



**Idam Infrastructure Advisory Pvt. Ltd.**

**“Key Trends and Outlook of Indian Solar Market**  
**and**  
**Status of Solar RPO Compliance”**

*June 26, 2014*

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## *In this Presentation*

- Statutory framework for Renewable Purchase Obligation (RPO)
- Evolution of Solar Power Market in India
- RPO/SPO Compliance and Enforcement Framework
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  - SERC Order / Regulations
- Issues in SPO Compliance Monitoring and Enforcement
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# Statutory framework for Renewable Purchase Obligation (RPO)



## Electricity Act 2003

Section 86(1): The State Commission shall discharge the following functions, namely:

*“(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee”*

## National Action Plan on Climate Change (NAPCC)

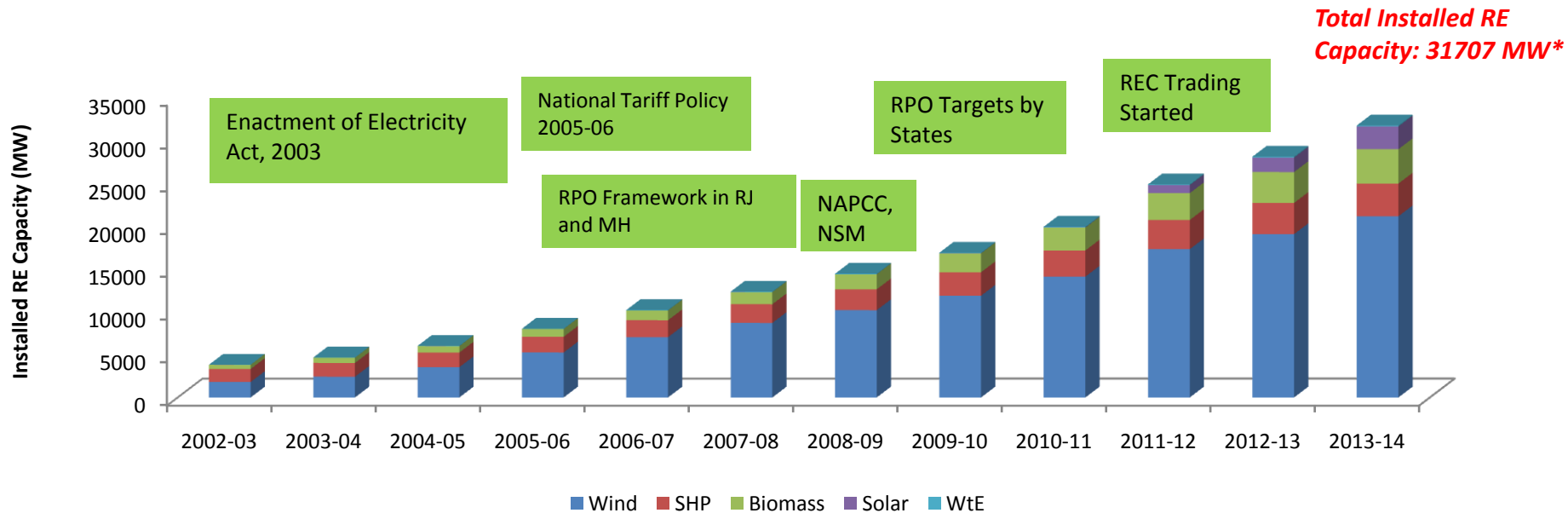
At National level for FY 2010, target for RE Purchase may be set at 5% of total grid purchase, to be increased by 1% each year for 10 years (15% by 2020)

## National Tariff Policy (NTP)

*“Clause 6.4(1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006”*

**In January 2011, MoP amended the NTP to require the SERCs to fix a percentage of energy purchase from solar power under the RPO regime (starting from 0.25% by 2013 to 3% by 2022)**

