



RECONNECT
ENERGY

The Energy Solutions Company

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Awards and Recognition

REConnect was awarded “Forecasting Company of the Year 2017” and “REC Trader of the Year 2017” by IWEF. This is the 4th consecutive year we have been awarded in these categories.



Past Awards





From Team REConnect



Dear Reader,

We are very pleased to inform you that we were awarded “**Forecasting Company of the year 2017**” and “**REC Trader of the year 2017**”. This is the 4th year in a row that we have won awards in these categories. Special thanks to all our clients and well-wishers for your support and faith in us.

In September the Rajasthan Electricity Regulatory Commission (RERC) has released the final regulation for Forecasting, Scheduling and Deviation Settlement for solar and wind generation projects.

Rajasthan is amongst states like Andhra Pradesh, Karnataka, Chhattisgarh and Uttarakhand which have final DSM regulations in place. These regulations will play a major role in large scale integration of renewable energy in its grid. This month’s main article analyses the Rajasthan regulations.

Trading for Non-solar REC in September saw improvement in demand. Total non-solar demand was 3.82 lakh (47.5% higher than in September 2016) and the clearing ratios on IEX and PXIL were 3.56% and 2.36% respectively.

Trading for Solar RECs remained suspended as per the SC order.

Energy Saving Certificates (ESCerts) were traded for the first time on the 26th of September. The second trade session took place on 3rd October. The price discovered in both sessions was Rs 1200/ESCert. Price dipped to Rs 1000/ESCert in the 3rd session, while volume increased.

Recent regulatory and other developments in the RE sector include: KERC determined wind tariff at Rs 3.74 (16.8% lower than previous year; this is an adverse development for wind projects that had pending PPAs); retail tariff determined by DERC; all time high prices of electricity at IEX. In other news, solar tariff for an auction held by GUVNL fetched a tariff of Rs 2.65 and wind tariff hit an all time low of Rs 2.64 per unit.

Wishing you and your family a very **Happy Diwali**

- Team REConnect





Rajasthan Forecasting, Scheduling and DSM regulation

NERC has released final regulation for wind and solar forecasting and scheduling

Title of the Regulation: Rajasthan Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2017

Applicability:

- From the date of publication in the official gazette.
- SLDC to issue detailed guidelines for QCA registration, scheduling procedures, communication protocols and formats etc., for the approval of the Commission.
- Levy and collection of DSM Charges shall commence from **Jan 1st, 2018**

Regulation Applicable on: All grid connected Wind and Solar Power Generators with pooling station capacity >5MW or, when directly connected to the state grid, having individual or combined capacity >5MW.

Deviation Accounting:

$\text{Absolute Error in \%} = 100 \times \frac{\text{Actual Injection} - \text{Scheduled Generation}}{\text{Available Capacity (AvC)}}$
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Point of Forecasting: Pooling Station or STU/DISCOM Feeder where injection is made.

Aggregation: Unlike in Karnataka and AP, Rajasthan’s order of F&S does not have a provision to provide aggregated forecast.

Role of a QCA:

- Provide forecast, schedules and periodic revisions;
- Coordination with DISCOM/STU/SLDC for metering, data collection, communication/issuance of dispatch/curtailment;
- Commercial settlement of DSM charges and de-pooling of charges among generators;
- All other ancillary and incidental matters.

Revisions:

- 16 revisions are permitted starting from 00:00 Hrs of the day for Wind & Solar Generators
- All the revisions are effective from the 4th time-block

Important differences between intrastate and interstate transactions:

- Wind and Solar generators having common interface meter at a pooling station but carrying out both - interstate and intrastate transactions at the same pooling station, the scheduling for the same shall to be carried out separately.
- Approved open-access capacity (in MW) in such cases alone shall be considered as AvC for the purpose of DSM



charges calculations.

- **Observation:** Since the regulation permits common interface meter for such transactions and AvC determination is also clarified, the DSM charges may be computed in pro-rata basis for such pooling station as the common interface meter would only provide Pooling Station level actual generation.

Determination of DSM Charges for INTRASTATE transactions:

Sr. No	Absolute Error	DSM Charges Payable to State Pool Account
1	≤ 15%	Nil
2	>15% but ≤ 25%	$D_{15} \times \text{Rs.}0.50$
3	>25% but ≤ 35%	$D_{25} \times \text{Rs.}1.00 + D_{15} \times \text{Rs.}0.50$

Note: D_x is the absolute error in kWh for a given error band starting from X% as outlined in column 2.

