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REGULATORY NEWS

GERC issues Suo-Moto Order on compliance of RPO Regulations for FY 14

Gujarat Electricity Regulatory Commission (GERC) in its Order dated 16th January 2015 verified compliance of RPO by the distribution licensees in the State. GEDA (Gujarat Energy Development Agency) had submitted the overall shortfall in RE procurement for fiscal 2013-14 observed in case of Torrent Energy Limited (0.34 MUs left out of 0.89 MUs in Solar and 1.21 MUs out of 5.31 MUs in Non Solar), MPSEZ Utilities Pvt Ltd (1.77 MUs in Solar and 10.61 MUs in Non Solar). GUVNL had purchased excess solar energy of 705 MUs (2.18% against obligation of 1%) and shortfall of 665 MUs (5.26% against 6% obligation) in procurement of non-solar RE.

The Commission passed the following Order considering the facts of the petition:

- GUVNL permitted to adjust the excess purchase of Solar Energy with the shortfall in Non Solar, stating that with this the additional burden the consumers of the Discoms will be avoided.
- MPSEZ Utilities has been exempted from the applicability of RPO for FY 13-14 considering its nascent stage of operation and limited quantum required for fulfillment of RPO.
- GERC allowed Torrent Power Limited waiver of shortfall as any further purchase of REC will pose additional burden on consumers of the licensees and therefore revised the RPO to actual achievement.

For Complete Order, please visit: www.gercin.org

KERC issues draft Demand Side Management regulations

In order to use energy more efficiently by modifying electricity consumption pattern, on 9th January 2015, Karnataka Electricity Regulatory Commission (KERC) issued the draft KERC (Demand Side Management), Regulations, 2015. The salient features of the draft regulations are as summarized below:

- State Energy Conservation Fund: KERC proposes setting up of a state energy conservation fund which will be created through an additional 'Energy Efficiency Charge'.

- Energy Efficiency Charge: The Charge will be levied as a below the line item in the electricity bills of all consumers except for agriculture and residential consumers and will be less than ₹ 0.02/kWh during the initial five years.
- Constitution of DSM Cell: Every Distribution licensee will be required to constitute a DSM Cell within two months of the notification of the Regulations:
 - ◆ The role and responsibility of the Cell have been defined in the draft regulations:
 - Development of baseline data.
 - Formulation of DSM Plans.
 - Distribution licensee to design, develop and implement the initial DSM Programmes.
- Every Discom shall submit on a rolling basis an annual plan with quarterly targets (both physical and financial), for the forthcoming year not later than 30th November of the previous year.
- As per the V. J. Talwar report, the transmission systems which were getting over loaded before the curtailment remained over loaded even after curtailment and, therefore, curtailment of open access was not justified on the ground of over loading of upstream network.
- GERC held that the action of the SLDC of curtailment of open access was unwarranted, illegal, and arbitrary and in contravention of provisions of the Act and regulations framed under it.
- GERC directed SLDC to grant the STOA to the consumers strictly as per the provisions of the open access regulations.
- Claims for compensation by open access consumers were not accepted and the same is rejected.

More information: www.gercin.org

More information: www.karnataka.gov.in

KERC revises tariff for renewable energy resources

In a recent Order, Karnataka Electricity Regulatory Commission (KERC) revised the rates of procurement of electricity by ESCOMs w.e.f from 1st January 2015. The revised rates are as below:

- Feed-in Tariff for mini-hydel projects increased from ₹ 3.40 per unit to ₹ 4.16 per unit (22% increase) and bagasse based cogeneration projects.
- Feed-in Tariff for biomass projects increased from ₹ 3.66 per unit to ₹ 5.19 per unit (42% increase) for the first year with an increase of 16 paise per unit each year.

More information: <https://www.karnataka.gov.in>

GERC issues Order in case of Open Access denial by SLDC

On 16th January, 2015, GERC issued its final Order in case of denial of Open Access by SLDC. Some salient points in the Order are:

APTEL Judgment on the petition filed against the ARR determined by PSERC

On 17th December 2014, APTEL gave its judgment on the petition filed regarding the ARR Order of PSERC (Punjab State Electricity Regulatory Commission). The issues filed with the Tribunal included:

- Calculation of cross-subsidy on the basis of combined average cost of supply.
- Unmetered Sales and Transmission & Distribution Loss.
- Return on Equity.
- Peak Load Exemption Charges.
- Wheeling Charges.
- Non-Tariff Income.

On the issue of determination of wheeling charges, the Tribunal directed the State Commission to re-determine the wheeling charges applicable to open access customers and to true up the wheeling charges as per actuals.

More information: www.aptel.gov.in

INDUSTRY NEWS

Power Market Update: January'15

The first month of 2015 witnessed an overall decline in power prices. At ₹ 2.82 per kWh, Average Market Clearing Price (MCP) reduced by about 12% from ₹ 3.21 per kWh last month. Increased supply coupled with suppressed demand from State utilities as well as open access consumers continued to be one of the key reasons for price reduction.

