15th IEA-IETA-EPRI Emissions Trading Workshop

Carbon Markets in Asia

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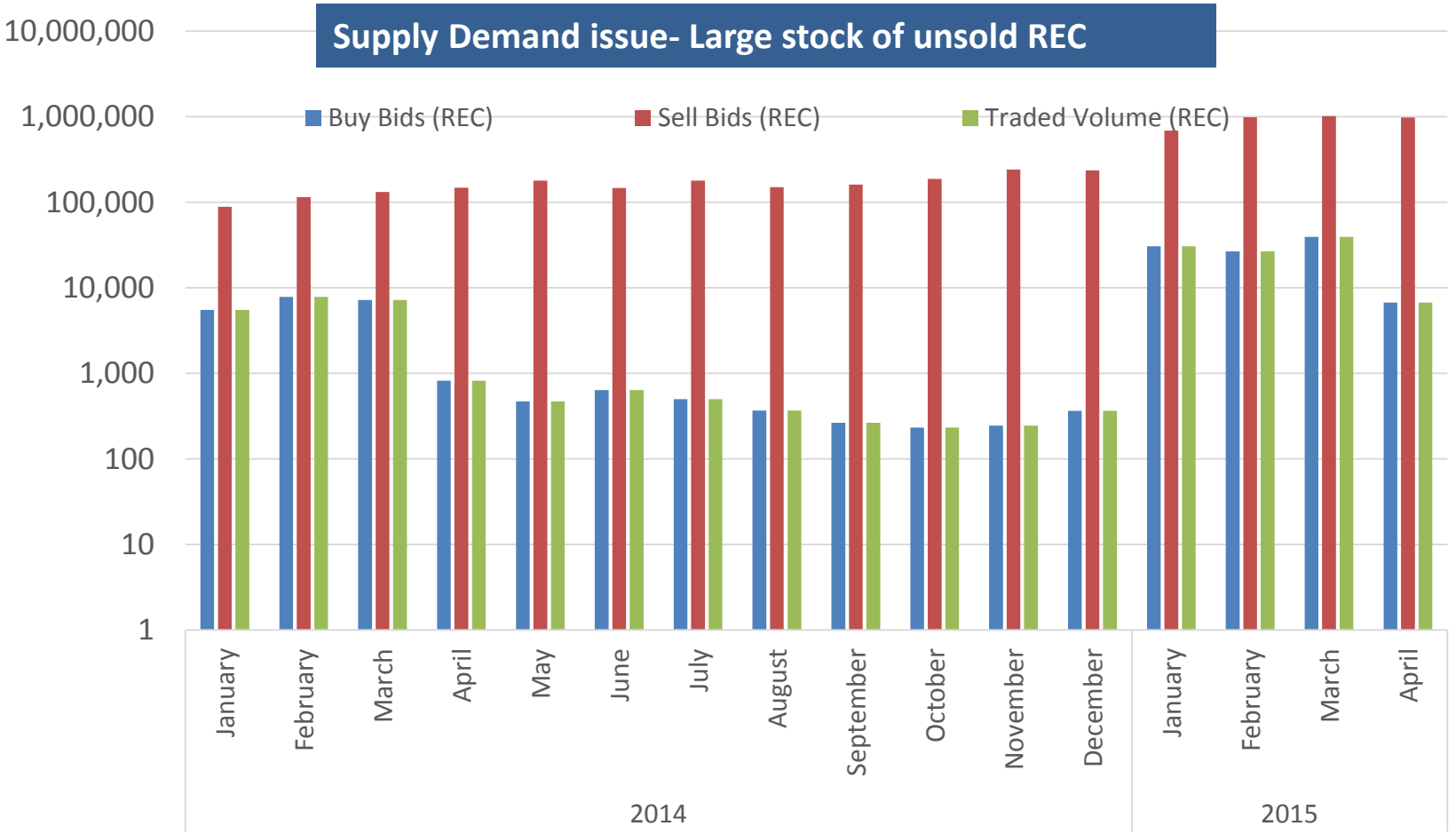
India's Carbon Reduction commitment