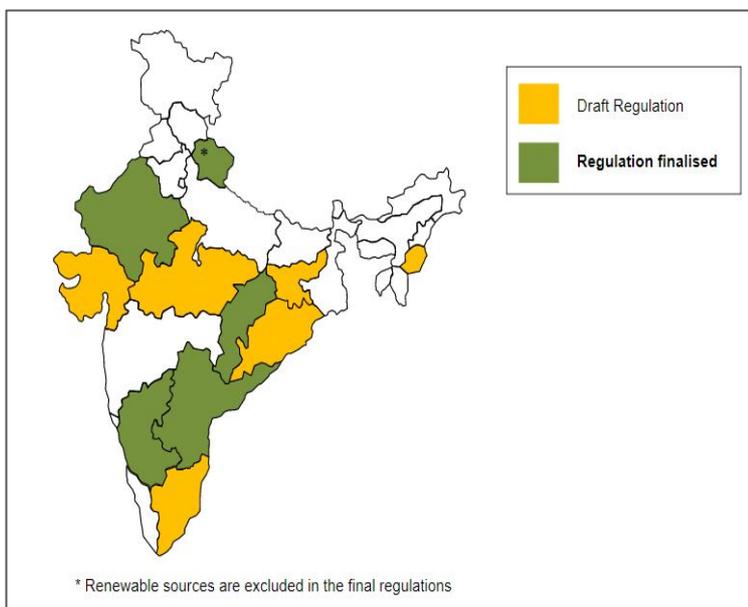
Determination of DSM Charges for INTERSTATE transactions:

Sr. No	Absolute Error	Deviation Charges Payable to State Pool Account by Wind/Solar Generator (Under Injection)	Deviation Charges Payable from State Pool Account to Wind/Solar Generator (Over Injection)
1	>0% but ≤ 15%	$D_0 \times \text{Fixed Rate (FR) / PPA Rate}$	$D_0 \times \text{Fixed Rate (FR) / PPA Rate}$
2	>15% but ≤ 25%	$D_{15} \times \text{FR} \times 1.1 + D_0 \times \text{FR}$	$D_{15} \times \text{FR} \times 0.9 + D_0 \times \text{FR}$

3	>25% but ≤ 35%	$D_{25} \times \text{FR} \times 1.2 + D_{15} \times \text{FR} \times 1.1 + D_0 \times \text{FR}$	$D_{25} \times \text{FR} \times 0.8 + D_{15} \times \text{FR} \times 0.9 + D_0 \times \text{FR}$
4	>35%	$D_{35} \times \text{FR} \times 1.3 + D_{25} \times \text{FR} \times 1.2 + D_{15} \times \text{FR} \times 1.1 + D_0 \times \text{FR}$	$D_{35} \times \text{FR} \times 0.7 + D_{25} \times \text{FR} \times 0.8 + D_{15} \times \text{FR} \times 0.9 + D_0 \times \text{FR}$

Note: D_x is the absolute error in kWh for a given error band starting from X% as outlined in column 2.

The following map depicts where the Forecasting and Scheduling regulations are final, where they are in a draft stage and where they do not exist as of this date:



The Rajasthan regulation can be accessed [here](#).



Regulatory Updates

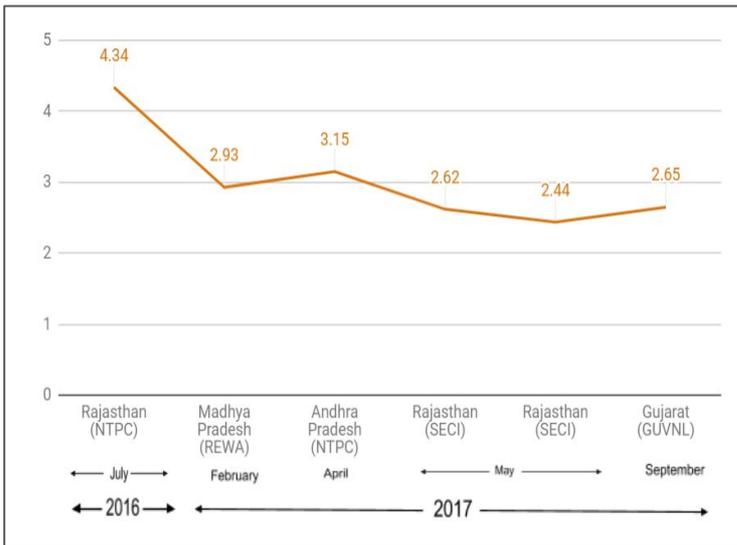
Tariff changes, RPO notifications, Regulatory changes and orders