A total of 2.34 BUs was traded in the month - about 8% more than 2.17 BUs traded in the previous month, implying an average daily trade of about 76 MUs - about 9% higher than average daily volume in the month of December. Clearly, the supply outstripped demand as sell bids worth 4.06 BUs, about 15% more over previous month and buy bids worth 3.03 BUs, about 5% more over previous month were received in January.

As regards congestion on the Inter-State transmission network, about 190 MUs could not be traded due to unavailability of transmission corridor as compared to 145 MUs in December.

On an average, 958 participants traded in the day ahead spot market on a daily basis in January.

Volumes

A total of about 2.34 BUs were traded in January with the key highlights of the month being as given below:

- ◆ Total Sell bids – 4.06 BUs.
- ◆ Total buy bids – 3.03 BUs.
- ◆ Eastern States bought -35 MUs, 47% less over previous month's purchase.
- ◆ North-Eastern States bought - 67 MUs, 16% less over the previous month.
- ◆ Western States sold 1373 MUs, 15% higher over the previous month.
- ◆ Net Sellers: North-Eastern, Eastern and the Western States.
- ◆ Net Buyers: Northern and Southern States alongwith Punjab.

The area-wise buy and sell volume trend in January'15 vis-a-vis December'14 is as represented below:

REGION	BUY (MU)			SELL (MU)			NET
	Jan'15	Dec'14	Change (%)	Jan'15	Dec'14	Change (%)	
North East	66.96	80.03	↓ -16%	80.59	89.20	↓ -10%	SELL
East	34.78	65.49	↓ -47%	338.68	296.18	↑ 14%	SELL
North	1006.04	990.66	↑ 2%	318.75	309.35	↑ 3%	BUY
Punjab	62.36	38.57	↑ 62%	0.00	0.00		BUY
West	692.89	593.82	↑ 17%	1372.65	1195.31	↑ 15%	SELL
South	481.08	404.99	↑ 19%	233.44	283.51	↓ -18%	BUY

Prices

Approximately 7-12% reduction in the average Area Clearing Prices (ACP) was seen across all the States in January. The average Area Clearing Price (ACP) in North, East and North-East was around ₹ 2.70 per unit, whereas, in West, ACP was about ₹ 2.59 per unit. In South (S1 and S2 Bid Areas), prices declined with price in S1 at ₹ 3.91 per unit (10% reduction over previous month) and S2 at ₹ 4.73 per unit (12% reduction over previous month).

The table below compares the average area prices in January'15 vis-à-vis December'14:

BID AREAS	Average Prices (₹/kWh)		
	Jan'15	Dec'14	Change (%)
North-East (A1, A2)	2.70	2.96	↓ -9%
East (E1, E2)	2.70	2.96	↓ -9%
North (N1, N2)	2.70	2.97	↓ -9%
Punjab	2.70	2.97	↓ -9%
South (S1)	3.91	4.36	↓ -10%
South (S2)	4.73	5.39	↓ -12%
West (W1, W2)	2.59	2.79	↓ -7%
West (W3)	2.59	2.78	↓ -7%
MCP*	2.82	3.21	↓ -12%

* MCP (Market Clearing Price) refers to the price discovered before accounting for congestion in Inter-State transmission network.

* ACP (Area Clearing Price) refers to the bid area prices discovered after accounting for congestion in the Inter-State transmission network.

Transmission Congestion Analysis

- ◆ From East to South, the corridor was congested 86% of the time and from West to South, the corridor was congested 89% of time during the month.
- ◆ Between S1 bid-area (Andhra Pradesh, Telangana and Karnataka) and S2 bid-area (Tamil Nadu and Kerala), the corridor was congested 29% of time through the month.

Participation

958 participants traded in the spot market on an average daily basis with highest participation on 23 January, 2015 when 1036 participants traded at the Exchange.

FOCUS OF THE MONTH

Power Purchase Optimisation through Exchange

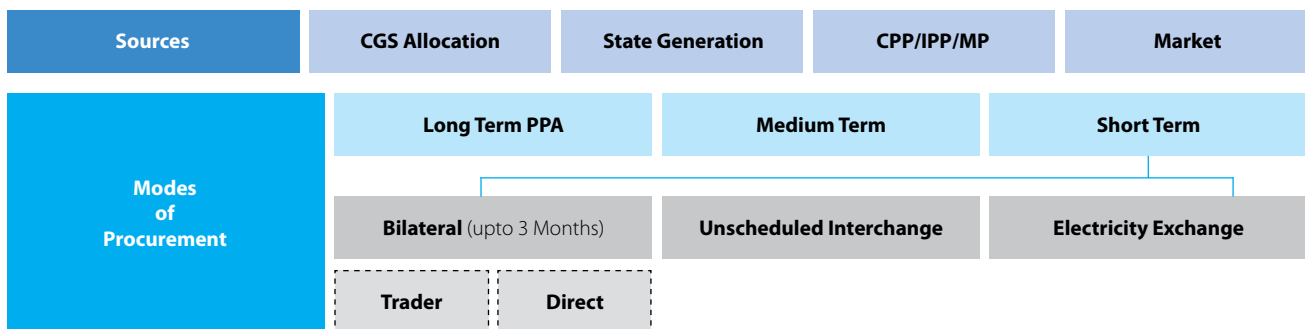
Electricity business in India is economically valued at more than ₹ 2.7 lakh crores and almost 80% of total costs are fuel costs. The Government of India energy efficiency efforts are focused on the consumption and generation side. However, an important missing link is at utility's end who must continuously evaluate selection of set of generators at right time to meet their load/demand. The National Tariff Policy, 2006 also mandates merit order operation of generators¹.

