bigger difference between CCE and Avg. Tariff should be given priority. This will ensure that in case of conflict, consumer interest is given priority over that of the licensee.

Type 3: Government subsidy/International funding programmes

In case of Type 3 programmes, the regulatory approval is required only for the costs proposed to be incurred by the distribution licensee and/or the consumer, irrespective of the costs incurred by the Government or any other funding agency. Similar to Type 2 programmes, if the CEI for the licensee is greater than 1 and the CCE for participating consumer is less than Avg. Tariff, the programme should be approved.

Proposed Guidelines for Cost Benefit Analysis…(5/5)

1.7 Criteria for approval of General costs

The general costs would be approved by the Regulator on 'case to case' basis after application of standard prudency principles.

1.8 Indicative assessment of DSM programmes

CEI and CCE shall be used for indicative assessment of the DSM Programmes. The cost effectiveness numbers shall be presented on the basis of design numbers. Detailed justification based on the technical and other studies shall be presented at the time of approval of the DSM Programme approval stage.

1.9 Commission's review

In reviewing the DSM Plan and each Programme Document submitted to it, the Commission shall follow these guidelines for approval on the basis of the cost effectiveness of the Plan and programmes.

The Commission may call for clarification, additional information and data as necessary. A Licensee shall furnish any additional information within fifteen days or within such longer period as the Commission may allow which shall in no case be more than two months from the date of first submission.

Thank You

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/ APPENDIX – "A' /

FORMAT FOR MONITORING ON RPO COMPLIANCE

FORM-A

/ ANNEXURE-I /

LIST OF OBLIGATED ENTITIES for the duration of [MM/YYYY TO MM/YYYY]						
S. No.	Name of the Obligated Entity	Category of the Obligated Entity[1]				Remarks
		DISCOM	CPP	Open Access Consumers	Others	
1						
2						
3						
4						
.						
.						
.						
.						
.						
n						

[1]State nodal agency can select the category as applicable for the obligated entity. An obligated entity may also fall under more than one category.

/ ANNEXURE-II /

Name: Obligated Entity
(Put Name of Licensee / Captive Consumer / OA Consumer / Others as the case may be)

Form IA: RPO Statement – Non-Solar (Yearly Estimate)

Compliance Year	Consumption (Estimated)	Total Non-Solar RPO Obligation	Estimated Purchase of Electricity from non - Solar resources	Estimated Purchase of Non- Solar RECs from PX(s)	Estimated Total Non-Solar Power/REC Procurement
	(A)		(B)	(C)	(B) + (C)
	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs
2012-13					

Form IB: RPO Statement – Solar (Yearly Estimate)

Compliance Year	Consumption (Estimated)	Total Non-Solar RPO Obligation	Estimated Purchase of Electricity from non - Solar resources	Estimated Purchase of Non- Solar RECs from PX(s)	Estimated Total Non-Solar Power/REC Procurement
	(A)		(B)	(C)	(B) + (C)
	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs
2012-13					

/ ANNEXURE-III /

Name: Obligated Entity
(Put Name of Licensee / Captive Consumer / OA Consumer / Others as the case may be)

Form IIA: RPO Compliance – Non-Solar (Quarterly)

Compliance Year 2012-13	Consumption	Total Non-Solar RPO of the Month	Non- Solar RPO Upto Previous Month	Non- Solar RPO Cumulative Upto The Month	Non- Solar RE Purchase for the month		Total Purchase of Non- Solar Power/REC for the Month	Non-Solar RE purchase upto previous Month	Total Non-Solar RE purchase upto the Month	Shortfall, if any
					Non-Solar RE at Regulated Tariff	Non-Solar REC				
				(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(1) – (6)
Q 1	MUs	MUs	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs	MUs	MUs	MUs
April										
May										
June										
Total										

Form IIB: RPO Compliance – Solar (Quarterly)

Compliance Year 2012-13	Consumption	Total Non-Solar RPO of the Month	Non- Solar RPO Upto Previous Month	Non- Solar RPO Cumulative Upto The Month	Non- Solar RE Purchase for the month		Total Purchase of Non- Solar Power/REC for the Month	Non-Solar RE purchase upto previous Month	Total Non-Solar RE purchase upto the Month	Shortfall, if any
					Non-Solar RE at Regulated Tariff	Non-Solar REC				
				(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(1) – (6)
Q 1	MUs	MUs	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs	MUs	MUs	MUs
April										
May										
June										
Total										

/ ANNEXURE-IV /

Name: Obligated Entity
(Put Name of Licensee / Captive Consumer / OA Consumer / Others as the case may be)

Form IIA: RPO Compliance – Non-Solar (Yearly)

Compliance Year 2012-13	Consumption	Total Non-Solar RPO of the Month	Non- Solar RPO Upto Previous Month	Non- Solar RPO Cumulative Upto The Month	Non- Solar RE Purchase for the month		Total Purchase of Non- Solar Power/REC for the Month	Non-Solar RE purchase upto previous Month	Total Non-Solar RE purchase upto the Month	Shortfall, if any
					Non-Solar RE at Regulated Tariff	Non-Solar REC				
				(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(1) – (6)
	MUs	MUs	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs	MUs	MUs	MUs
April										
May										
June										
July										
August										
September										
October										
November										
December										
January										
February										
March										
Total										

Form IIB: RPO Compliance – Solar (Yearly)

