

RPO-REC Framework:
Emerging Challenges and way forward

Background Presentation

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Objective of the study

- Increase our collective understanding of the challenges and issues involved in RPO-REC framework in India.
- Evaluate RPO compliance and the REC mechanism against its stated objectives and its effectiveness in the Indian context by critically examining the performance over the past two years.
- To enable a discussion on the evolution and future of the RPO-REC framework.

Presentation Outline

- Renewable Purchase Obligations (RPO)
 - Policy-legal guiding principles
 - RPO targets and compliance
 - Observations
- Renewable Energy Certificates (REC)
 - REC price band evolution
 - A critical look back at the past performance
 - Observations
- RPO and REC Framework – Emerging Challenges

Renewable Purchase Obligation (RPO)

Focusing on six RE rich states (*i.e. Tamil Nadu, Gujarat, Rajasthan, Maharashtra, Karnataka and Andhra Pradesh*) which account for over 85% of the installed RE capacity

Policy-legal guiding principles for RPO (1/2)

Guideline	Suggested measure	Reference
RPO percentage	SERCs to specify certain percentage of total energy consumption from renewables in the area of distribution licensee	Section 86(1) (e) EA 2003, NTP
RPO applicability to OA/CPP	SERCs to specify certain percentage of total energy consumption from renewables in the area of distribution licensee. This suggests RPO framework is also applied to OA and CPPs and not distribution licensee alone	Section 86(1) (e) EA 2003, NTP, Rajasthan High Court Judgement 2012
Impact on retail tariff	Appropriate Commission to fix a minimum percentage for purchase of energy from RE sources taking into account their availability in the region and its impact on retail tariffs.	NTP
Solar RPO percentage	SERCs to reserve a minimum percentage for purchase of solar from the date of notification of the official gazette which will go up to 3% by 2022	Amendments to Clause 6.4 (1) of NTP on 20th Jan 2011
RE certificates	Authorities to issue renewable certificates , which are tradable to enable utilities which are falling short to meet RPO	Clause 4.2.2 (ii), NAPCC

(2/2)

Increase in RPO targets	Progressively, the share of electricity from non-conventional sources would need to be increased as prescribed by SERCs	Clause 5.12.2 NEP
	RE injection into the national grid has to be set at 5% at the beginning of FY 2009–10 and to be increased at 1% per annum in the subsequent years to reach 15% at the end of FY 2019–20.	NAPCC
	NTP provision for solar RPO recommended at minimum of 0.25% in 2012 increasing to 3% by 2022.	Amendments to Clause 6.4 (1) of NTP
Higher RPO than NAPCC	SERCs may set higher percentages than this minimum at each point in time.	NAPCC
RPO compliance verification	Central and State Governments may set up a verification mechanism to ensure that the renewables based power is actually procured as per the applicable standard (DMRPS or SERC specified).	Section 4.2.2 NAPCC
Penal provisions	Penalties for non-compliance of directions by Appropriate Commission	Section 142 EA 2003, Section 4.2.2 NAPCC
RPO on end consumer	Mandating solar RPO on certain consumer categories	TN Solar Policy 2012, Directive to TNERC, section 108