Mostly, the utilities select generators on merit order of marginal costs but there is still scope for improvement. According to other estimates, there is potential of at least

charges arranged in ascending order. After exhausting long-term tied capacity, residual demand is met via medium and short term contracts. In a conventional approach practised by most of the Discoms, long term PPAs are exhausted first, then medium term and residual demand is met through short term either through bilateral contracts or Power Exchanges.

Discom is liable to pay fixed cost to the generating stations on the declared available capacity, and has option to save variable cost to the extent generator is not asked to generate.

The sources for power and modes of procurement available to any distribution consumption are depicted below:



20% savings if generators are strictly chosen on marginal cost and merit order is adhered to fully. The marginal cost of fuel based plants is its fuel cost, however for hydro and renewable (wind/solar) based generators marginal cost is zero. In this paper, an attempt is being made to assess potential of savings by operating right set of generators and replacing costlier generation with cheaper exchange-based transactions on day-ahead basis.

Optimizing Power Procurement

Conventional Approach: Discoms usually contract significant part of their requirement through long term PPAs (25 years). These PPAs constitute two part payment: fixed charges based on capacity declared available by generators and variable charges based on the scheduled generation by Discom. The utilities meet their demand by operating their generation plants on merit order of variable

Proposed Approach: The Discoms resources include resources tied in long-run, short-term contracts and day-ahead market. Merit order stack of supply sources must include all of these. The stack should be prepared based on variable cost of generation and transaction price of medium, short and day-ahead power exchange based power. While, long-term (>12 years) and medium-term(1-3 years) power can be curtailed at 1-hour notice, the short-term power (<1yr) can be curtailed only with minimum 2 days' notice. The scheduling of long and medium term power is done on a day-ahead basis. Thus, long and medium term power can be replaced with cheaper power from day-ahead market. The bids can be so created that once day-ahead market's price is lower than variable cost of tied-up capacity, the capacity is replaced with power sourced from Day-ahead Market (DAM) on power exchanges.

As per current regulations, the landed cost of power includes the network charges and losses. In case the plant

¹ '8.2 (1) All power purchase costs need to be considered legitimate unless it is established that the merit order principle has been violated or power has been purchased at un reasonable rates.'

is embedded in the State network, network charges are loaded on its cost and for the plant located outside the State, network charges and losses applicable at regional and state level are applicable. Therefore, in order to create a merit order stack, applicable losses and charges must be loaded on the marginal cost. In the same manner, exchange prices, should reflect replacement cost of such power plants after factoring all related charges and losses. The cost of replacing each generator with DAM power can be worked out, and the corresponding volumes above this cost can be substituted with power sourced from the power exchange. This can be done by placing a portfolio of bid under single bid option with multiple sequences of price and quantity pairs in DAM or by placing a block bid for every power plant separately.

This technique offers lot of flexibility to the utility and helps it in lowering the risk in such a way that on a day ahead basis it knows the bids that are selected and the selected bids can replace the generation volume in the Merit Order Despatch (MOD) of the utility and the schedule for such generation can be revised accordingly. All unselected bids will have no impact on the MOD of the Discom and it will

be business as usual in such case. Discoms can modify their schedules from Inter State Generating Stations (ISGS) and State Generating Stations (SGSs) with a 1½ hour prior notice.

Example

Identify the potential power plants and respective volume based on technical constraints to back down, if applicable. The constraints can be technical minimum and transmission constraints, if any. Also for every power plant only variable cost is considered and is converted into the 'replacement cost/bid price' at exchange after adjusting the losses and charges. Then based on their preference, Discom may choose to bid either through Single bid or Block Bid.

In case of single bid there is a possibility of selection of non-continuous time blocks however, in case of block bid it will on 'All or None' basis i.e. either whole block will be selected or rejected. As the generators cannot flip-flop their generation in each hour, block bids may prove more

Table 1: Merit order of generation portfolio

	Type	Despatch Mode	Capacity (MW)	Energy Charge (INR/kWh)	Bid Price (INR/kWh)	Capacity available for backing down	Daily Backing down period (Hrs)
Plant A	Hydro	Must Run	100	0.00	-	-	-
Plant B	Hydro	Must Run	150	0.00	-	-	-
Plant C	Nuclear	Must Run	500	2.80	2.50	-	-
Plant D	Coal	Merit	120	3.00	2.50	20	11
Plant E	Coal	Merit	120	3.20	3.10	30	7
Plant F	Coal	Merit	100	3.50	3.25	20	24
Plant G	Coal	Merit	90	3.80	3.50	10	24
Plant H	Coal	Merit	90	4.00	3.70	15	-
Total Capacity			1,270 MW				
Available for Optimization (MW)			80 MW				

Table 2: Suggested block bid to replace costlier power station

Block Bid	Volume (MW)	Bid-Type	Block-Start	Block-End	Price (INR/kWh)
1	20	Buy	00 hrs	11 hrs	2.50
2	30	Buy	00 hrs	07 hrs	3.00
3	20	Buy	00 hrs	24 hrs	3.25
4	10	Buy	00 hrs	24 hrs	3.50

useful and relevant. On clearing of the block bid, sufficient timeframe is available with the Discom to revise schedule for the next day.