Compliance Year 2012-13	Consumption	Total Non-Solar RPO of the Month	Non- Solar RPO Upto Previous Month	Non- Solar RPO Cumulative Upto The Month	Non- Solar RE Purchase for the month		Total Purchase of Non- Solar Power/REC for the Month	Non-Solar RE purchase upto previous Month	Total Non-Solar RE purchase upto the Month	Shortfall, if any
					Non-Solar RE at Regulated Tariff	Non-Solar REC				
				(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(1) – (6)
	MUs	MUs	MUs	MUs	MUs	MUs (REC Equivalent Energy)	MUs	MUs	MUs	MUs
April										
May										
June										
July										
August										
September										
October										
November										
December										
January										
February										
March										
Total										

/ APPENDIX – "B" /

Concept Paper for setting up a dedicated Institute of Chartered Regulatory Analysts (ICRA)

1. Introduction

1.1 Power Sector in India

Economic growth world over is driven by energy, whether in the form of finite resources such as coal, oil and gas or in renewable forms such as hydroelectric, wind, and biomass, or its converted form, electricity. This energy generation and consumption powers industries, vehicles, home and offices. It also has significant impact on the quality of air, water, land and forest resources. For future growth to be both rapid and sustainable, we need to be as resource-efficient and environmentally friendly as possible.

India's installed capacity for power generation has tripled over the last 20 years and now as on July 31, 2012 exceeds 2,06,456.04 MW, as per CEA report- (Power Sector at a Glance" All India") . However, total demand is expected to increase 3.5 times in the next two decades. Even under the best-case scenario that envisions intensified efforts to modernize power plant, improve transmission and distribution efficiency, and adopt more efficient generation technologies, manpower and regulators.

As per 17th Electricity Power Survey of India 2010 Report, the requirement of electricity in the year 2021-22 is likely to be around 298 GWh for all India.

This quantum jump in installed capacity would require a multi-pronged increase in India's manufacturing capacity, managerial capabilities and above all the need for qualified technocrats well-versed with the nuances of the power sector. An additional over 150,000 skilled and semi skilled personnel required over the next 5- 7 years, in power sector alone.

It is well known that the economic reforms initiated in 1991-92 led to a paradigm shift in the way key sectors of the economy started performing. The idea was to introduce multiplicity of players for the provisions of various goods and services and to appoint a regulator, who would act as an umpire or referee. Regulators have been appointed for almost all sectors.

1.2 Role of Regulators

The job of the regulator in any field (here we will restrict our discussion to electricity) is to ensure a level playing field to existing and new entrants, functioning as a referee to protect consumer interests. Thus, regulators have the challenge of balancing consumer interest with that of service providers. In addition, they have also to ensure the viability of the structure.

Electricity Regulators need to ensure that the system they oversee and regulate ensures reliable and affordable electricity to all. Since regulators have to review, analyze and judge the documents created by knowledgeable persons in the field, it is necessary that the regulators have the right mix of techno-commercial, economic, finance & legal and managerial personnel which by and large most of the regulators lack. There will be a great demand for such qualified manpower to achieve targets set for Vision 2020.

1.3 **HR Initiatives by Maharashtra Electricity Regulatory Commission (MERC)**

Maharashtra Electricity Regulatory Commission (MERC) is amongst the first to recognize this knowledge gap and appoint Regulatory Officers and SRAs. MERC has further launched a series of multi-pronged initiatives to bridge this knowledge gap. This will establish, nurture and sustain an HRD system in the commission in all the utilities that will ensure the dissemination of knowledge on electricity regulation and the emerging electricity markets to all stakeholders. This will further enable the electricity system in the state to recruit, train and retain technically skilled manpower.

Recognizing the multi-disciplinary nature of the competencies required among regulatory staff, MERC has initiated and started short time and long time courses with the help of management training institutes.

1.4 **Setting up of a Institute of Chartered Regulatory Analysts (ICRA)**

Having established the potential viability and the interest of technocrats and educational institutions for courses that provide much-needed domain knowledge for discharging regulatory functions efficiently, it is now time to consolidate these efforts towards establishing multi-disciplinary courses. Also setting up of a Institute of Chartered Regulatory Analysts (ICRA) encompassing regulatory studies in all sectors of the economy which are required for a Regulator and create a cadre of resource person, who would be useful in Regulatory work in different sector of the economy. In view of the future requirement of qualified and trained manpower for existing Regulators and various Utilities/ organizations / departments who are subjected to Regulations, there will be a great demand of dedicated manpower possessing multi disciplinary skills in various sectors of economy such as Electricity, Telecom, Civil Aviation, Housing, Coal etc.

Hence, it is proposed to setup an Institute of Chartered Regulatory Analysts (ICRA), at present for Electricity, similar to Institute of the Chartered Accounts of India, Institute of Cost and Works Accounts of India and Institute of Company Secretaries of India etc.