# Role of RPO in Growth of Renewable Energy Sector



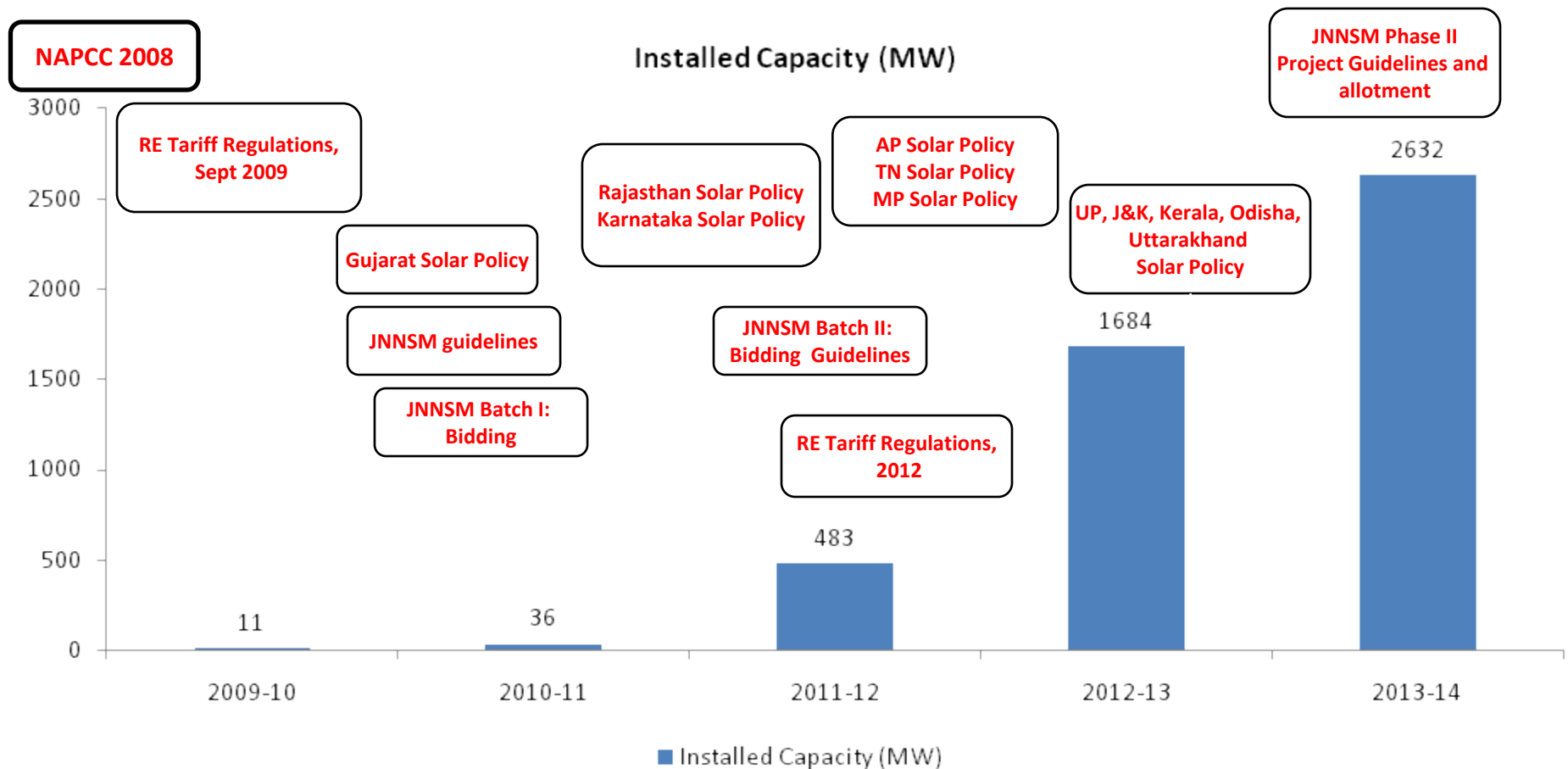
- Maharashtra and Rajasthan were among the initiators of RPO movement in the country
- By 2009-10, almost all the Indian states notified their RPO regulations
- The RE installed capacity has increased from close to 12 GW to 31 GW in the last six years with a CAGR of ~20%
- Compliance of RPO by all the obligated entities is a critical factor for sustainable growth of RE sector in India

\*Source: MNRE, as on March 31, 2014

# Evolution of Solar Power Market in India



- Solar Power Market has grown from 11 MW in 2010 to 2632 MW by April 2014
- 13 Indian States have notified their Solar Policies (cumulative capacity addition target of >15 GW by 2020); JNNSM target: 20 GW by 2022