Below, an indicative scenario of a Discom with 6 generators is presented in Table 1. Plants A,B & C are must run plants, therefore, they cannot be replaced at any cost. D, E, F, G are coal based plants with their variable cost stacked in the Merit Order. In case, any of the plant operating with a scope to back down, are marked with scope of MW quantum available after taking into account constraints related to technical minimum or congestion etc.

Based on inputs in Table 1, a suggestive block bid is created in Table 2. The block bid is placed in the DAM on the power exchange. In case the block bid is cleared, it will help the utility to replace costlier generation with cheaper generation which in turn will help the utility to bring down its overall cost.

Conclusion

While Merit Order Despatch (MOD) is understood at every level of the power system, however, it is the implementation on the ground which remains a big challenge. As the power exchange offers dynamic and flexible option for power procurement on a day ahead basis, the volume and prices discovered on the exchange should become a key consideration for the Discom in planning its despatch operation. This practice would facilitate the utility in procuring power in the most competitive and reliable way. This approach also helps address the anomaly observed in the market wherein costlier long-term power of ₹ 3.5 per unit is being scheduled while power available in power exchanges at much lower price is unable to be despatched. The average peak prices in January'15 was around ₹ 2.9 per unit while plants like Dadri, Jhajjar, Farakka, Rosa Power Project, Mejia etc operated at much higher variable cost than the exchange prices.

INTERNATIONAL NEWS

MoU signed between APX and ACM on REMIT implementation

On 28th January, 2015, APX (Amsterdam) and the Dutch Energy Regulator (Autoriteit Consument & Market) (ACM) signed a MoU formalising the agreement in place between APX and ACM for mutual work under REMIT (Regulation on Energy Market Integrity and Transparency) Article 13 and 15. The MoU outlines procedures and practices for the cooperation and allow exchange of their knowledge, experiences and expertise on best practices on market surveillance and will enable the two entities to detect and investigate potential market manipulation and insider trading.

Source: www.apxgroup.com/press-releases/apx-and-dutch-energy-regulator-acm-sign-mou-on-remit-implementation/

Italian Border market coupling to launch soon

As per a recent press release, three of the five borders of the Italian Borders Market Coupling Project will be coupled with the Multi-Regional Coupling (MRC), thus linking the majority of EU power markets - from Finland to Portugal and Slovenia by 24 February 2015 providing an evidence of the flexibility and reliability of the Price Coupling of Regions (PCR) solution.

The Day-Ahead markets of MRC extended to the Italian Borders Market Coupling will cover 20 European countries, accounting for about 2,800 TWh of yearly consumption. The daily average cleared volume over these countries will amount to over 4 TWh, with an average daily value of over €150m.

Source: www.apxgroup.com/press-releases/italian-borders-market-coupling-to-launch-on-24-february-2015/

RENEWABLE NEWS

REC Market Update: January '15

The January Renewable Energy Certificate (REC) trading session at IEX held on 28 January, 2015 recorded the highest ever trade of both Solar and Non-Solar RECs since the inception of the market. The total trade volume increased by about 140% as compared to last month. This jump in traded volumes can be attributed to better RPO compliance in the last quarter. A recent amendment in the REC regulations introducing Vintage Based Multiplier has also prompted obligated entities to purchase Solar RECs to fulfill Solar RPO. This year, the volume of RECs traded in ten months has increased to 8.26 lac as compared to 7.71 lac RECs last year.

According to the third amendment to REC Regulations, Solar projects under REC framework prior to the date of third REC Amendment Regulations would be eligible for multiplier of 2.66 i.e. 2.66 REC for one megawatt hour of electricity injected into the grid. This multiplier will be applicable upto 31st March, 2017 and thereafter the said projects will receive 1 REC for 1 MWh of renewable energy. The Forbearance and Floor Price of Solar RECs have also been revised to ₹ 5800 and ₹ 3500 respectively.

As regards to trade in the January'15 session, in the non-solar segment, 3,93,081 buy bids and 67,20,193 sell bids were received, all buy bids were cleared at floor price of ₹ 1,500 per REC.

In the solar segment, buy bids of 30,650 RECs and sell bids of 6,88,581 RECs were received, all buy bids were cleared at floor price of at ₹ 3,500 per REC.