2. Scope of the proposed ICRA

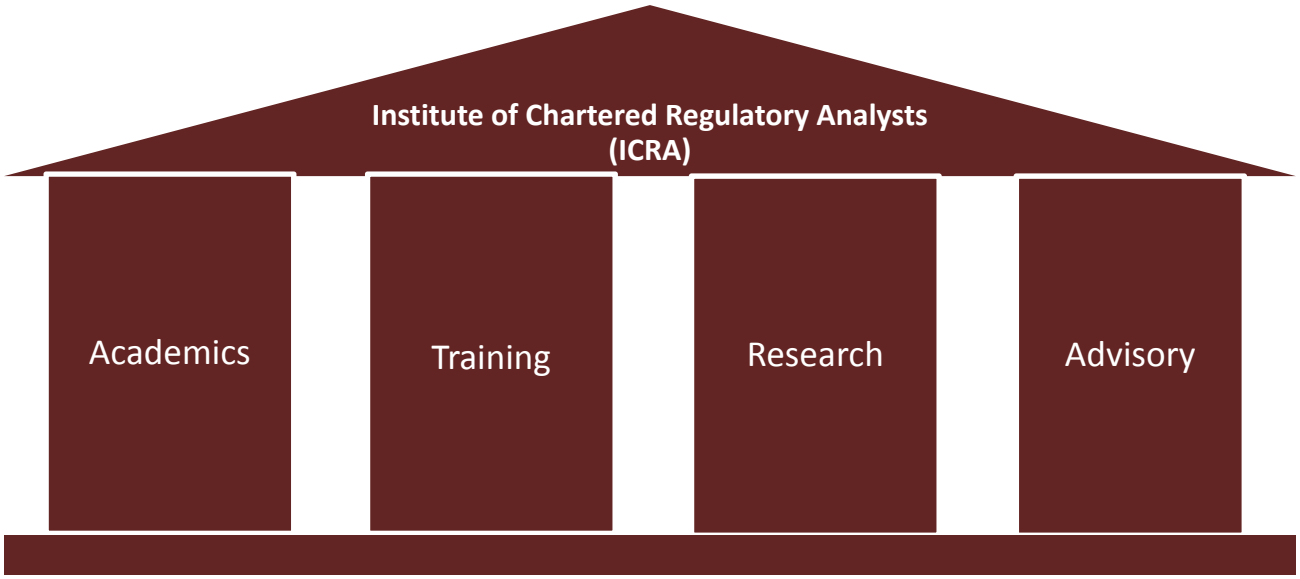
2.1 setting up an independent and dedicated Institute of Chartered Regulatory Analysts (ICRA) focusing on specific regulation and polices;

A Institute of Chartered Regulatory Analysts (ICRA) will be set up as an independent body with various regulatory bodies as founding members. This institute would specifically cater to the needs of the regulators with autonomy to update the course, thus keeping the content relevant. A huge upfront financial commitments are required to make this institute functioning and to achieve credibility of the institute make viable and self sustenance, the ICRA may be established as an association of FOR/FOIR.

2.2 **To start**, the ICRA can approach with an existing management/business institution / university to provide their infrastructure on hire / profit sharing basis till ICRA gets its own full flag structure and facility. Thus, the focus can be on the development of the courses and content of the curriculum, while administration can be taken up by the institute.

3. **Objective:**

- To provide state- of - art training and develop manpower in the area of regulation in India
- To provide a formal platform for exchange of information, research, training and experience among other regulators/ utilities/ other stakeholders.
- To organize policy events dealing with key regulatory issues;
- To provide analytical and empirical research in the field of regulation;
- To promote networking, trough documents and ideas exchanges;
- Undertake and encourage research and consultancy activities in the public and private sectors;
- To train and develop manpower in the area of regulation in India and
- To provide a formal platform for exchange of information, research, training and experience among other regulators/ utilities/ other stakeholders.



Pillars of the proposed Institute of Chartered Regulatory Analysts (ICRA)

To accomplishment of the abovementioned objectives and goals ICRA will cover the following:

3.1. Academics:-

An interdisciplinary capacity building, including of techno-commercial, economic, finance & legal and managerial aspects involved in the industry, by awarding Degree/Diploma courses

3.**2. Training and Development:**

- Provide specific state-of-the-art training for practitioners.
- Increase access to energy regulatory information and experience around the world and promote opportunities for training.
- To provide a formal platform for exchange of information, research, training and experience among other regulators/ utilities/ other stakeholders.
- To organize policy events dealing with key regulatory issues;

3. **3. Research:-**

- To provide analytical and empirical research in the field of regulation;
- To promote networking, trough documents and ideas exchanges
- Undertake and encourage research and consultancy activities in the public and private sectors

3.4. **Advisory:**-

- Provide policy advisory to the government
- Provide advisory to the regulators
- Provide regulatory advisory to the clients
- To provide a platform for experience sharing amongst the regulators.

4. Members:

There will be four types of membership and would be from Regulatory Commissions, Central/State government departments, institutions and agencies entrusted with the duties of regulation and policy making.

4.1. Permanent Members: CERC, All SERCs, FOR, FOIR etc.

4.2. Associate members: State energy development agencies (GEEDA, MEDA), Utilities etc.

4.3. Affiliate members/collaboration: Educational Institutes, NTPC, TERI, NPTI etc.

4.4. Honorary Members: Experts and educationalist.

5. **Sources of candidates and scenario at the successful completion of the course**

Although the attempt will be made to make the course broad based, for those who wants to pursue a career in electricity regulation. The principal source of the candidates would be:

(a) Graduates aspiring to build career in regulatory domain, from open market
(b) Candidate sponsored by Power utilities
(c) Candidate sponsored by SERCs
(d) Government officials from Energy, Environment, Planning and Infrastructure, Industry & Finance Department.
(e) International, regional and private financial institutions
(f) Agencies, industries and academics involved in energy sector.