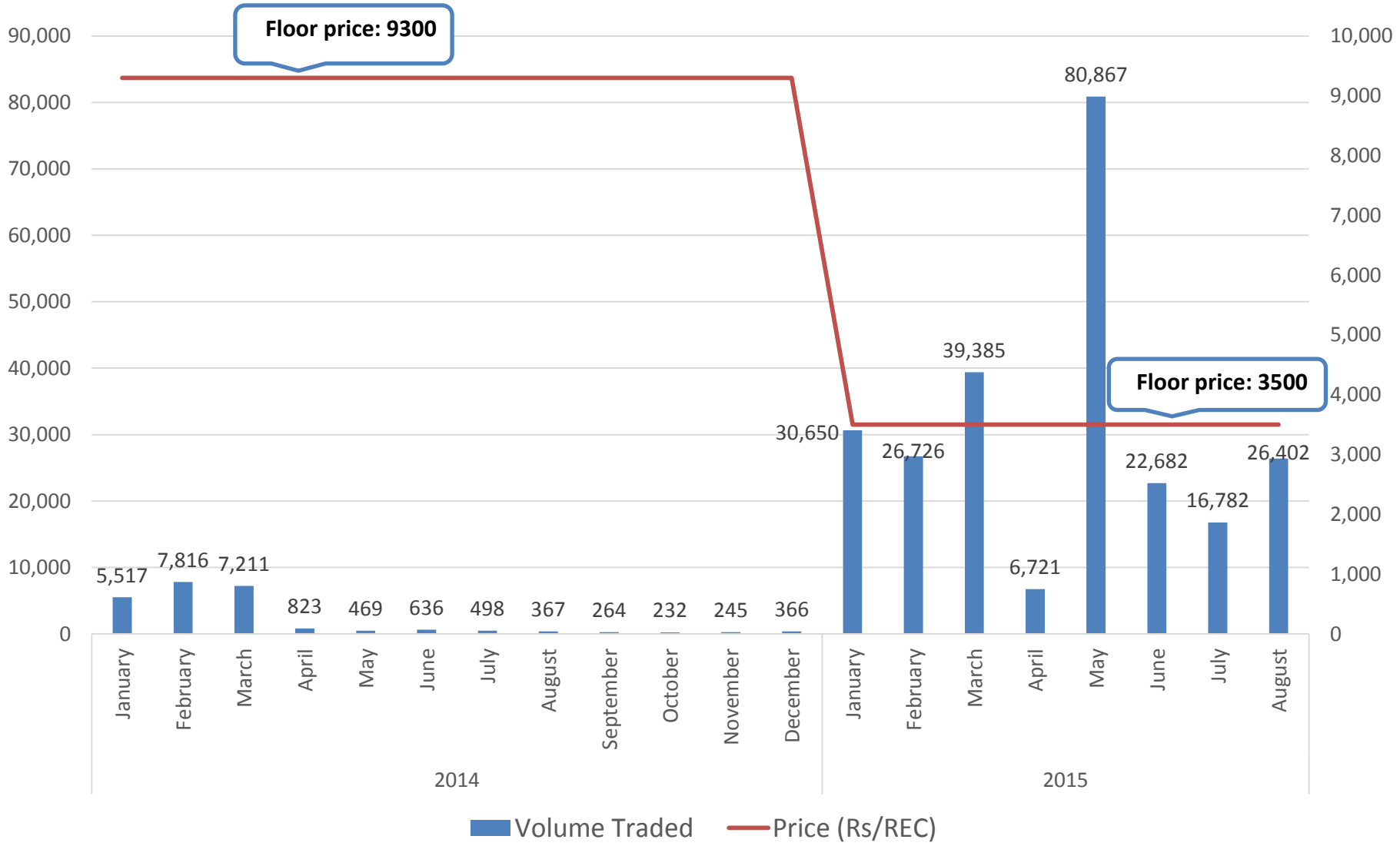
- Copenhagen Commitment-20-25% emissions reduction relative to 2005 levels by 2020 - about 3.5 and 3.6 $GtCO_2e$ in 2020. Current policies expected to achieve these targets.
  - National Solar Mission targets increased 5 folds- from 20,000MW to 100 GW by 2022 (170 MtCO2e reduction)
  - Enhanced RE Targets- 60 GW wind 10 GW biomass and 5 GW small scale hydro by 2022 (150 MtCO2e reduction)
  - NMEEE Mission - Energy efficiency measures (124 MtCO2e reduction)
  - Increase nuclear power usage by 40 GW (175 MtCO2e reduction)
  - Afforestation and increase in forest plantation area (55-191 MtCO2e reduction)
  - 50% target for new efficient coal plants (40 MtCO2e emissions red. by 2020)
- **India's emissions trading stems from the NAPCC's energy efficiency and Solar Missions.** Two well established market-based climate programs:
  - Renewable Energy Credit (REC) trading system- to promote deployment of RE
  - Perform Achieve and Trade (PAT) scheme- to promote energy intensity improvement

Renewable Energy Certificate (REC)

- REC trading linked to Renewable Purchase Obligations (RPOs) - ranges from 2% to 14%.
- 1 REC = 1 MWh; REC Categories: Solar and Non Solar
- Trading is done within the band of a floor and a (Forbearance) price determined by CERC