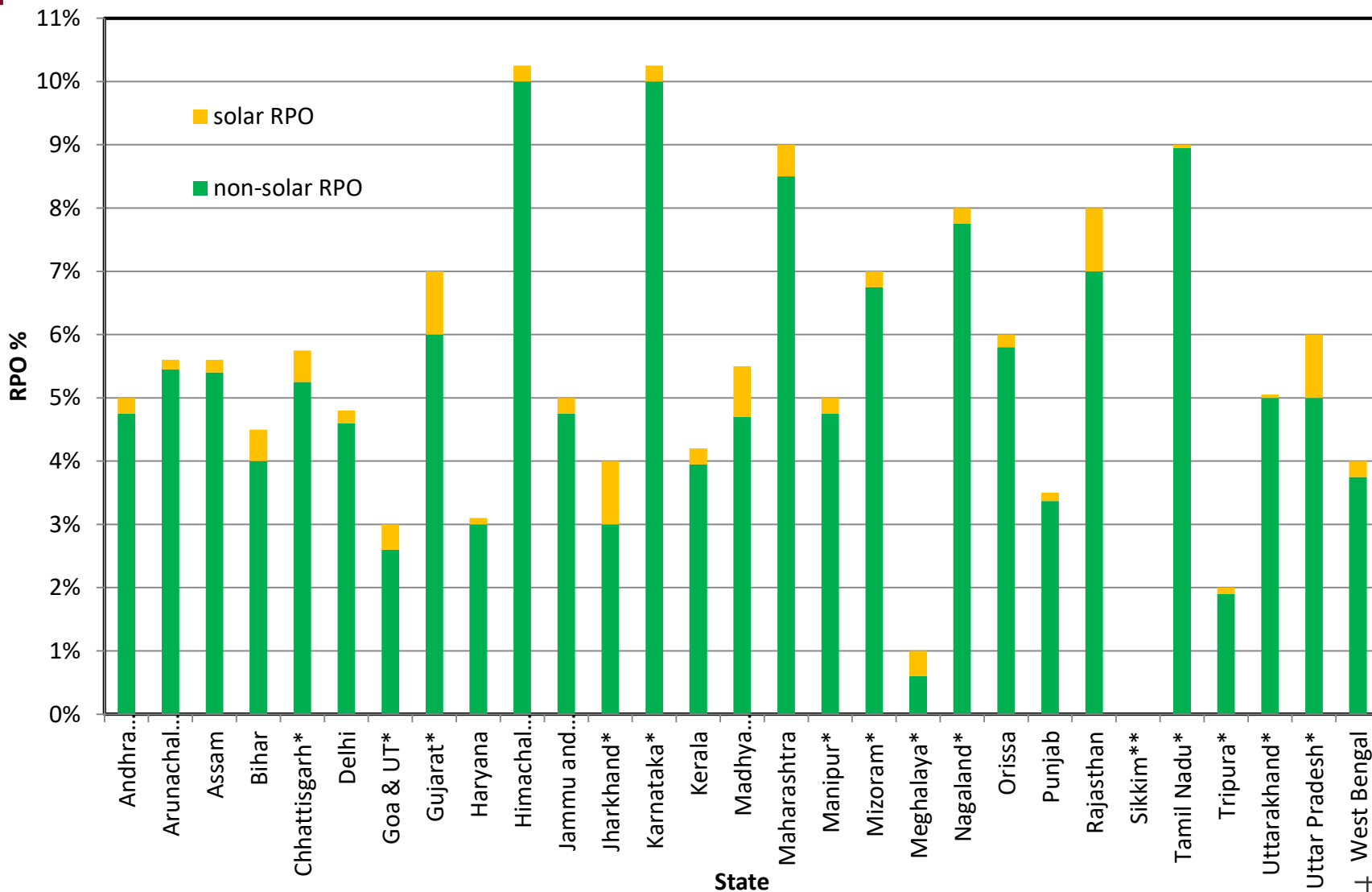
Summary of regulations

Parameter	State					
	Guj	Raj	TN	Mah	Kar	AP
State RPO regulations in place	Y	Y	Y	Y	Y	Y
Minimum RPO specified	Y	Y	Y	Y	Y	Y
RPOs also applicable to OA & CPPs	Y	Y	Y	Y	Y	Y
Solar specific RPO targets	Y	Y	Y	Y	Y	Y
REC allowed as RPO compliance mechanism	Y	Y	Y	Y	Y	Y
RPO compliance verification in place	Y	Y	Y	Y	Y	Y
RPO non-compliance penal provisions in place	Y	Y	Y	Y	Y	Y
Higher than NAPCC RPOs specified	N	N	Y	N	Y	N
Utility specific RPO	N	N	N	N	Y	N
Long term RPO targets specified	N	N	N	Y	N	Y
Gradually increasing RPO trajectory for future	Y	N	N	N	N	N

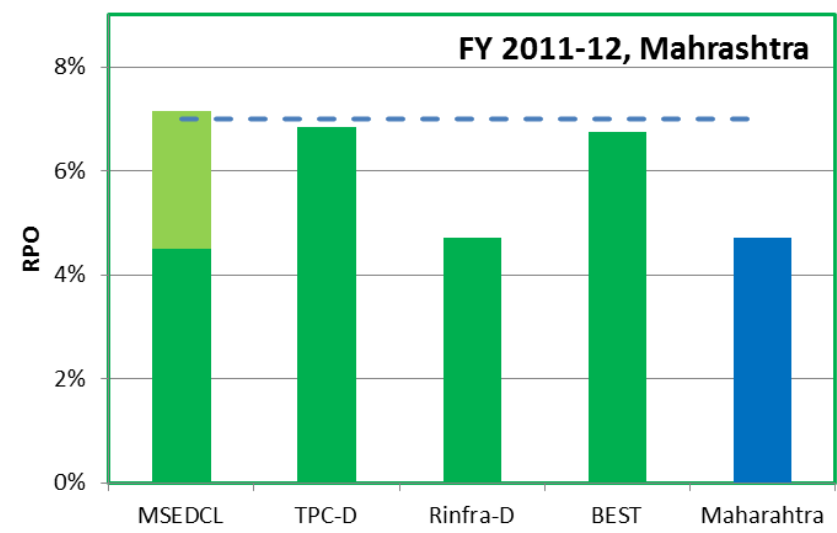
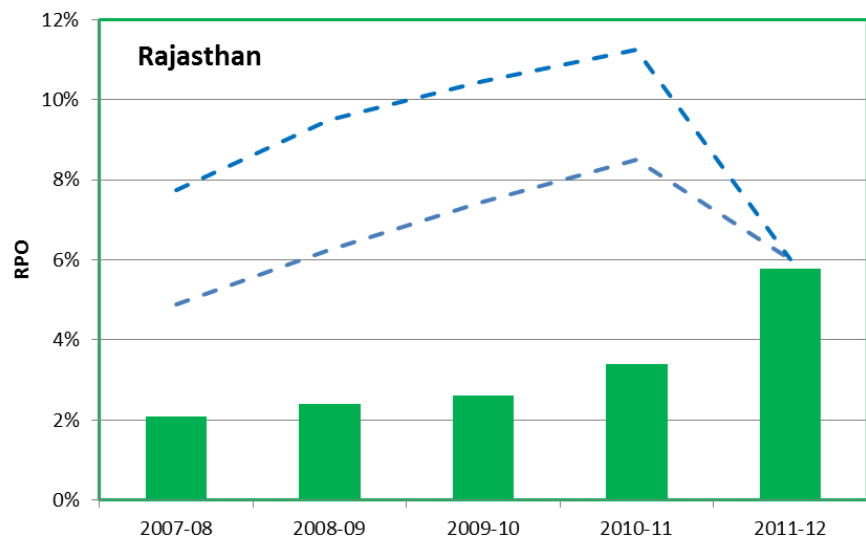
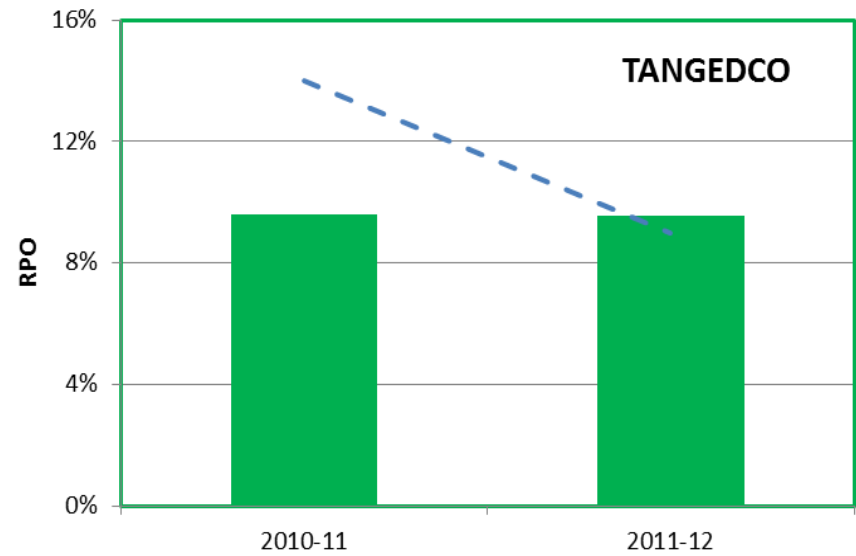
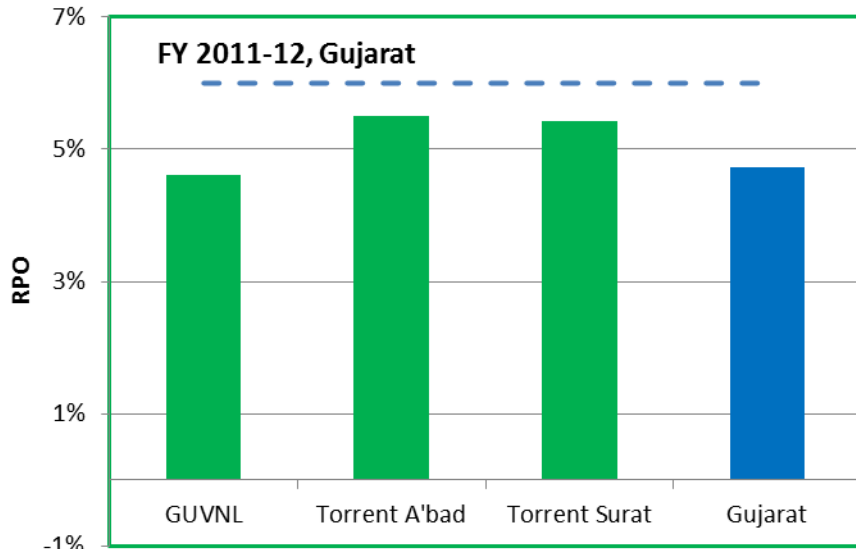
Summary of regulations in six states