6. Financial Autonomy and Sustainability

Sustainability of the ICRA depends on the quality of manpower it produces and avenues created for their absorption in industries, regulatory institutes (Commissions) and research & academia. In this respect, the regulatory institutions (Particularly the affiliate institutes) should play a proactive role in giving preference / priority to the candidates completing the requisite courses.

At the initial stage, financial assistance may be provided by the member institutes till the institute achieves financial autonomy from the revenue earned from fees and research activities.

7. Course proposed:

7.1 **Long term Course**:

One year Degree/Diploma in Electricity Regulation: All related subjects such as electrical engineering and power systems, electricity regulations, Indian administrative law & business law, various acts related to electricity, finance and economy in the power sector and principles of general management as relevant to regulatory bodies. Broadly the following subjects will be covered :

- Power Sector in India – Historical background
- Electrical Engineering and Power System
- Electricity Act, 2003
- Regulations of SERCs, CERC Regulation and FORUM framework and Guidelines
- Indian Constitution, Administrative Vigilance, and Indian Evidence Act
- Economic
- Financial Management
- Legal Literacy, including business law
- General Management

The syllabus may consider the techno-commercial, economic, finance & legal and managerial aspects, scenarios across the world and assimilate the best practices across the globe. It shall give due importance to the use of technology in the day to day analysts and document all the methodologies and best practices that the ICRA may develop.

Batch Size:

Initially a batch of 25-30 candidates, at a single location, presently Mumbai can be considered.

Duration : One Year

7.2 **Short term Course/ Refresher course on specific topic. Such few Courses can be on:**

9.2.1 Concepts and processes in Electricity Regulation
9.2.1 Legal Literacy in Power Sector
9.2.3 Workshop on ARR and APR
9.2.4 Finance in Power Sector
9.2.5 Experience sharing workshop
9.2.6 Management Development Programmes
9.2.6 Open Access

Duration: 3-5 days

Batch size: 30-40 participants

7.3 **Part time Certificate Course**:

9.3.1 PGD in Electricity Regulation like being conducted by WTI (Six months on weekend days), Mumbai

9.3.2 20 week certificate in Economics in Power Sector like being conducted by by KJS (20 weeks on weekend days)

9.3.3 Six month certificate course in Financial Mgt. in Power Sector (Proposed) (Six months on weekend days)

The above mentioned part time courses can be conducted at different locations.

7..4 **Assistance to various Management** / Business School who are conducting MBA in Energy and Environment, like SIIB Pune.

8. **Award of certificate:**

After successful completion of examination of degree/diploma and part-time courses a certificate will be awarded by the ICRA. In this purpose, it may be prudent to enter into some sort of MOUs with FOR/FOIR.

9. **Nodal Agency**:

Maharashtra Electricity Regulatory Commission (MERC) can take this responsibility

Way Forward:

1. Take up this proposal to FOR/FOIR for their approval

2. Prepare a Project Report indicating:

- Historical perspective of Power Sector in India
- Present and Future Scenario
- Role of Regulators
- Need for setting up a dedicated Institute of Chartered Regulatory Analysts (ICRA)
- Recommendation:-

2.1. Types of courses to be conducted – Long term, Short term and their Curriculum etc..

2.2. Infrastructure required

- Seminar rooms
- Hostel and Guest House with full facilities
- Library and Reading Room
- Multipurpose Hall
- Office
- All types of Communication facilities
- Computer Lab- with all latest branded hardware , software , LAN and /Internet connectivity

2.3. Manpower Requirement:

- Office staff
- Resource / faculty personnel

3 Governing Council

4 Financial viability.

/ APPENDIX – "C" /

Concept Note for setting up a Regulatory Research Institute

1. About this document

This document constitutes a part of the assignment being carried out by Deloitte Touche Tohmatsu India Pvt Ltd (Deloitte) for the Forum of Indian Regulators (FOIR) on "Capacity Building Requirements for regulatory staff".

As part of the assignment, the Central Electricity Regulatory Commission, a member of FOIR, has requested M/s Deloitte team to prepare a concept note for the regulators to set up a Regulatory Research Institute on the lines of National Regulatory Research Institute (NRRI), United States of America (USA).

The background to this request is based on the dearth of qualified manpower available with the regulators in the country.

This note provides a framework for the regulators to consider in order to set up such an Institute in India.

Currently, Power Sector is the only sector in India that has State level regulatory bodies and has large scale requirements in terms of regulatory staff when considered across the country. Therefore, initially we would like to focus on the Power Sector and in due course of time we would like to add other domains as well in the RRI.

2. Background

The members of the Forum articulated the need for adequate manpower and capacity building of staff as well as of the external resources called upon by the Regulators. It was felt that there is acute shortage of regular staff in most Commissions because of the constraints of pay structure and other facilities. At the same time, there is a dearth of adequate number of consultants/ consulting firms to meet the requirements of all Regulatory commissions in the country.

Need for creating a central pool of external resources / consultants was felt by FOIR. Suggestions were also made for creation of a national level institute of regulatory experts where from the Regulatory Commissions can draw human resources to meet their specific job requirements.