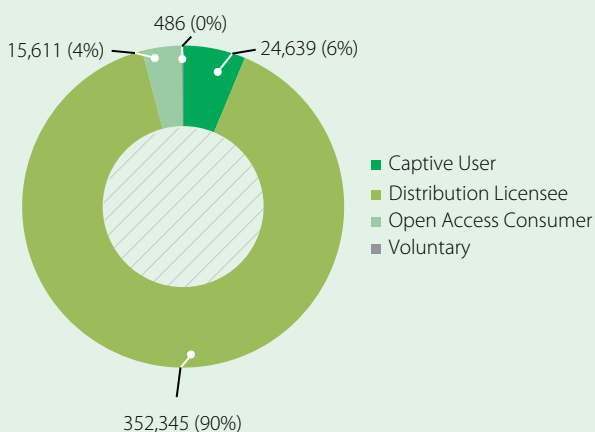
Participants

A total of 835 participants traded in the session - 619 participants in Non-Solar segment and 216 participants in the Solar segment.

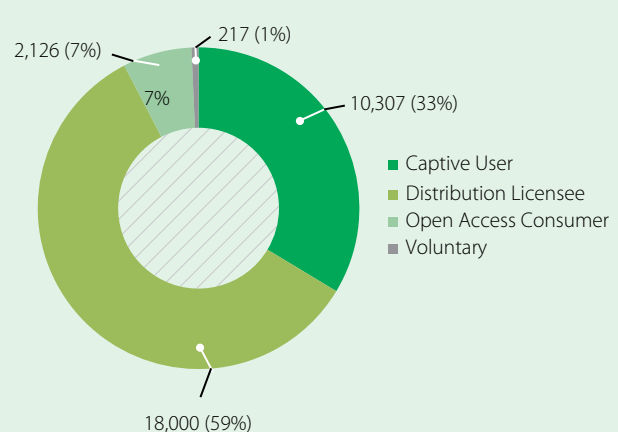
An overview of participation in the REC Market at IEX as on 31 January'15:

Total number of registered participants	2356
Obligated Entity	1648
DISCOMs	24
Open Access Consumers	1543
Captive Consumer	60
Voluntary	13
Eligible Entity (Private Generators)	695
Highest participation in a session (March'13)	1,135

Non Solar Buyer MIX



Solar Buyer MIX



IEX TRADE INFO: JANUARY '15

Day-Ahead Market

MONTHLY PRICE SNAPSHOT

Minimum MCP	Maximum MCP	Average MCP
₹ 1.36/kWh	₹ 4.70/kWh	₹ 2.82/kWh

AREA PRICES

Prices (₹/kWh)

Area	Min	Max	RTC* (0-24 hr)	Peak* (18-23 hr)	Non Peak* (1-17 & 24 hr)	Night* (1-6 & 24 hr)
East & North-East	1.27	4.50	2.70	2.99	2.61	1.71
North	1.27	4.50	2.70	2.99	2.61	1.71
West (W1/W2)	1.27	4.50	2.59	2.79	2.53	1.69
West (W3)	1.27	4.50	2.59	2.79	2.52	1.69
South (S1)	1.40	7.50	3.91	3.90	3.91	2.63
South (S2)	1.40	17.50	4.73	5.92	4.33	3.59

* Simple average of Area Clearing Prices for specified duration of time.

MONTHLY VOLUME SNAPSHOT

1 MU = 1 Million kWh = 1 GWh

VOLUME	Unconstrained Volume	Cleared Volume	Purchase Bids	Sell Bids	Average Daily Volume	Cumulative Cleared Volume (MU)
Total Volume (MUs)	2,534	2,344	3,028	4,058	76 MUs	23,836
Average Daily (MW)	3,407	3,151	4,069	5,454		For FY 15

TERM AHEAD MARKET SNAPSHOT – January'15

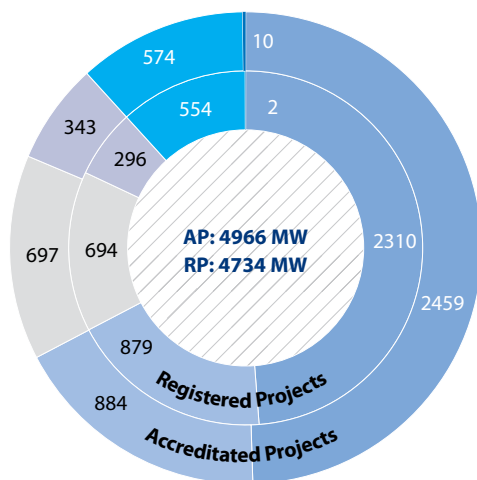
Contracts	Total Volume (MWh)	Max Price (₹/kWh)	Min Price (₹/kWh)
Weekly	-	-	-
Intraday	2,950	4.50	2.75
Day-Ahead Contingency	400	3.85	3.75
Daily	-	-	-

REC MARKET SNAPSHOT

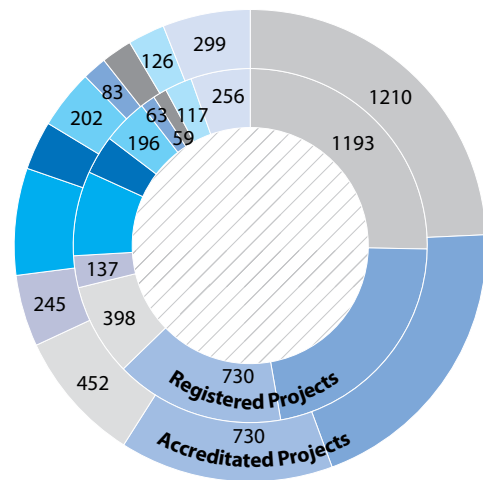
Trade Session on 28 January, 2015

REC	Purchase Bids	Sell Bids	Cleared (REC)	Price (₹/REC)	Participants
Non Solar	3,93,081	6,720,193	3,93,081	1,500	619
Solar	30,650	6,88,581	30,650	3,500	216