New wind and solar tariff determined:

In a reverse bidding which took place on 19th September 2017 for a 500 MW solar plant of Gujarat Urja Vikas Nigam Ltd. (GUVNL), the lowest price determined was Rs 2.65 per unit. This was slightly higher than the price of Rs 2.44 determined in the last reverse bidding by SECI.

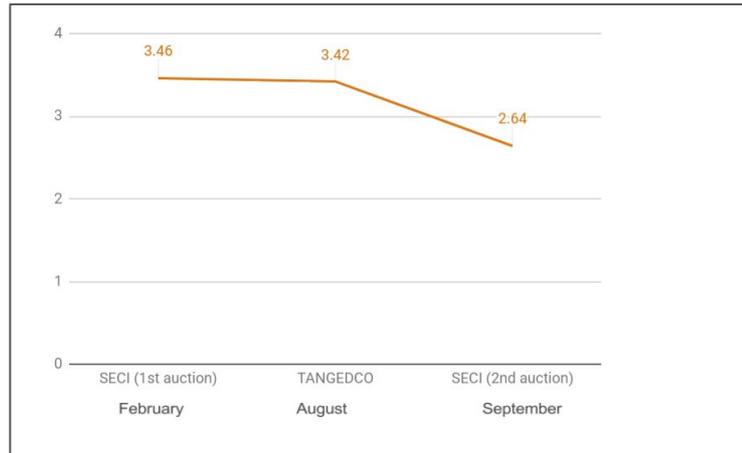
This increase in the price determined was attributed to the implementation of GST and the increase in the cost of solar panels being imported from China. Another reason is that the previous bids were for capacity in solar parks, while the GUVNL bid was not.

A continuous decreasing trend has been seen in the tariff determined for solar projects in the Country this year. The following graph determines the trend in prices of solar power determined in the past:



Also, in the second auction conducted by SECI for 1 GW wind capacity on 4th October, the wind tariff reached an all time low of Rs 2.64 per unit. This tariff was quoted by ReNew Power for 250 MW capacity. This is the lowest wind energy tariff determined in the country after the wind auction conducted by TANGEDCO where a price of Rs 3.42 was determined.

The following graph determines the trend in change of wind tariff in the year 2017:



The article can be accessed [here](#).

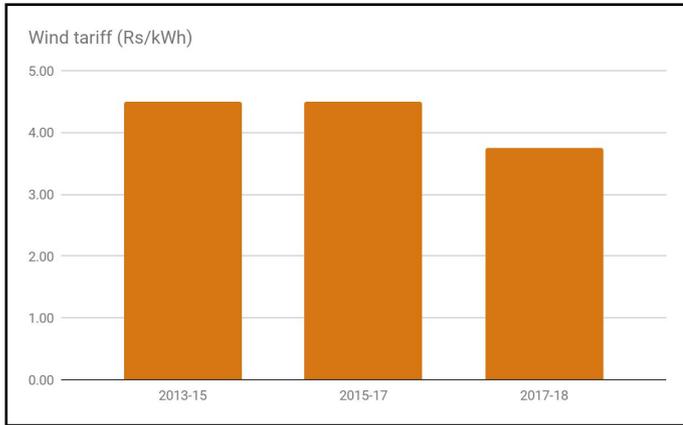
KERC determines generic tariff for wind projects:

The Karnataka Electricity Regulatory Commission (KERC) has determined the generic levelised tariff for FY 2017-18 for wind power projects. Following are the salient features of the order:

1. A tariff of Rs 3.74 per unit has been determined.
2. The debt-equity ratio has been considered as 70:30.
3. The approved capital cost is Rs 6.20 Cr/MW and the CUF is 28%.
4. The tenure of the PPA has been determined at 20 years extendable up to 5 years after approval from the respective ESCOMs and the commission.

The wind tariff had remained at Rs 4.50 per kWh since the year 2013. Another order determining generic tariff for the projects commissioned before and after 2013 had determined that the tariff shall remain the same (Rs 4.5 per kWh) for projects commissioned after 2013 for 5 years.