- **Increase in RPO targets:** Only Maharashtra and Andhra Pradesh have slightly long term RPOs while Gujarat is only state with increasing RPO.
- **Higher than NAPCC targets:** Only Tamil Nadu and Karnataka
- **Retail tariff Impact:** Not explicitly considered
- **Other:** Karnataka has utility specific RPOs; TNERC has stipulated end consumer SPO (directive under section 108)

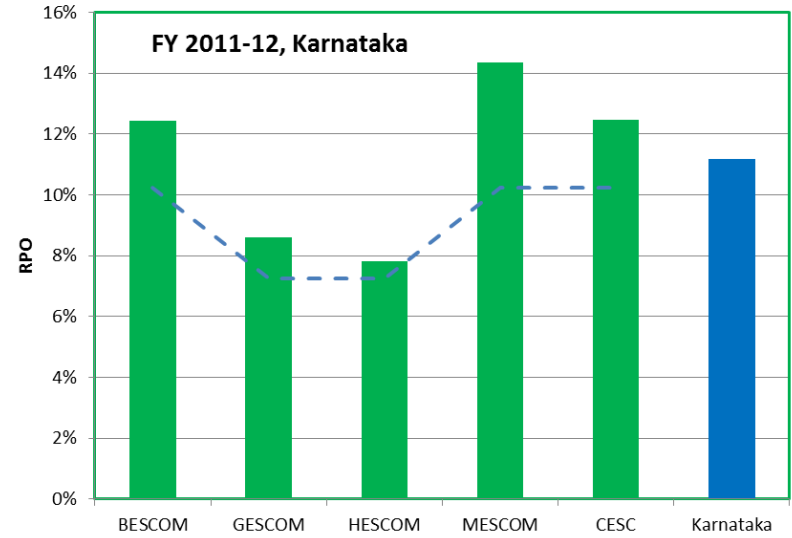
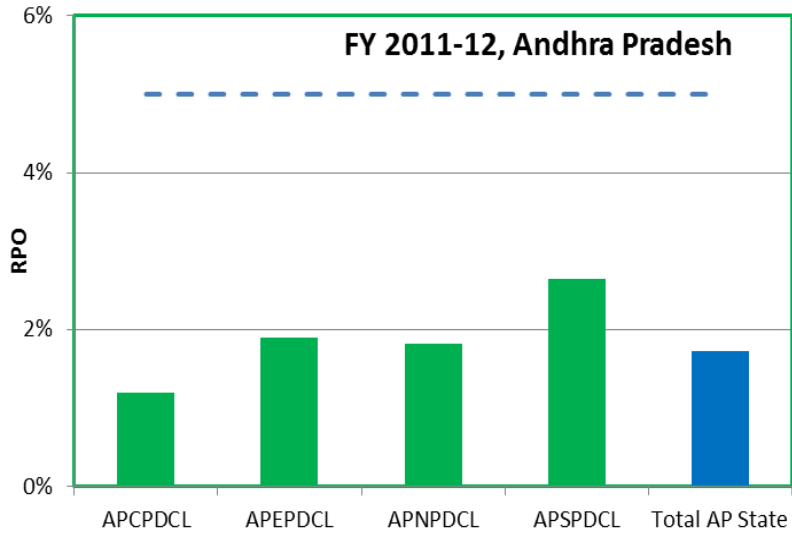
State wise solar, non-solar RPO for 2013-14