M/s Deloitte was advised to examine the above needs and make suitable recommendations in this regard along with the study on "Assessing the Capacity Building Requirements of Regulatory Staff"

3. Other Institutes considered

In consideration of the above needs expressed by the Power sector regulators who are members of FOIR. M/s Deloitte considered the following institutes as case studies to develop a framework for setting up a national level institute that would consist of regulatory experts to support the regulators in terms of expertise and skilled manpower

whom the regulators can draw upon for their requirements (a central pool of experts) and also be a research body that would aid the regulators in framing policies and in taking decisions.

1. National Regulatory Research Institute (NRRI), USA
2. National Institute of Securities Markets (NISM), India
3. Institute of Chartered Accountants of India (ICAI) – Accounting Research Foundation (ARF), India

The rationale for choosing these institutes to build this framework is explained below:

1. NRRI is an Institute that focuses specifically on regulatory research and has on its team regulatory experts who carry out research to meet the needs of regulators in USA. NRRI was created by National Association of Regulatory Utility Commissioners (NARUC) which is an association of regulators which can be viewed as a parallel to FOR / FOIR.

2. NISM is a Trust which carries out research, conducts courses / programs, conducts examinations and also consists of experts in the field. It is an Institute set up by Securities and Exchange Board of India (SEBI), a regulator of the securities market and has evolved a mature Institute in terms of its capabilities

3. ARF is a Section 25 Company under the Institute of Chartered Accountants in India. The ICAI regulates accounting policies and ARF is a research body under the aegis of the ICAI.

4. Objectives and Functions of the proposed Institute

The Objectives of the proposed Regulatory Research Institute and therefore its functions or activities need to be defined. Based on the inputs from the other institutes, M/s Deloitte has compiled a list of possible objectives for the institute. The forum needs to a take a decision on which of these would be taken forward as the final objectives of the proposed institute.

The proposed Institute will have five pillars of its operations as its functions:

1. Research
2. Consulting services (pool of resources comprising of sector and functional experts to be drawn by the regulators and also to carry out consulting assignments for regulators)
3. Training
4. Knowledge management / repository of information
5. Knowledge exchange / capacity building

It may be noted that while each of the above functions will have significant dependence on each other, it is important to build separate accountability in the form of performance parameters for each of these functions.

The list of possible objectives and functions have also been classified into the above areas as provided below:

4.1 Research:

1. To identify regulatory challenges, both current and future by tapping the thinking of all regulators, forums / associations, consultants, industry stakeholders, government and government agencies and last but not the least, the public;

2. To produce an always existing, regularly refreshed research agenda, publicly available for comments;
3. To carry out research based on the changing needs and the challenges of the regulatory environment such as new interest groups, technological change, stakeholder expectations etc;
4. To create the new knowledge necessary to meet current and future regulatory challenges by performing the original research necessary to ensure the quality of regulations being framed by the Regulatory Commissions;
5. To carry out research that aids the regulators in effective policy making based on facts, objective analysis and independence by ensuring that the process of fact gathering, fact sifting, analysis and reasoning are neutral and transparent;
6. To carry out research whose outputs enable readers to reach their own conclusions;
7. To carry out research whose outputs also indicate effectiveness of prevalent regulations and regulators;
8. To undertake, promote and provide facilities for prosecuting core, fundamental, empirical, applied and other kinds of research work and projects and studies;
9. To undertake research projects in specialised areas on a fee basis;
10. To carry out multi-disciplinary research in collaboration with other research bodies and educational institutions;
11. To award, institute, and grant scholarships, and other forms of financial assistance for facilitating research work.

4.2 Consulting Services:

1. To respond quickly to emerging needs of the regulators and to provide them with expert resources for the regulators to operate effectively;
2. To assist the regulators with expert staff to address their short term resource requirements;
3. To provide inputs in formulation of policies and regulations and their implementation at macro and micro levels through a consultancy fee basis.

4.3 Training:

1. To facilitate access to existing knowledge by generously sharing regulatory knowledge with the framework of intellectual property rights;
2. To establish itself as an "academy" of international standard for the purpose of imparting, disseminating, and promoting knowledge related to regulatory aspects from different functional and sector perspectives;
3. To organise and sponsor training programmes, study courses, lectures, meetings, workshops, seminars, conferences and symposia either on its own or jointly or at the instance of other persons and entities;
4. To engage in capacity building among the regulators and its stakeholders based on research inputs.

4.4 Knowledge Management:

1. A specialised vehicle for developing a knowledge base which could be used by the institute and the nation;

2. Prepare and publish, either on its own or through or in collaboration with other persons and entities, papers, periodicals, magazines, books, journals;
3. Create and maintain a world-class store house of knowledge and information with a state of art electronic database and exchange facilities.

4.5 Knowledge Exchange & Capacity Building:

1. To network and collaborate with organisations of national and international repute, persons of eminence in the relevant field;
2. Serving as a role model for other institutions in and outside India to enhance the quality of interaction in within regulators and between regulators and their stakeholders.

5. The Composition and structure of other institutes studied as part of the study are as detailed under:

5.1 National Regulatory Research Institute, USA

5.1.1. About NRRI & Background

The need for an Institute arose from the fact that, regulators required products of research based on facts, objective analysis, and independence. Regulators were faced with new interest groups, accelerated technological change, higher customer expectations, lower investor patience, and growing instability in corporate and market structures etc. In addition, the state regulatory commissions were underfunded and understaffed relative to their responsibilities.

NRRI was founded in 1976 by the by the National Association of Regulatory Utility Commissioners (NARUC) and housed at The Ohio State University through 2007. NRRI's original design reflected dual demands: supporting commission policymaking while satisfying university standards.