Source-wise RE Capacity (MW)



State-wise RE Capacity (MW)



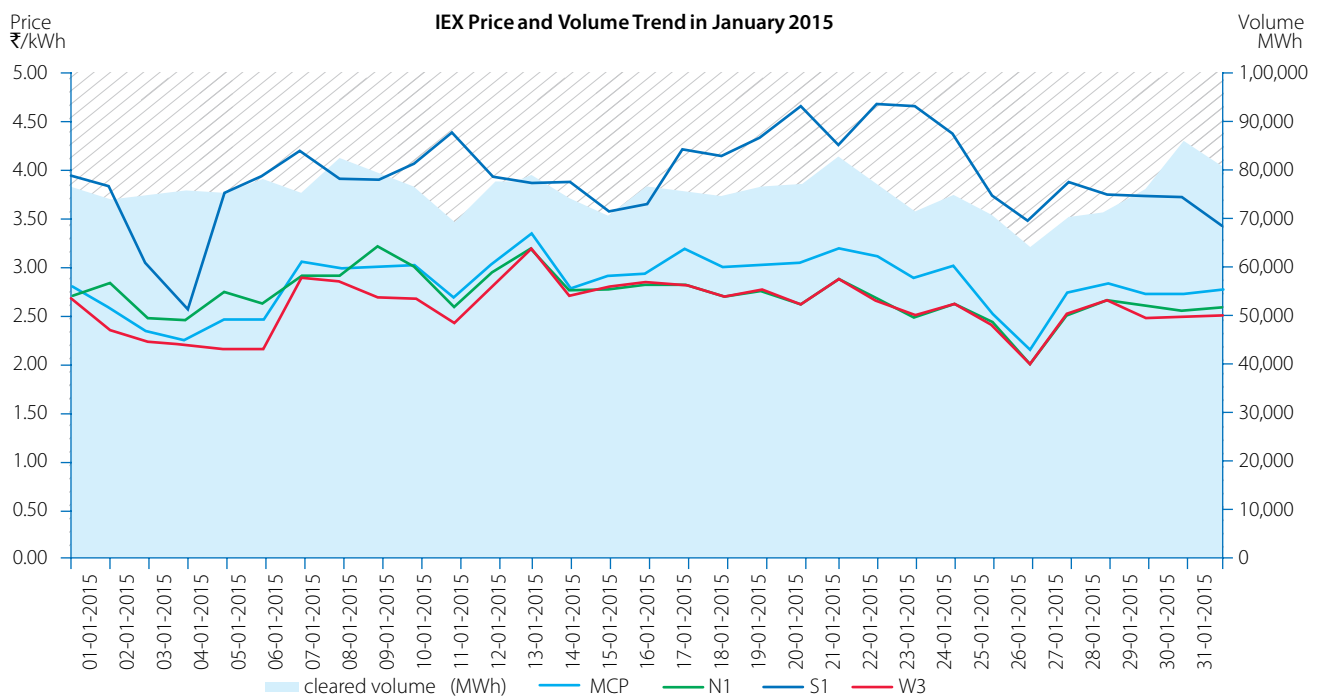
- Wind
- Bio-fuel cogeneration
- Biomass
- Small Hydro
- Solar
- Others

- Tamil Nadu
- Karnataka
- Chhattisgarh
- Maharashtra
- Rajasthan
- Punjab
- Uttar Pradesh
- Andhra Pradesh
- Himachal Pradesh
- Gujarat
- Madhya Pradesh
- Others