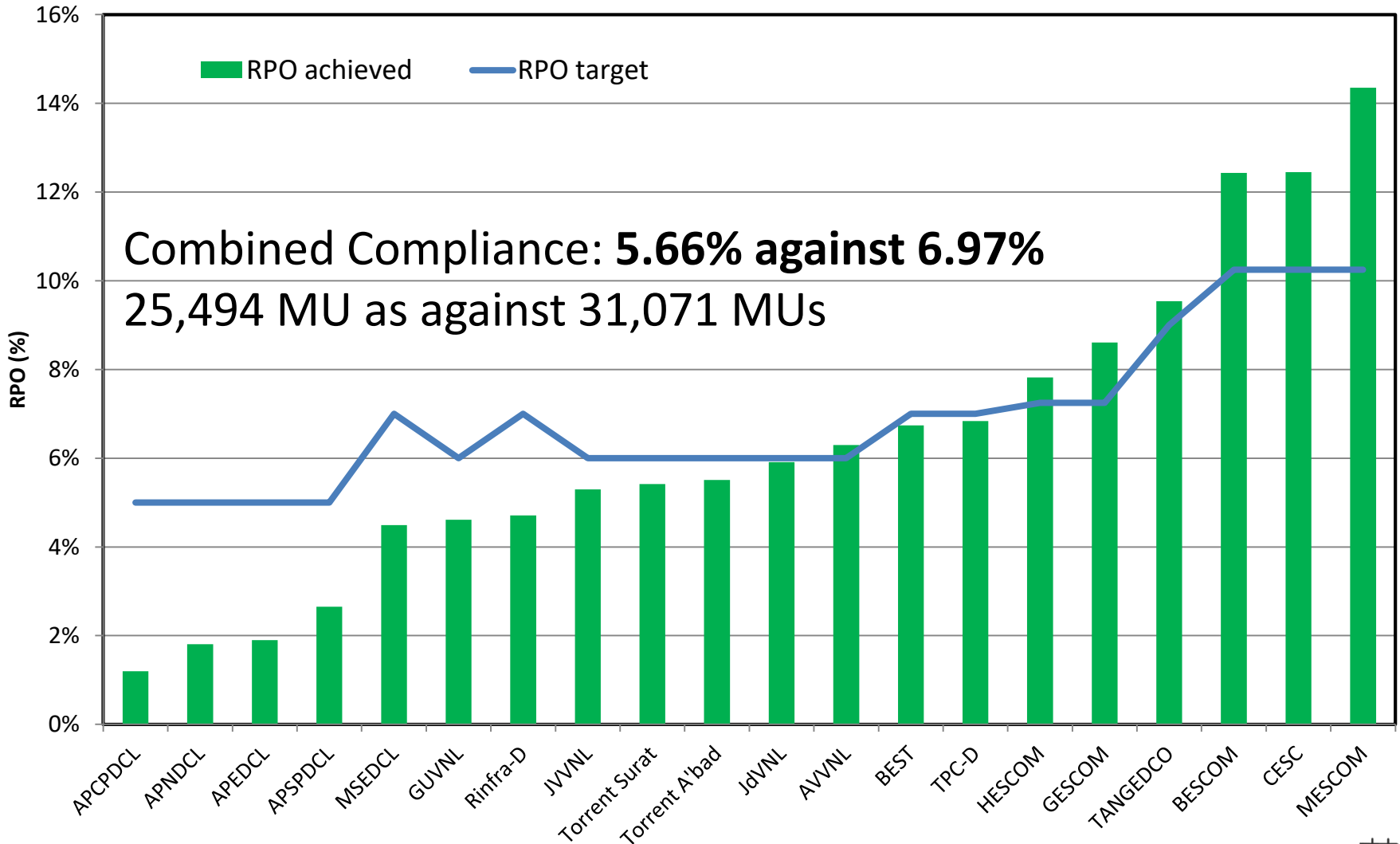
RPO Compliance



RPO compliance contd



RPO compliance Summary, Utilities, 2011-12

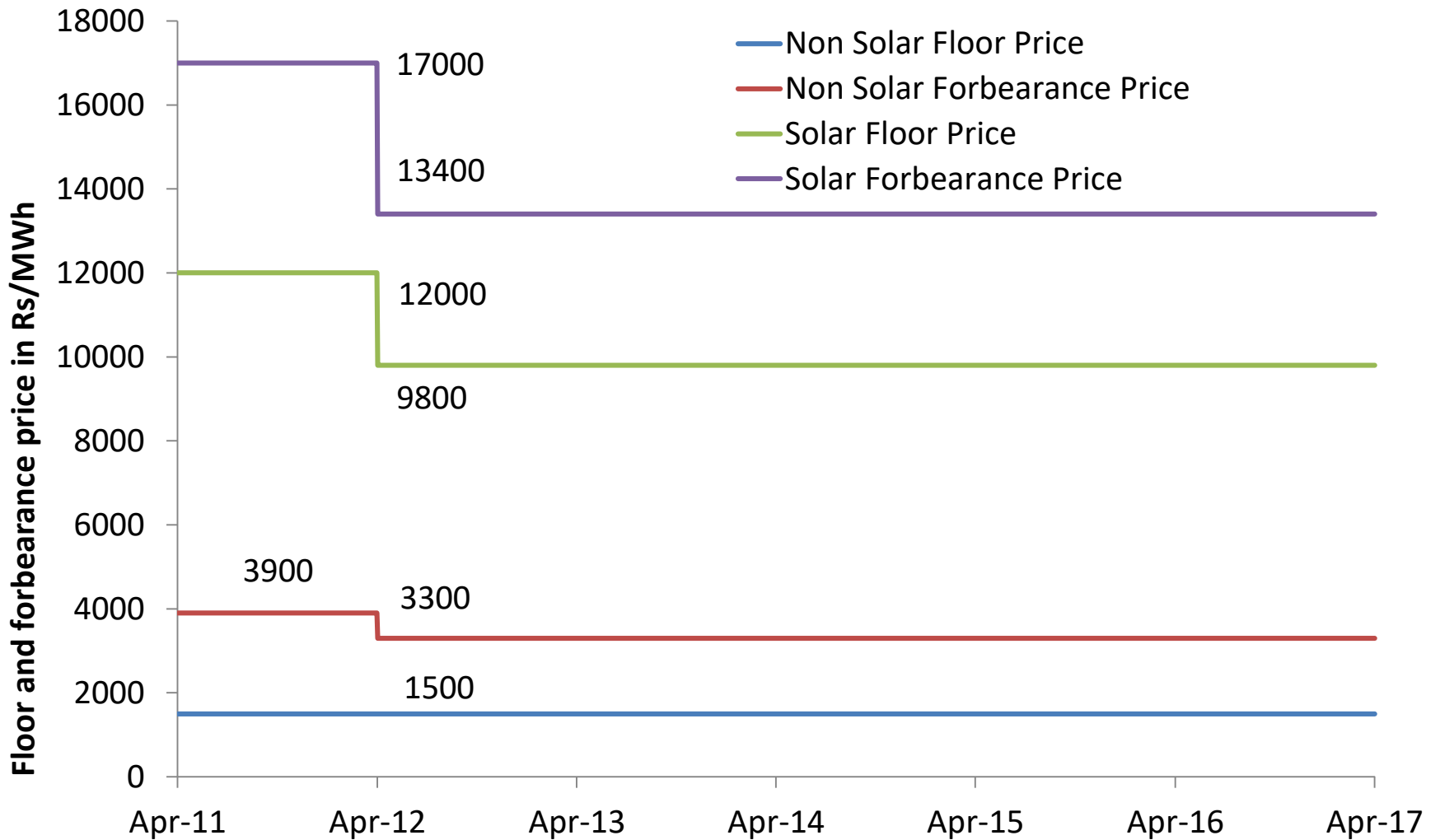


Observations

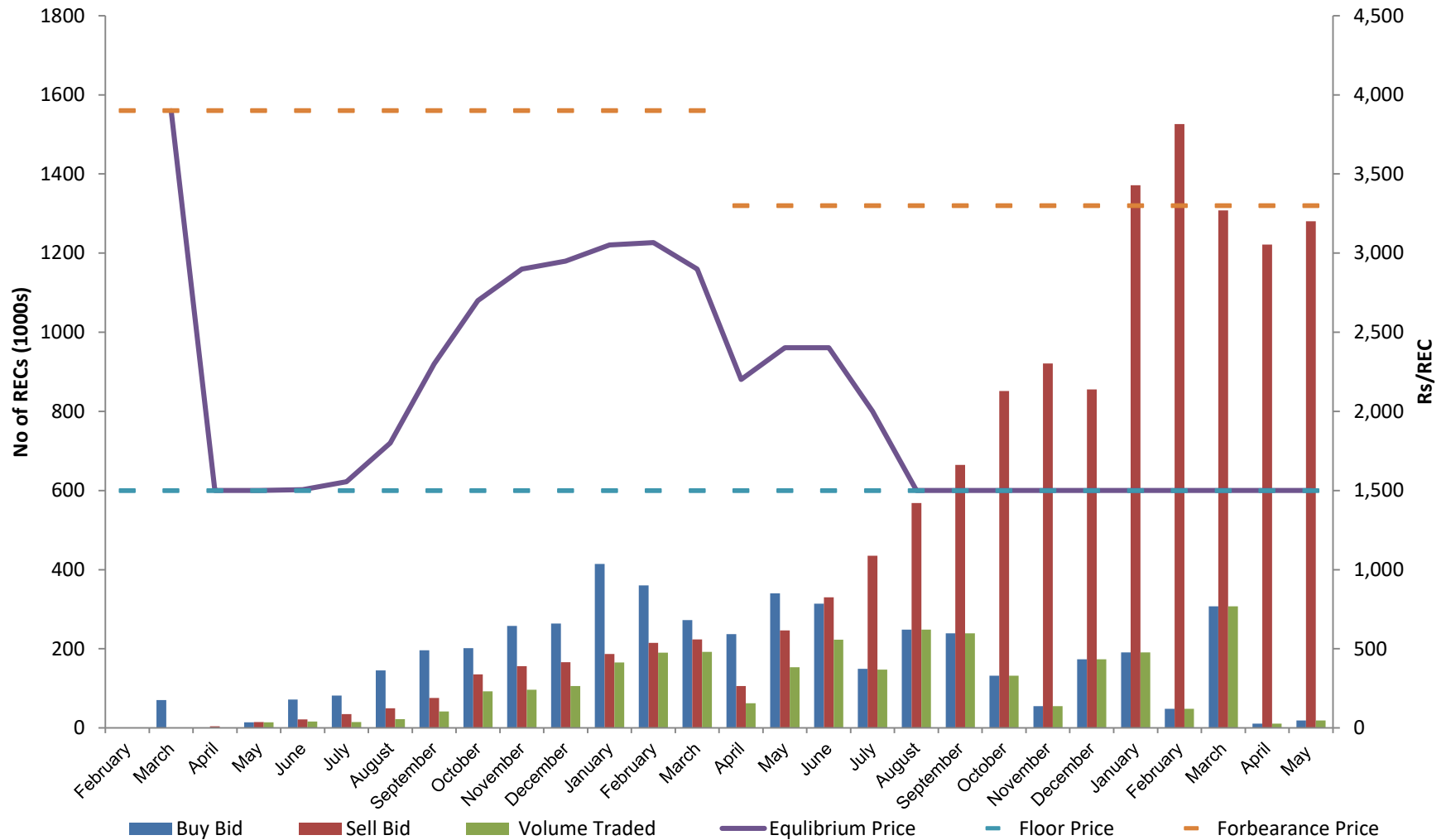
- Share of RE increasing in the country;
 - 1.47% (2006-07), 3.7% (2008-09); 6.4% (2012-13).
 - 5% rise in 6 yrs, nearly in line with NAPCC though slightly lagging.
- Combined RPO compliance in six states for FY 11-12 is 82%.
 - However wide variation within obligated entities
 - Penal provisions not enforced (waive/carry forward/reduce)
 - Weak M&V implementation; OA/CPP compliance not known
 - Methodological issues (inclusion of wheeled RE ?)
- Challenges of continuous increase in RPO over medium-long term
 - Need for reliable and up to date resource maps
 - Equitable sharing of incremental costs
 - Reliable grid integration of RE and associated costs

Renewable Energy Certificate (REC)