The order states that this tariff is also applicable to projects for which PPAs were signed at Rs 4.5 per kWh before this order which were not approved by the commission. The developers have been asked by the commission to sign PPAs at the new rate. This is a significant negative development for several projects.

The order can be accessed [here](#).

DERC determines retail tariff for FY 2017-18:

The Delhi Electricity Regulatory Commission (DERC) has determined the retail tariff for the FY 2017-18. The tariff has largely remained unchanged in the state. Following are the salient features of the tariff order:

Categories	Fixed Charge (Rs/kVA/month)	Energy Charge (Rs/kVAh)
Industrial		
Small Industries	125	7.90
Large Industries	130	7.40
Commercial	130	8.40

The tariff for Industrial and commercial consumers has not changed since the year 2014-15.

In an attempt by the Delhi government to promote pollution free transportation, the tariff

applicable at the e-rikshaw/vehicle charging station has been reduced and has been determined at Rs 5.50/kWh.

This is the first time that tariff for electric vehicles was determined

The notice can be accessed [here](#).

DERC proposes draft amendment to its open access policy:

The DERC had released on 1st June, 2017 the amendments to the regulations determining the open access charges applicable to consumers in the state released in 2005. Following are the changes observed in the amendment:

- A category of medium term open access consumers has been included in the type of open access consumers. They are defined as the consumers availing open access for a period between 1 to 3 years.
- Therefore, the priority of providing open access shall be given first to long term open access consumers, followed by medium term and then short term open access consumers.
- The procedures and guidelines for grant of medium term open access shall be the same as that allotted to long term open access consumers.
- A medium term open access consumer shall have the rights to relinquish rights after giving a 30 day notice period to the nodal agency. This provision is on a condition that the consumer shall pay either transmission or the wheeling charges for the 30 day period.
- The procedures and guidelines for grant of medium term open access shall be the same as that allotted to long term open access consumers.
- A medium term open access consumer shall have the rights to relinquish rights after giving a 30 day notice period to the nodal agency. This provision is on a condition that the consumer shall pay either transmission or the wheeling charges for the 30 day period.
- If for any reason, there needs to be curtailment of transmission charges, it will happen in the order of short term open

- access consumers first followed by medium term consumers and then long term consumers.

Post this, the DERC released another amendment to the above referred policy.

Following are the amends proposed:

- Replacement of sub clause 1 to “any surcharge to the distribution licensee as applicable to the other embedded consumers”
- Clause 2.5, which mentions the surcharge applicable to other embedded consumers are:
 1. “The Open Access consumer shall be liable to pay any other surcharge as applicable to embedded consumers of the distribution licensee at the rate specified in the applicable tariff order.
 2. For the purpose of computation of surcharge, the distribution licensee shall compute the surcharge treating the total power consumption of the open access consumer as if taken from the distribution licensee.”

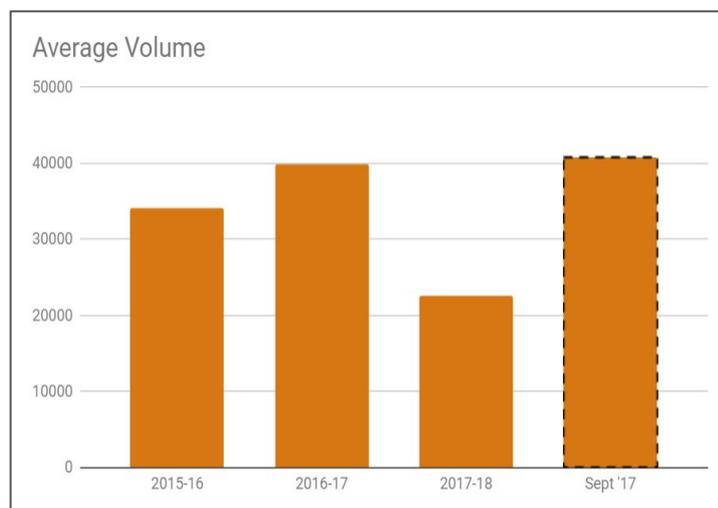
Comments/ objections from stakeholders are invited till 26/09/2017.

The amended regulation can be accessed [here](#). The public notice inviting comments can be accessed [here](#).