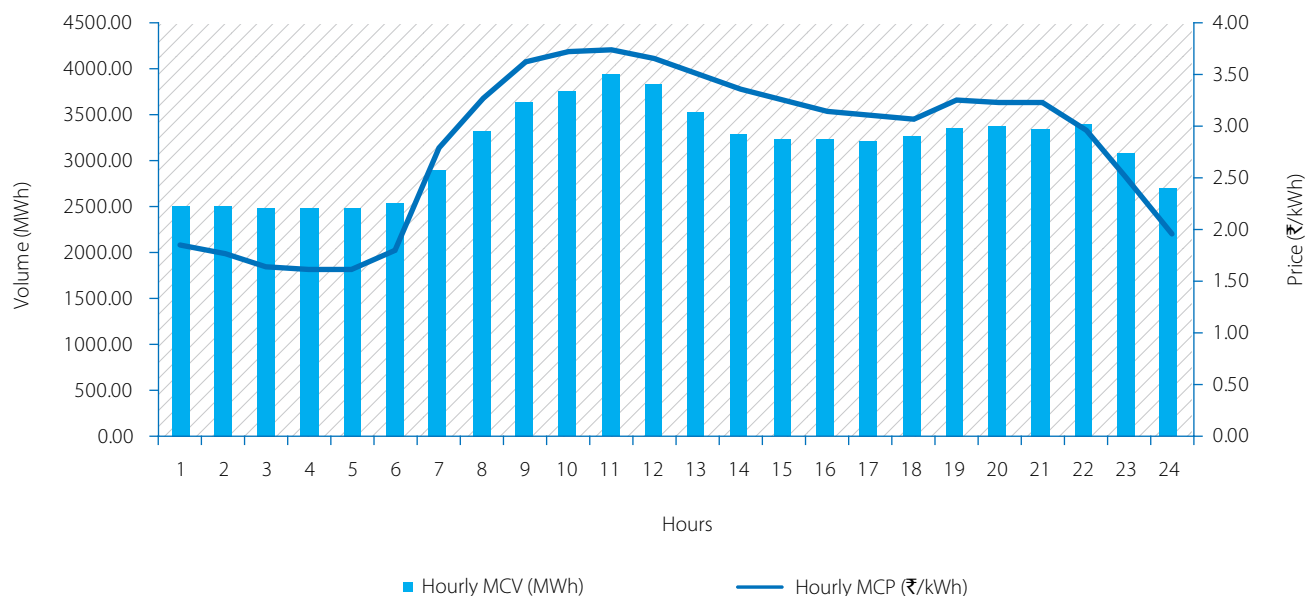
RP: Registered Projects, AP: Accredited Projects

PARTICIPATION SNAPSHOT (as on 31st January, 2015)

Total Registered Participants	Open Access Consumers	Private Generators	Highest Participation
3,400+	3,001	297	1,410 (22nd June'13)