As an independent, non-profit corporation supported by state commission dues payments, it will adhere to these historical requirements of political relevance and academic rigor.

5.1.2. Key activities

In order to ensure that the commissions are proactive and a step ahead, the NRRI focuses on the following four priority activities:

1. Identify regulatory challenges, both current and future: In each of the industry sectors electricity, gas, telecommunications, water, multi utility NRRI's section chiefs will lead a process of continuous issue identification. They will tap the thinking of the 50 state commissions (at the Commissioner and staff levels), NARUC committees, federal regulators, practitioners, legislative staff, academics and grantors. This process will produce, for each industry sector, an always existing, regularly refreshed research agenda, publicly available for comment on NRRI's web site

2. Create the new knowledge necessary to meet current and future regulatory challenges: Informed by the issue identification process, NRRI will perform and stimulate the original

research necessary to ensure the quality of utility regulation. NRRI will produce research products that enable readers to reach their own conclusions. The process of fact gathering, fact sifting, analysis and reasoning are neutral and transparent.

3. Democratization of access to existing knowledge: This refers to the process by which experts instil existing knowledge in non experts.

4. Opinion leadership on the quality of regulation: The regulatory community should focus as much on its own performance as it does on utility performance. NRRI's research reports and services will carry out NRRI's mission of regulatory effectiveness.

5.1.3. Accountability to the State Regulatory Community

NRRI's primary funding comes from voluntary dues paid by state commissions. Other funding comes from contract services (performed for federal, state and foreign governmental units, as well as private industry) and foundations. While corporately independent, NARUC and NRRI are linked in multiple ways to ensure accountability. NRRI's formation and its dues structure were approved by NARUC's Board of Directors. NRRI's bylaws were approved by the NARUC Board's Executive Committee. State commissioners constitute a majority of NRRI's Board. NARUC's Executive Committee receives regular reports on NRRI from its Second Vice President, who is an ex officio member of NRRI's Board. The NARUC Board's Education and Research Subcommittee evaluates NRRI's performance. NARUC's chief financial officer is an ex officio member of the audit committee of NRRI's Board.

5.1.4. Academic Ties

NRRI has been well served by its 30 year academic connections to The Ohio State University. Two NRRI studies issuing in early 2008 are authored by professors from OSU and from Ohio University. NRRI is in discussions with nine other universities about specific projects as well as broader relationships to involve professors and students in our work.

5.1.5. Organisation Structure

The top level structure of NRRI consists of a Board of Directors, research experts and in addition staff from the Eastern Interconnection States Planning Council (EISPC).
The EISPC staff consists of a Director and an economist. The research experts (Principals) are in the following disciplines:

- Telecommunications Research & Policy
- Natural Gas Research & Policy
- Water Research & Policy
- Research Analyst & Technology Manager

5.2 Accounting Research Foundation – ICAI, India

5.2.1. About ARF & Background

Accounting, financial reporting and auditing are considered to be the corner stones for ensuring probity and propriety in financial transactions, and achieving higher level of transparency in the management of Indian economy, trade and industry. Globalisation and

ever increasing need for better governance, in government and non-government sector, created an exigency for the ICAI to establish an academy of excellence in the fields of accounting, auditing, financial management and economics. ICAI is a regulatory body. Since the future of the profession depends much upon its ability to respond quickly to emerging needs of the users and the potential users of the services of the profession, a need was felt for a specialised vehicle for developing a knowledge base which could be used by the Institute and the nation as such. As a result, ICAI decided to create an academy which could meet the exigency created by the changing scenario of the Country.

The Institute of Chartered Accountants of India, set up under an Act of Parliament – The Chartered Accountants Act, 1949, set up ICAI Accounting Research Foundation (ICAI-ARF) in January 1999 as a Section 25 company – a core research body in the areas of accounting, auditing, capital market, fiscal policies, monetary policies and other related disciplines.

Since then, ICAI-ARF has undertaken many projects involving basic and applied research. ICAI ARF believes that proper research inputs are necessary condition for raising the level of corporate governance, management, accounting and financial reporting. High quality research projects would also, needless to mention, provide valuable inputs in formulation of policies and implementation thereof at macro and micro levels.

The vision of the ICAI Accounting Research Foundation is to develop quality pronouncements, documents, research paper on the subjects of accounting, auditing, etc.

5.2.2. Objectives

1. To establish itself as an "academy" of international standard for the purpose of imparting, disseminating, spreading and promoting knowledge learning, education and understanding in the fields of accounting, auditing, fiscal laws and policy, corporate and economic laws and policies, economics, financial management, financial services, capital and money markets, management information and control systems, management consultancy services and allied disciplines. It would be similar to Institutions like National Council for Applied Economic Research (NCAER), Tata Institute of Fundamental Research (TIFR) and similar premier institutions of research. The Foundation would focus on fundamental and applied research in the fields mentioned above. All the activities of the Foundation would be reinforcing and research shall be the nucleus of all the activities. For this purpose, the ICAI ARF shall:

a) Undertake, promote and provide facilities for prosecuting core, fundamental, empirical, applied and other kinds of research work and projects and studies. It may also consider networking and collaboration with the organisations of national and international repute, persons of eminence in the relevant field.

b) Organise and sponsor training programmes, study courses, lectures, meetings, workshops, seminars, conferences and symposia either on its own or jointly or at the instance of other persons and entities.

c) Prepare and publish, either on its own or through or in collaboration with other persons and entities, papers, periodicals, magazines, books, journals

d) Create and maintain a world-class store house of knowledge and information with a state of art electronic database and exchange facilities.

e) Support the technical activities of the Institute of Chartered Accountants of India by carrying out field studies and researches similar to those being carried out by Financial Accounting Standards Board (FASB) in the United States of America and the Accounting Standards Board (ASB) in the United Kingdom.