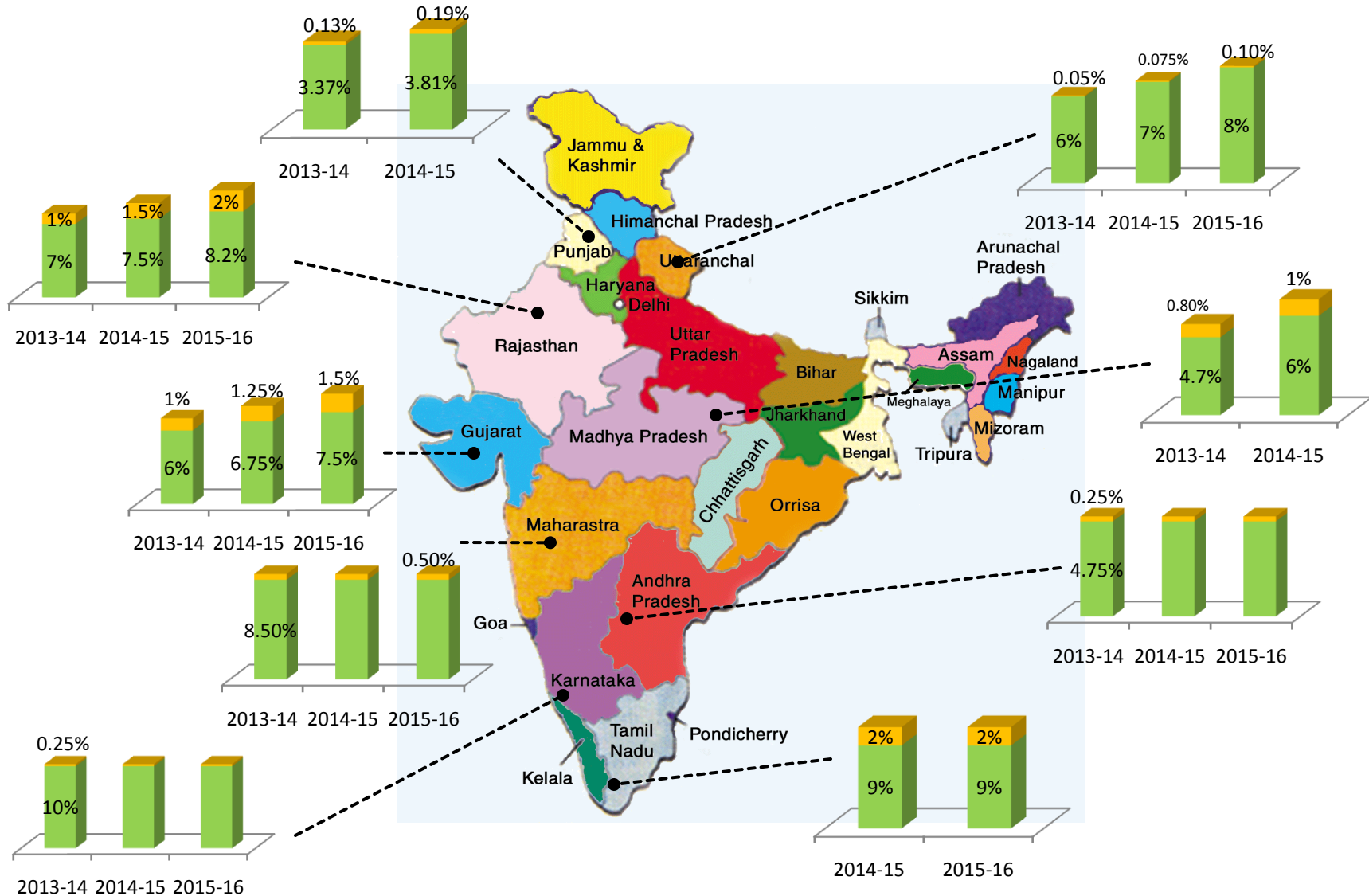
# State's Regulatory / Policy Initiatives in Solar Sector



Key Initiatives / State →	AP	KR	MP	TN	RJ	MH	GJ
Solar tariff Order	x	✓	✓	✓	✓	✓	✓
<b>Solar RPO Orders / Regulations</b>	✓	✓	✓	✓	✓	✓	✓
REC Framework	✓	✓	✓	✓	✓	✓	✓
Solar Policy	✓	✓	✓	✓	✓	x	✓
Concessional OA charges	x*	✓	✓	✓	✓	✓	✓
Banking (3 <sup>rd</sup> party sale)	✓	✓	✓	✓	✓	✓#	x
Net Metering Framework	✓	x	x	✓	x	x*	x

\*In Progress, #charges on per unit basis

# RPO Trajectory: A Glimpse



- FOR notified draft model Regulations in October 2009 for SERCs under Section 86(1)(e) in which FOR proposed 'Effect of Default'
- **Effect of Default**
  - 1) If the obligated entities does not fulfill the renewable purchase obligation as provided in these regulations during any year and also does not purchase the certificates, **the Commission may direct the obligated entity to deposit into a separate fund, to be created and maintained by such obligated entity, such amount as the Commission may determine on the basis of the shortfall in units of RPO and the forbearance price decided by the Central Commission**

**Provided that:**

- Fund so created shall be utilised, as may be directed by the Commission, for purchase of the certificates.
- Commission may empower an officer of the State Agency to procure from the Power Exchange the required number of certificates to the extent of the shortfall in the fulfillment of the obligations, out of the amount in the fund.