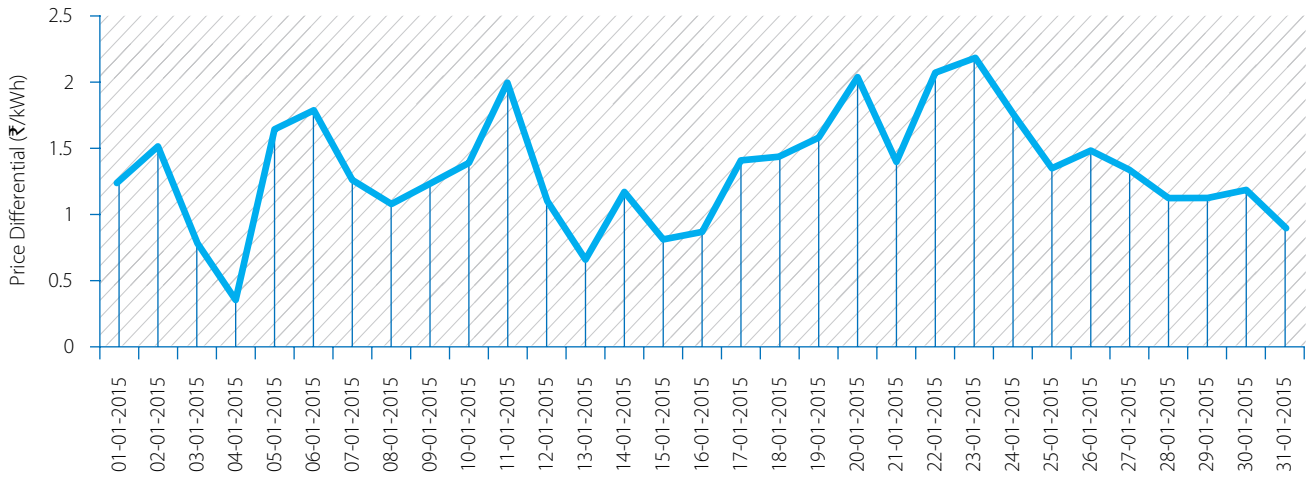


Average Hourly Market Clearing Volume and Price for the Month

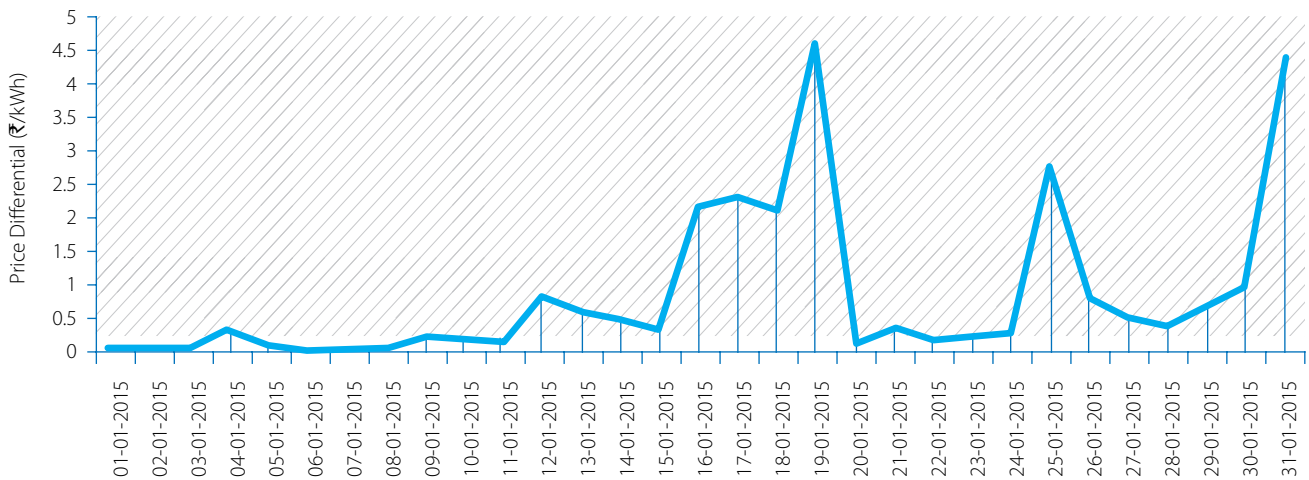


CONGESTION PROFILE: January '15

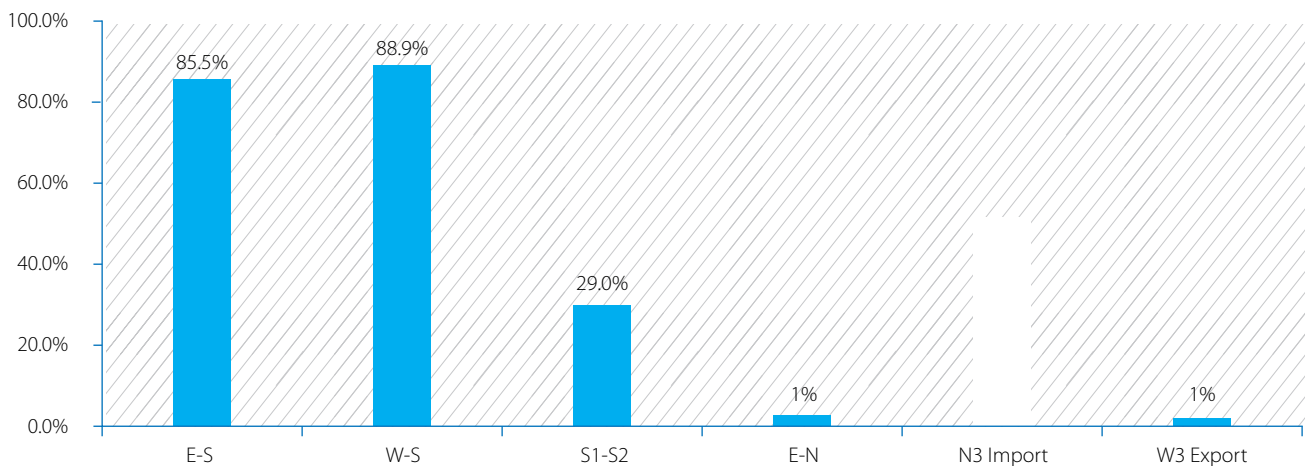
South Import



S1↔S2



% of Time Congestion





“Power Procurement Strategy and Power Exchanges” 20-22 April, 2015 at IIT Kanpur

Indian Energy Exchange (IEX) and Indian Institute of Technology – Kanpur (IITK) are delighted to announce a three days residential Course on “Power Procurement Strategy and Power Exchanges”, scheduled on 20-22 April, 2015 at IIT Kanpur campus.

The Electricity Act 2003, subsequent CERC Regulations and setting up of Power Exchanges has brought a whole new set of opportunities for power procurement and price discovery in the most competitive manner. The Indian power market is in transition and there is a need to understand the power procurement practices, short-term forecasting, risk management and decision making for investing in new generation and transmission capacity. Proposed amendments to the Electricity Act 2003 aim to usher in an era of retail competition. It would be useful to understand its impact on the power markets and opportunities arising out of the same. IEX and IITK have designed the course contents to provide knowledge and skills necessary for successful participation in power markets and also provide a thought leadership towards market development in future.

Who should attend

The three-day intensive course is suitable for power sector stakeholders including Generation companies, Distribution utilities, Licensed Traders, Members and Clients of Power Exchanges, Staff of Central and State Electricity Regulatory Commissions, System Operators, Large Consumers (Industrial, Commercial), Developers planning investment in generation and transmission, Banks and Financial Institutions, Consultants as well as Academicians.



IEX and IITK plan to adopt interactive methodology for this program which will ensure knowledge advancement and intellectual progression for the participants.

For registration or for further details, please write to: **Mr Manish Arya**, Phone: +91-11-43004000, Ext. 275, Mobile: +91-9811359425 | Email: training@iexindia.com

Disclaimer

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Edited, printed and published by:

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Unit No. 3-6, Fourth Floor, Plot No.7 TDI Center, District Centre, Jasola, New Delhi (India) – 110025
Tel No.: +91-11-4300 4000 | Fax No.: +91-11-4300 4015 | E-mail: iex-bd@iexindia.com | www.iexindia.com | CIN: U74999MH2007PLC169201
Printed at G.S. Graphic Arts, A-18, Naraina Industrial Area, Phase 1, New Delhi - 110028
Delhi Police Licensing Number: F2(I-17)Press/2014 dated 30/10/2014