2. The Foundation will provide education, organise training programmes, courses and classes for academic vocational and competitive examinations

3. The Foundation will award, Institute, and grant scholarships, and other forms of financial assistance for facilitating research work

4. The Foundation will also undertake research projects in specialised areas sponsored by national and international bodies. It may also carry on researches in areas that have multi-disciplinary dimensions in collaboration with other research bodies and educational institutions

5. The Foundation will also support the international and regional level accountancy and auditing bodies like Confederation of Asian & Pacific Accountants (CAPA), International Federation of Accountants (IFAC), International Accounting Standards Committee (IASC), South Asian Federation of Accountants (SAFA) etc., in their technical activities.

5.2.3. Organisation and People

The Board of ARF consists of 11 Members– all distinguished people CAs
According to the vision document of ARF, the organisation is divided into three separate divisions, namely,

- Research Department
- Accounts and Compliances Department
- Administrative Department

ARF intends to appoint renowned faculty from within the country and possibly from abroad also, commensurate with other research bodies. The faculty would also undertake in-house research on subjects which are of importance to the accountancy profession or those referred to the ICAI ARF by the ICAI itself. The faculty would be involved in guiding the outside researchers, where required, throughout the period of the project with a view to ensure that the outcome of the result is of high quality.

The Board of ICAI – ARF has decided to Institute research chairs on the topics of high relevance, for example, Accounting and Accountability in Government, Corporate Governance, Financial Reporting, Corporate Social Reporting, Environmental Accounting, Audit Committees etc. The scope and horizon might vary depending upon the need and relevance of specific industry or the sector of the economy. To begin with, ICAI –ARF has decided to set up three chairs.

5.2.4. Research

Recognising the fact that considerable efforts are required to promote research in the field of accounting in India, ICAI ARF has taken a number of proactive measures for undertaking applied research, and carrying out research studies. The ICAI-ARF would further intensify promotional campaign for establishing direct contact with the Universities

and other bodies on the one hand, and reaching out to the potential researchers throughout the country, on the other.

The list of proposed research projects of contemporary national and international significance and proposed research projects for Post Doctoral degree would be further expanded, and expression of interest invited. In selected areas, ICAI ARF may directly undertake research. Possibilities for networking with research organisation of repute, within and outside India would be explored. Series of technical documents are proposed to be published and focussed training programmes organised for dissemination of technical knowledge and skills to various stakeholders.

Initiative for applied research in newer areas including already initiated with the office Department of Posts on the lines of those taken up under MCD, KMC and CGA projects would also be considered, because they provide good base for applied research.

Project related to implementation of International Financial Reporting System (IFRS) in NHPC Limited: To further promote the applied research, ICAI ARF has undertaken a project in NHPC Ltd. for implementation of IFRS in its Organization. A consultant team has been appointed by ICAI ARF to undertake the said project. The team comprises of a team leader, an assistant team leader and two more team members. The team has already submitted the project management report PMR to NHPC Lt. and now it is working on the Impact Analysis stage.

5.2.5. Exemptions

Recognition Of Scientific And Industrial Research Organisations (SIROS): ICAI Accounting Research Foundation has been recognized as a Scientific and Industrial Research Organisations (SIROs) under section 35(i) of the Income Tax Act 1961 by the Department of Scientific and Industrial Research under the scheme on Recognition of SIROs –1988.

5.2.6. Infrastructure aspects

The ICAI ARF had acquired land from Jaipur Development Authority for setting up of University. An amount of Rs.5,54,69,619/- was paid to Jaipur Development Authority by ICAI on behalf of ICAI ARF. The aforesaid project was later on dropped pursuant to the stand taken by the Ministry of Corporate Affairs, Government of India. Subsequently, the Government of Rajasthan had cancelled the land allotted to ICAI ARF for setting up of University and instead, allotted 25 acres of land to ICAI itself for setting up of Centre of Excellence at village Chosala, Tehsil Chaksu, District Jaipur at 50% of DLC rates. Accordingly, an amount of Rs. 2,84,19,519/- has been refunded by Jaipur Development Authority after adjusting Rs.70,00,100/- payable towards the land allotted to ICAI out of Rs.3,54,19,619/- paid towards the land earlier allotted to ICAI ARF. The balance amount of Rs.2 Crore along with the interest accrued amounting to Rs.39 Lakh was recoverable from Jaipur Development Authority as on 31st March 2009. In the month of June 2009, the amount of Rs.2.39 Crore has been received from Jaipur Development Authority. And the same amount has been given to ICAI towards Building Reserve Fund.

In order to strengthen the infrastructure base, ICAI ARF had taken an area of 20,000 sq. ft. in the Research Block, A-29, Sector-62, Noida, U.P. on sub-lease for a period of ten years from

the Institute of Chartered Accountants of India on annual lease rental of Rs. 5,000/- along with Rs.5,00,00,000/- (Rs.5 Crore only) payable towards the acquired built up space and the proportionate cost of construction, furniture and fixtures, installation and interiors thereof.