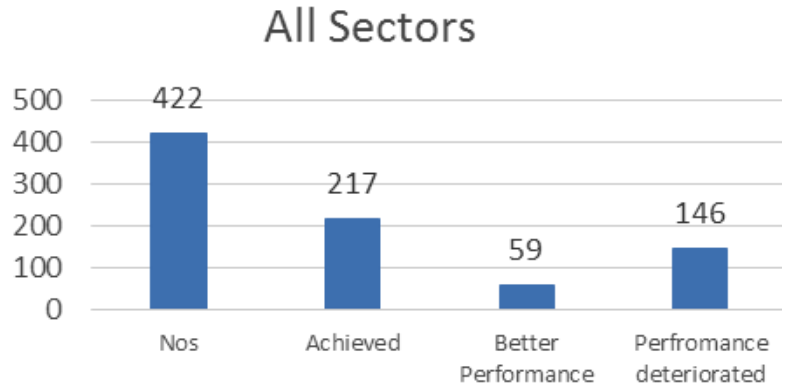


Solar REC- Price Volume Trend

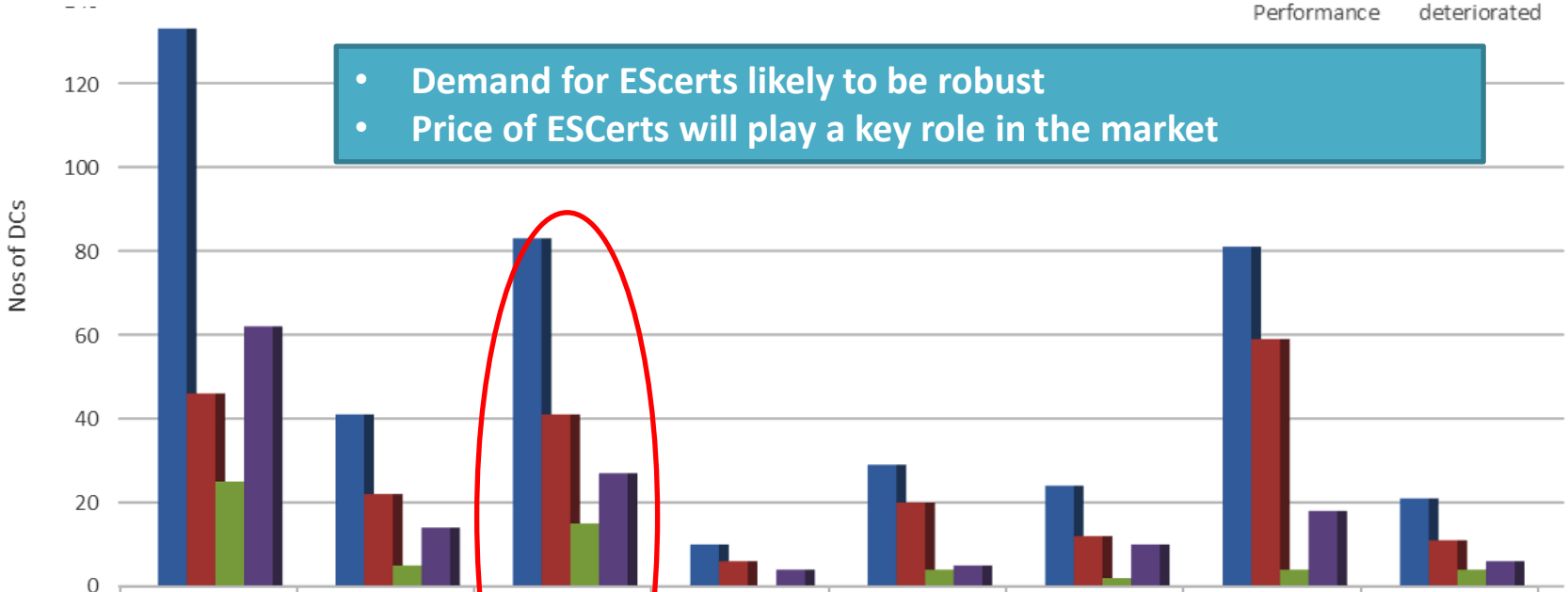


Perform Achieve & Trade (PAT)

- Covers 478 Designated Consumer (DCs) in 8 energy intensive sectors -1/3rd total energy consumed in the baseline year (2009-10).
- Target: 6.686 Million toe and CO2 emissions by 24 million tons / year in 2014-15



- **Demand for EScerts likely to be robust**
- **Price of ESCerts will play a key role in the market**



	Power (Thermal)	Iron & Steel	Cement	Aluminium	Fertilizer	Pulp & Paper	Textile	Chlor- Alkali
Nos	133	41	83	10	29	24	81	21
Achieved	46	22	41	6	20	12	59	11
Better Performance	25	5	15	0	4	2	4	4
Perfromance deteriorated	62	14	27	4	5	10	18	6

India's INDC Commitment

- Expected to focus on five element (in line with action proposed under the NAPCC Missions and National & State Climate Plans) :
  - mitigation (emission cut),
  - adaptation,
  - finance,
  - technology transfer and
  - capacity building
- Likely to take 'energy efficiency' route of mitigation - may pledge to reduce 'emission intensity' by minimum 35-40% from the 2005 levels by 2030.
- On clean energy current target (175000 MW of renewable energy with an investment of more than $150 billion by 2022) may be doubled by 2030.
- Besides solar, wind and bio-mass, India may push for nuclear energy and seek international co-operation in this field.