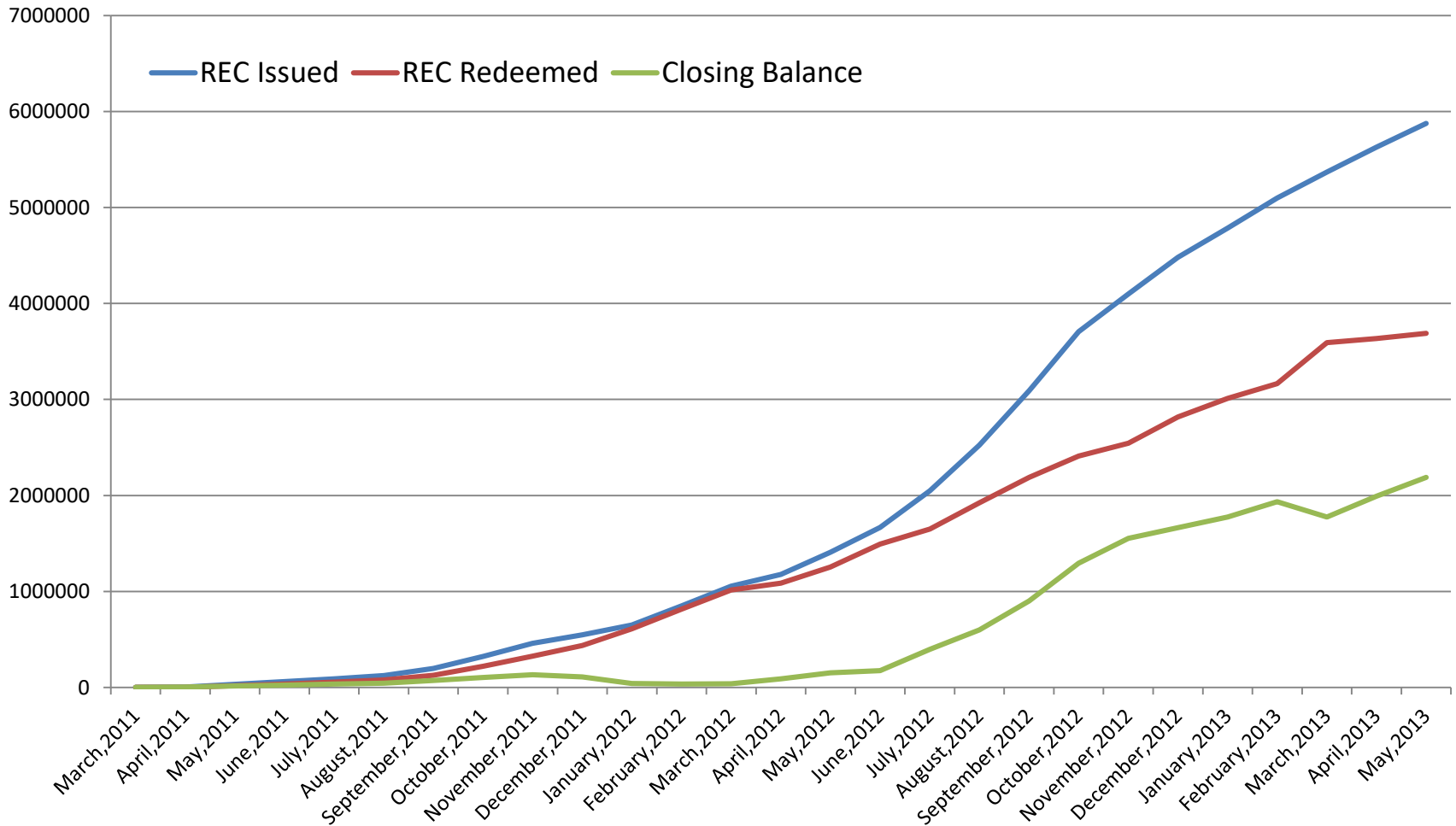
Evolution of REC Price Band



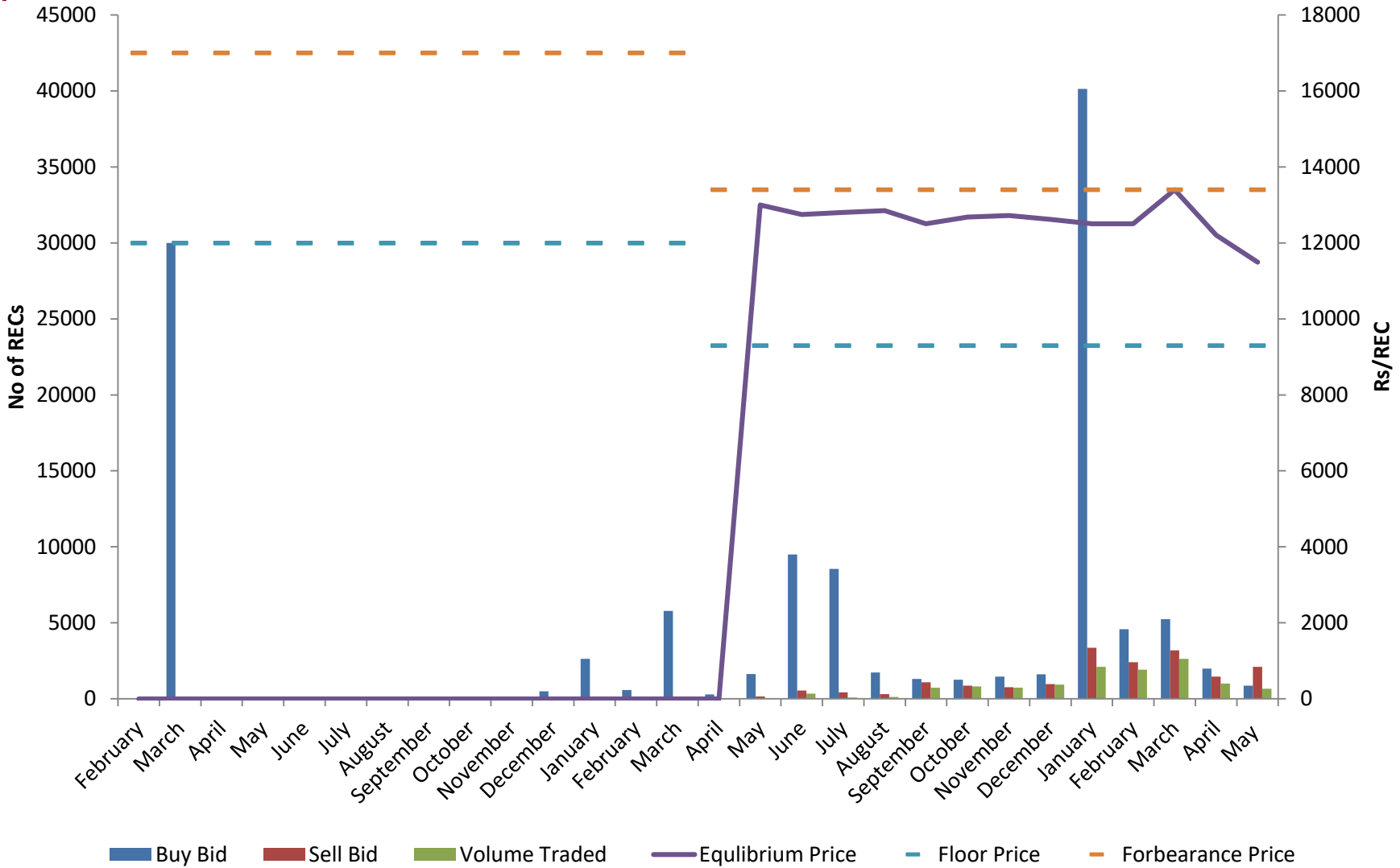
Non Solar REC Trade (IEX), Feb 11 - May 13



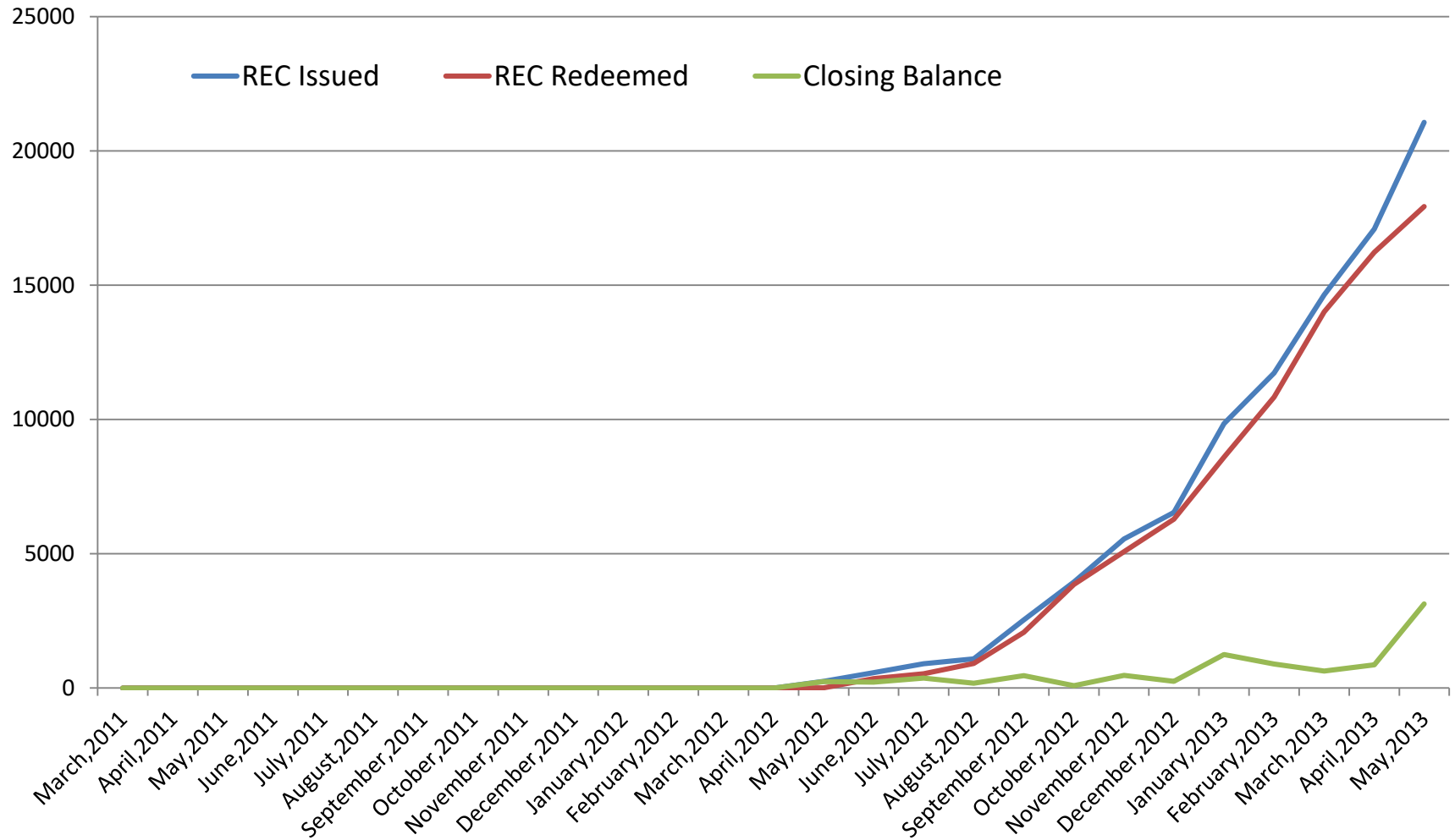
Non- Solar RECs Issued, redeemed and closing balance from March 2011-May 2013