(2) Where any obligated entity fails to comply with the obligation to purchase the required percentage of power from RE sources or the RECs, it shall also be liable for penalty as may be decided by the Commission under **section 142 of the Act**

**Provided that** in case of genuine difficulty in complying with the RPO because of non-availability of certificates, the obligated entity can approach the Commission for carry forward of compliance requirement to the next year

- **Designation of State Agency by SERCs:**

One of the function of State Agency would be:

*The State Agency shall submit **quarterly status** to the Commission in respect of compliance of renewable purchase obligation by the obligated entities in the format as stipulated by the Commission and may suggest appropriate action to the Commission if required for compliance of the RPO.*

## Section 142 of the Act :

### ***142. Punishment for non-compliance of directions by Appropriate Commission***

*In case any complaint is filed before the Appropriate Commission by any person or if that Commission is satisfied that any person has contravened any of the provisions of this Act or the rules or regulations made there under, or any direction issued by the Commission, the Appropriate Commission may after giving such person an opportunity of being heard in the matter, by order in writing, direct that, without prejudice to any other penalty to which he may be liable under this Act, such person shall pay, by way of penalty, which shall not exceed one lakh rupees for each contravention and in case of continuing failure with an additional penalty which may extend to six thousand rupees for every day during which the failure continues after contravention of the first such direction.*

### Section 146 of the Act:

#### ***146. Punishment for non-compliance of orders of directions***

*Whoever, fails to comply with any order or direction given under this Act, within such time as may be specified in the said order or direction or contravenes or attempts or abets the contravention of any of the provisions of this Act or any rules or regulations made there under, shall be punishable with imprisonment for a term which may extend to three months or with fine which may extend to one lakh rupees, or with both in respect of each offence and in the case of a continuing failure, with an additional fine which may extend to five thousand rupees for every day during which the failure continues after conviction of the first such offence:*

The provisions under section 142 and 146 are not adequate and have not been explored

# Function of State Agencies as defined by SERCs



State	State Agency	Function of State Agency
Chhattisgarh	CREDA	<ul style="list-style-type: none"> <li>(a) Compilation of quarterly RPO compliance data and publishing on website</li> <li>(b) RPO compliance report to CSERC</li> <li>(c) CPPs/OA consumers need to submit their consumption &amp; RE purchase information to SA</li> </ul>
Gujarat	GEDA	Yearly consumption and RPO compliance report to GERC
Jharkhand	JREDA	Quarterly RPO compliance report to GERC in a format as stipulated by JSERC
Karnataka	SLDC	Quarterly RPO compliance report to KERC
Maharashtra	MEDA	<ul style="list-style-type: none"> <li>(a) Collection of information of OE and calculate RPO compliance data on regular basis</li> <li>(b) Monthly RPO compliance report on its website</li> <li>(c) Quarterly RPO compliance report to MERC</li> </ul>
Rajasthan	RRECL	<ul style="list-style-type: none"> <li>(a) Collection of information of OE and calculate RPO compliance data on regular basis</li> <li>(b) Quarterly RPO compliance report on website and to RERC</li> </ul>

## Effect of Default as specified by SERCs

State	Effect of Default
Chhattisgarh	(a) The Commission may direct the Obligated entity to deposit into a separate fund, to be created and maintained by such Obligated entity, such amount as the Commission may determine on the basis of the shortfall in units of renewable purchase obligation and the forbearance price decided by the Central Commission
Gujarat	
Jharkhand	(b) Distribution Licensee shall be in breach of its license condition if it fails to deposit the amount directed by the Commission within 15 days of the communication of the direction
Karnataka	(c) Liable for penalty as may be decided by the Commission under section 142 of the Act
Rajasthan	(d) in case of genuine difficulty in complying with the renewable purchase obligation because of non availability of Certificates, the Obligated entity can approach the Commission for carry forward of compliance requirement to the next year
Madhya Pradesh	
Maharashtra	The State Commission may direct the OE to deposit into a separate fund, to be created and maintained by such Obligated Entity, such amount as the Commission may determine on the basis of the shortfall in units of RPO, RPO Regulatory Charges and the Forbearance Price decided by the Central Commission; separately in respect of solar and non-solar RPO. Provided that <b>these Charges shall be equivalent to the highest applicable preferential tariff during the year for solar or non-solar RE generating sources</b> , as the case may be.