IEX’s electricity price in Day Ahead Market touch new high in September:

In the Day Ahead Market trading held by IEX (Indian Energy Exchange), the average tariff of electricity has been between Rs 3 to Rs 4 per unit in the past. But within 12 days of September, the average tariff has gone up to Rs 8.7 per unit.

This increase in prices is majorly attributed to the increase in volume of electricity bought by the states and through open access on the day ahead market.



The article can be accessed [here](#).

CERC proposes APPC at national level:

The Central Electricity Regulatory Authority (CERC) in an order dated 31/08/2017, has determined the Average Power Purchase Cost (APPC) for the FY 2017-18. The value of Rs 3.48 has been determined by computing the average APPC of all states and UTs. This excluded the cost of generation and procurement from RE sources. The order gives the methodology used to determine the APPC.

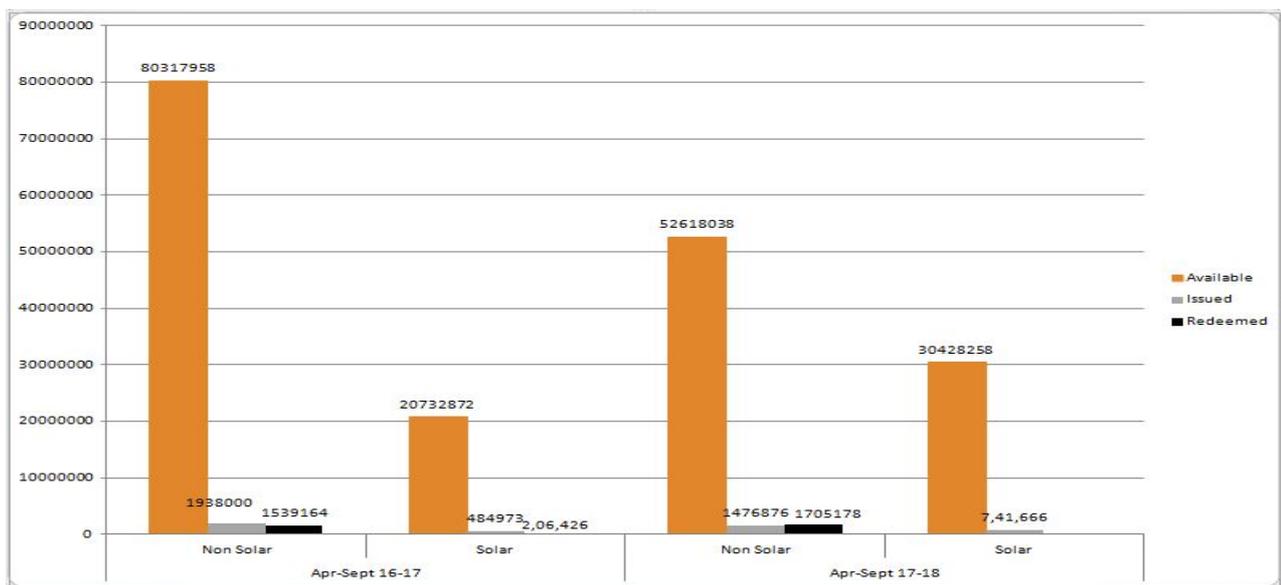
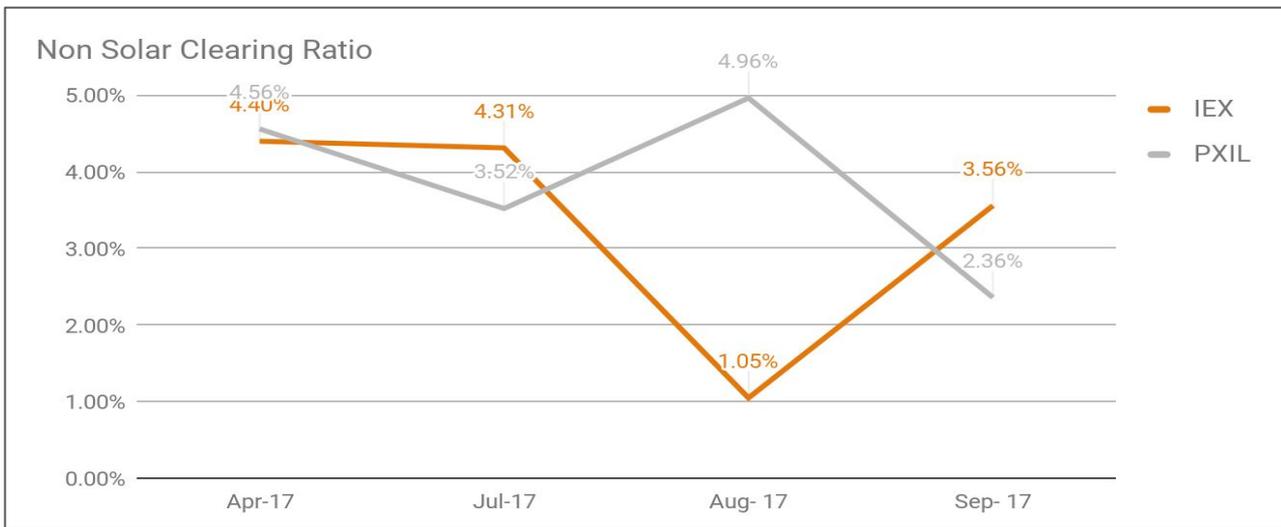
The order can be accessed [here](#).