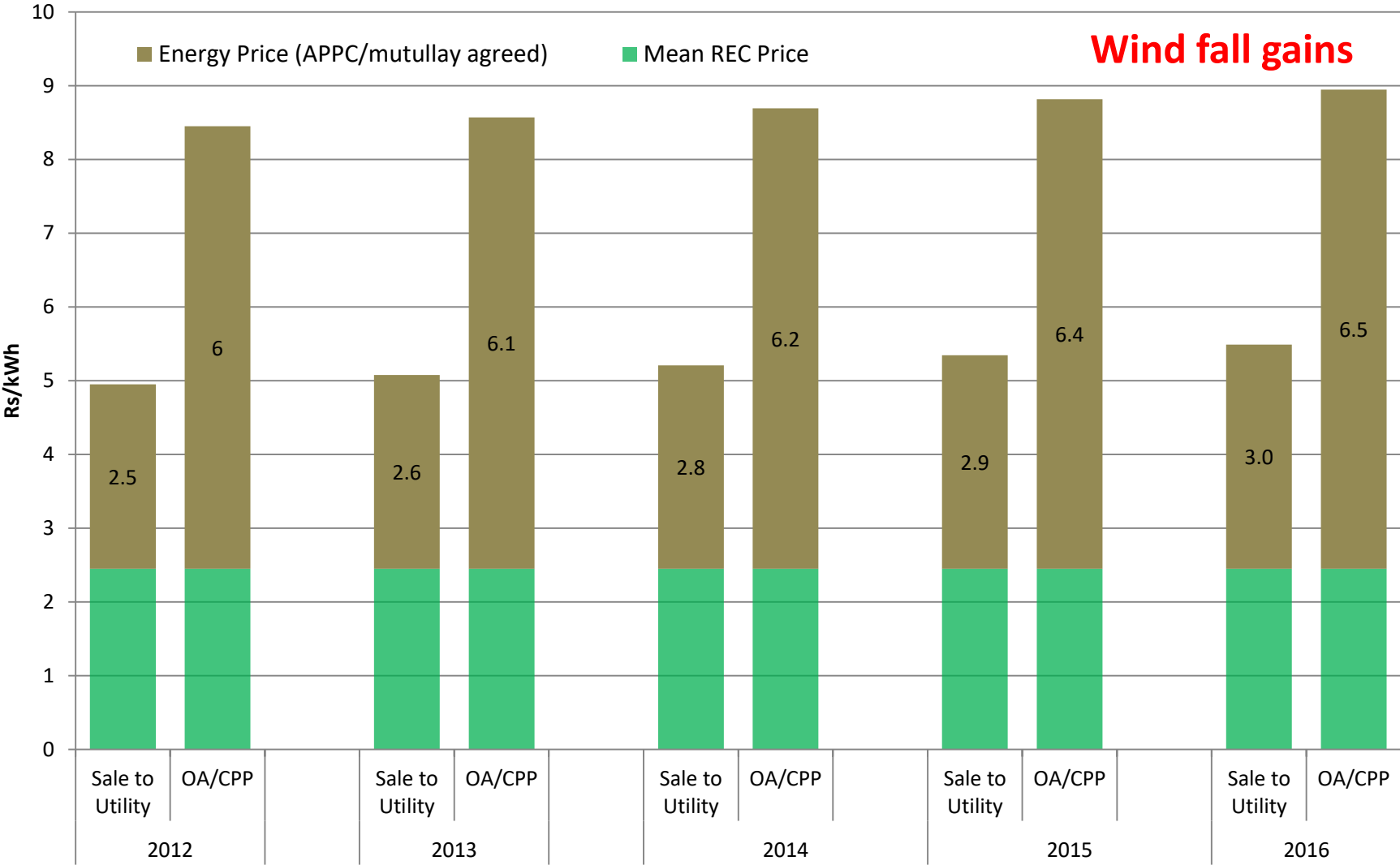
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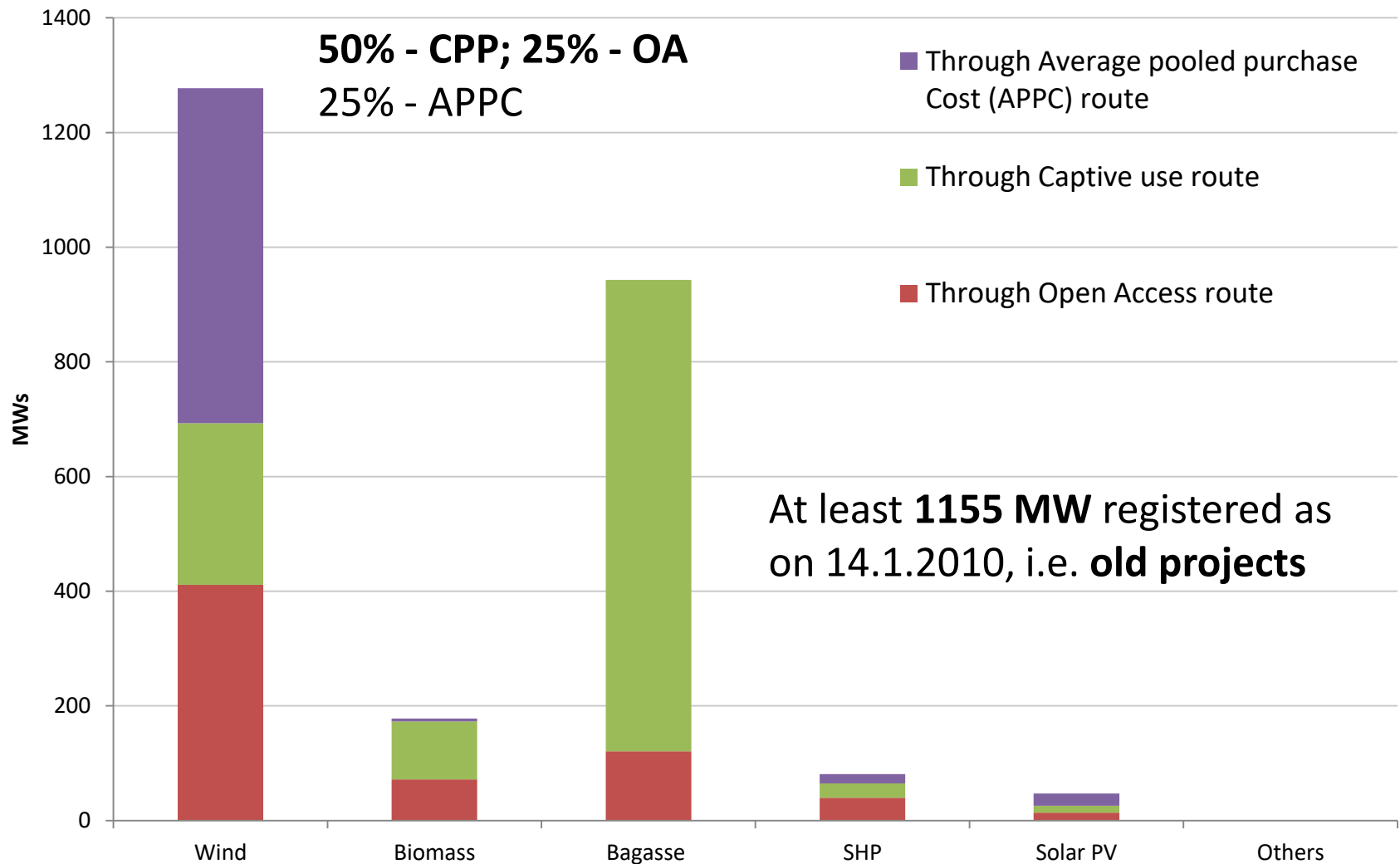
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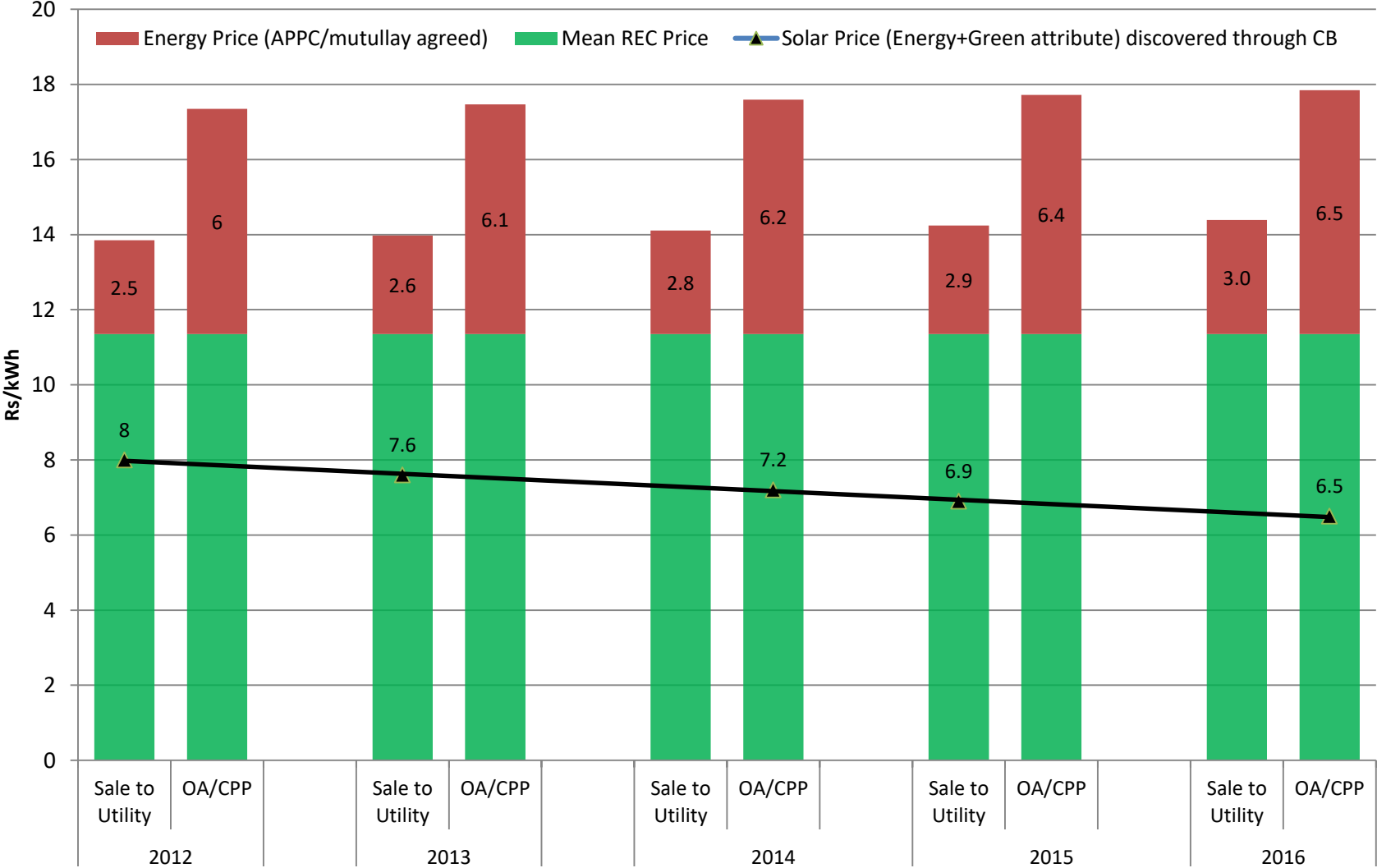
Sale to Utility vs CPP/OA under non-solar REC



REC capacity (Sale to utility/CPP/OA)



Sale to Utility vs (CPP/OA), CB under solar REC



Observations

- CPP/OA based REC projects lead to wind fall profits.
- Allowing old projects under the scheme does not lead to additional investments.
- Mismatch of solar REC prices with market reality; mismatch within solar as well. Resource disparity practically non-existent.
- Governance Aspects: need for greater transparency and monitoring.

RPO-REC Framework: Emerging Challenges

- How to improve compliance of RPO ?
- How to ensure equitable burden sharing of RPOs across states/consumers?
- Need to avoid wind fall gains to some projects
- Rethinking Solar RECs
- How to improve transparency in RPO-REC framework implementation?
- Framework for off-grid projects under REC?
- RPO-REC mechanism post grid parity; approaching fast?
 - Sustainability of the entire REC scheme

THANK YOU

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