# Summary of State Initiatives on RPO Compliance



	Maharashtra	Gujarat	Chhattisgarh	Madhya Pradesh	Uttarakhand	Rajasthan
CPP/OA consumers recognized as OEs in RPO regulations	Y OA: 1 MVA and above CPP: 5 MW and above	Pending litigation CPP: 5 MW and above	Y CPP: 1 MW and above	Y	Y	Y CPP: 1 MW and above
Suo-moto initiatives / order by SERC on RPO compliance monitoring	Y	Y	N	Only for Solar RPO (order on petition)	Y	N
Penalty on OEs for non compliance of RPO	N	N	N	N	Show cause notice to OEs	N
SNA initiatives for RPO compliance data collection and reporting	Y	N	Y	N	Y	Y
Standard forms / formats for RPO compliance data collection	Y	N	Y	N	Y	N

## Challenges

- No guiding principle for specification of targets by SERCs, no uniformity in specification of targets
- SPOs specified by SERCs do not add up to a national level target
- States who have fulfilled their SPO are not exploring beyond the SPO targets. Thus, minimum SPO targets are actually acting as Ceiling Targets

## Way Forward

1. Guiding principle for determination of long term SPO at national level to be formulated
2. Incentives for States having progressive SPO trajectory and achieving them

## Challenges

- No uniform RPO monitoring and enforcement (M&E) mechanism in place
- Ambiguity around operationalising penalty for non-compliance of SPOs for CPP/OA
- Monitoring/reporting framework for compliance of SPO regulations is inadequate
- Carry forward of SPO is not helping and making Obligated Entities non serious for SPO compliance

## Way Forward

1. Amendments to EA'03 to address following:
  - a. Stringent penal provisions to *ensure compliance* of RPO
  - b. Solar REC to be recognized as statutory instrument rather than regulatory instrument
  - c. Enable SPO applicability on open access and captive user
2. FOR in consultation with MNRE should formulate guidelines for SPO/RPO M&E





## Challenges

- SPO for Open Access and Captive consumers not clearly covered in EA'03
- CPP / OA consumers are not complying with SPO regulations
- No framework for identification of obligated entities among the CPP / OAC
- No framework for collection and verification of RPO compliance data from CPP / OAC

## Way Forward

1. MNRE should formulate guidelines for SPO/RPO M&V for CPP/ OAC
2. Ensuring involvement of SLDC/STUs and Electrical Inspectorate for tracking CPP/OA entities
3. FOR should formulate model framework for RPO compliance reporting from CPP and OACs

# Discussion Agenda 4 – Strengthening of Solar REC Framework



## Challenges

- Obligated entities are not purchasing solar RECs to meet their SPO as floor price of solar RECs (Rs 9300/MWh) is considered high in current market scenario
- Majority of States allowed carry forward of SPOs starting from FY-11 instead of invoking the penalty (forbearance price, purchase of REC) clause of RPO Regulations
- Solar REC inventory is building up rapidly
- Vintage Solar projects will not be able to survive once the floor price goes down

## Way Forward

1. Need for strengthening and modifying mechanism for Solar RECs
2. RECs should be recognized as statutory instrument for meeting RPO/SPO
3. Long term price visibility of RECs
4. Vintage multiplier on solar RECs for vintage solar projects

- **Strengthening of Solar RPO framework is the need of the hour.**
  - Future growth of solar market is critically dependent upon long term clarity and certainty about SPO regulations and its enforcement.
- **Institutional strengthening and capacity building is necessary to ensure compliance of SPO by Obligated Entities**
  - Capacity Building of State agencies responsible for Compliance monitoring and reporting is necessary.
  - FOR to evolve uniform framework for the purposes.
  - MNRE to support initiatives of SNAs.
- **Regulatory initiatives needed**
  - Modification and strengthening of solar REC framework is necessary.
  - Enforcement provisions incl. amendment to Act/Tariff Policy, if necessary, should be brought in.

# Thank You



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