Non-Solar RECs:

Non-solar demand was significantly higher than in September 2016, and also higher than last month. In total 3.82 lakh RECs were traded (47.56% higher than September 2016, and 32% higher than in August 2017), and clearing ratios on IEX and PXIL were 3.56% and 2.36% respectively.

Overall, for the six months ended September, Non-solar demand is up by 11% compared to the same period last year. Solar demand is up by 27% despite reading only in April this year. Since then, trading has been suspended due to the stay imposed by the Supreme Court.



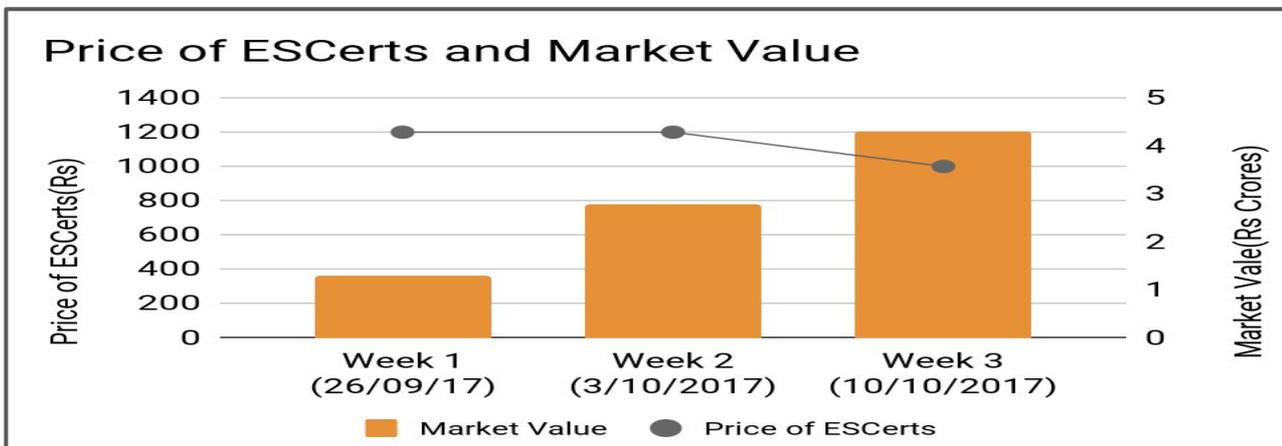
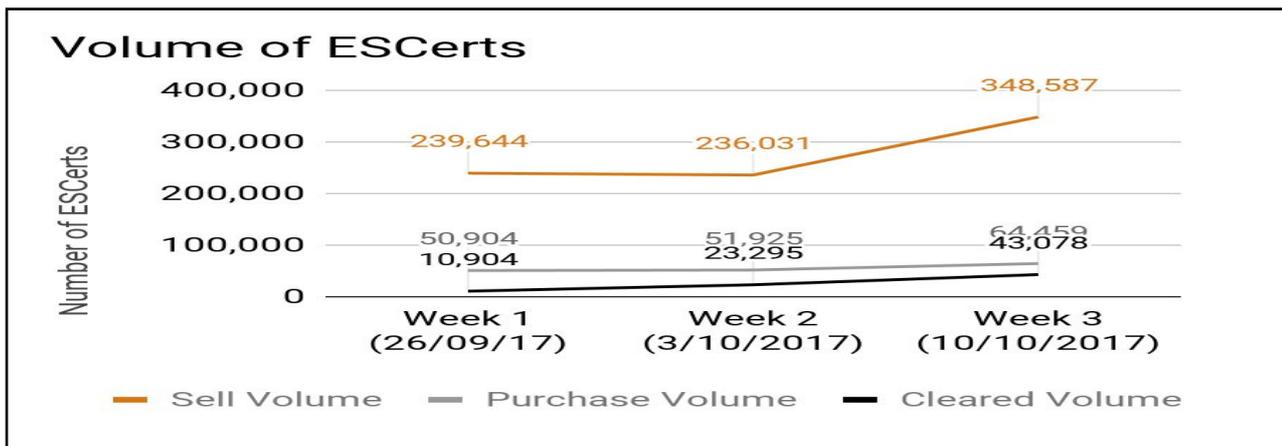