5.2.7. Commercial aspects

The income / revenue is primarily from research projects (Rs. 25.94 Lakh in FY 10) and subscription from members (Rs. 1,80,000 in FY 10), interest from existing reserves and Grant (Rs. 10 Lakh in FY10). As a not for profit company, the income is spent on the operating expenses or accumulated as reserves.

5.3 National Institute of Securities Markets, India

5.3.1. About NISM and background

National Institute of Securities Markets (NISM) is a public trust, established by the Securities and Exchange Board of India (SEBI), the regulator for securities markets in India. It is located in Navi Mumbai, India.

NISM seeks to add to market quality through educational initiatives. It is an autonomous body governed by its Board of Governors. An international Advisory Council provides strategic guidance to NISM.

Vision: To lead, catalyze and deliver educational initiatives to enhance the quality of securities markets

Mission: To engage in capacity building among the stakeholders in the securities markets through financial literacy, professional education, enhancing governance standards and fostering policy research

Belief: NISM envisions a catalytic role in promoting securities markets research and education, through:

- Close interface with policy makers and regulators
- Continuous knowledge creation and dissemination
- Enabling stakeholders to enhance knowledge, skill and awareness through research based inputs
- Serving as a role model for other institutions in and outside India to enhance the quality of interaction in securities markets.

NISM consists of six different schools as follows:

1. **School for Investor Education and Financial Literacy (SIEFL)**
   NISM is keen to enhance the levels of financial literacy in India. There are three programmes in NISM that address financial education:
   - Financial Literacy Programmes through schools: NISM intends to introduce financial education in schools through the Pocket Money program. Currently the program covers more than 4300 children from 32 schools across North, South and East India. The program is in the process of being introduced in the schools in the Western region.

- Investor Education through Web based delivery: NISM has introduce a dedicated website for Investor Education. The site is live in its Beta mode. Investorfirst.in aims to empower individuals with right knowledge and tools that will help them make wise investment decisions and long term wealth

2. **School for Certification of Intermediaries (SCI)**

   The School for Certification of Intermediaries (SCI) at NISM is engaged in developing certification examinations for professionals employed in various segments of the Indian securities markets. These examinations are being developed by NISM as mandated under SEBI (Certification of Associated Persons in the Securities Markets) Regulation, 2007.

3. **School for Securities Information and Research (SSIR)**

   SSIR undertakes several initiatives that seek to support research in securities markets.

   Network for Securities Markets Data:

   The Network for Securities Markets Data (NSMD), a project undertaken by the SSIR, will act as a single point access to Indian securities markets related data and will boost the research and analysis activities on Indian securities markets.

   Conference on Securities Markets 2008:

   SSIR conducted the prestigious Conference on Security Markets (ICICI) in December 2008. Nobel laureate, Prof. Robert Engle from New York University graced the occasion. The conference also witnessed participation of top academicians from across the world. Simultaneously, SSIR conducted the Research Workshops for faculty members and doctoral students.

   A number of commissioned research studies have also been undertaken.

4. **School for Regulatory Studies and Supervision (SRSS)**

   SRSS organizes executive education for officers of SEBI, stock exchanges, government officers, depositories, capital markets division of the ministry and participants of capital markets from other jurisdictions including SAARC nations and IOSCO nations.

   SRSS also initiated training programmes for Internal Auditors of Stock Brokers. SRSS organizes round table for mutual fund trustees.

   The school has also undertaken a project "Securities Market Simulator" which simulates the working of securities markets to facilitate training and research activities on Indian markets.

5. **School for Corporate Governance (SCG)**

   SCG conducts workshops and round table conferences in matters pertaining to Corporate Governance and has undertaken many initiatives for capacity building in the corporate governance space.

   SCG s strategy in fostering good corporate governance is three-pronged:

   - Generate a body of knowledge that is relevant and effective.

- Use the knowledge to inform the players about the principles/methods of good corporate governance
- Take recourse to demonstration effect to convince the corporate sector about need for good governance

In collaboration with Confederation of Indian Industry (CII) and Global Corporate Governance Forum (GCGF), SCG has organized Business and Investor Dialogue, Board Leadership Workshop, Round Table Conference on "Corporate Governance in India – A Reality Check" and Corporate Governance Workshop for Media Persons. The workshops for Board of Directors, to be held across cities in India, are expected to begin in November in Mumbai.

6. School for Securities Education (SSE)

Within the framework of the vision and mission of NISM, the role of SSE is to provide education preparing competent professionals who will serve the securities markets.

Securities Markets play an increasingly vital role in national and international economic development. The Indian securities markets have grown in depth, width and sophistication. Indian corporations are increasingly attracting domestic and foreign investment through listings in India and overseas. The Indian stock exchanges, clearing corporations, depositories, mutual funds, merchant bankers, analysts and stock brokers are expected to meet the enhanced expectations of various stakeholders. This necessitates a wide repertoire of knowledge and skills.

SSE is uniquely positioned to provide the necessary inputs and to create the new age securities markets professionals. With its proximity to policy makers and professionals in the securities markets community, the educational programmes from SSE are infused with this innovation and dynamism.

SSE is offering two certificate programmes as listed below:

- Post Graduate Programme in Securities Markets (PGPSM)
- Certificate in Financial Engineering and Risk Management (CFERM)

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