ESCerts Trading - Results:

Trading of ESCerts took place for the first time on 26th September. Till now, three trading sessions have been successfully completed.

The demand of ESCerts in this trading session was expected to be lower than supply because of the following reasons: 1) All sectors have overachieved; and 2) DCs were likely to wait and review the discovered price before making their trading decisions.

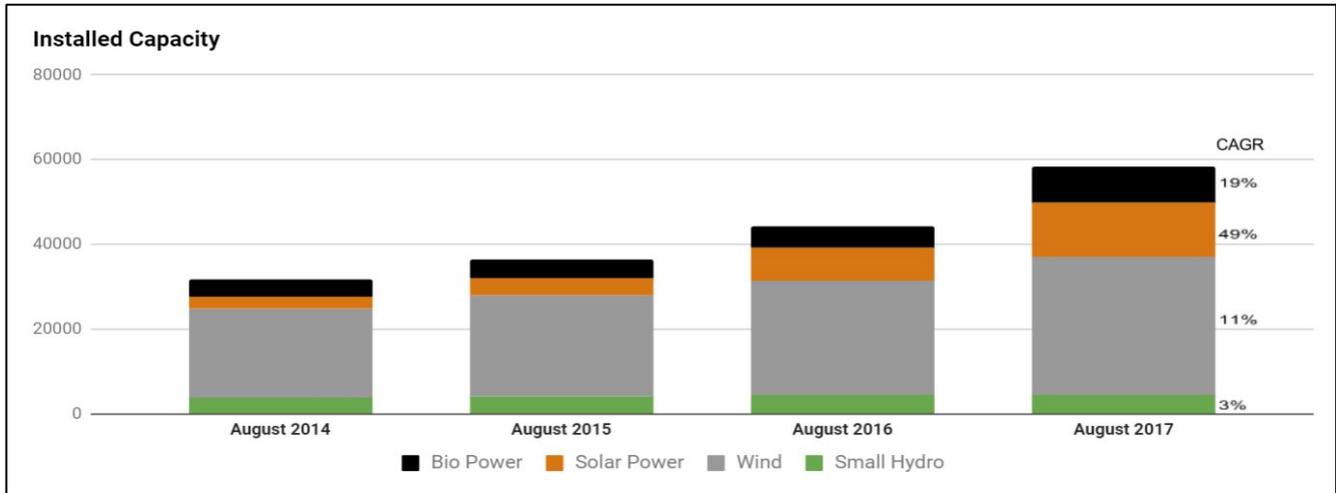
The trading took place only on IEX. In the first week, there was a demand for 50,904 ESCerts, against a total supply of 2,39,644 ESCerts. Market clearing price was determined at Rs 1,200/ ESCert, with only 10,904 ESCerts sold (the total traded value was Rs 1.31 crore). For the second trade session, there was a demand for 51,925 ESCerts which was higher than the demand in the first week by 2.01%. This demand was against a total supply of 2,36,031 ESCerts. Market clearing price was determined at Rs 1,200/ ESCert, with 23,295 ESCerts sold (more than twice the volume was cleared; the total traded value was Rs 2.79 crore). For the third week, there was a demand for 64,459 ESCerts, an increase of 24.14% from last week which was against a total supply of 3,48,587 ESCerts. Market clearing price was determined at Rs 1,000/ ESCert, with 43,078 ESCerts sold (almost twice the volume was cleared; the total traded value was Rs 4.30 crore).



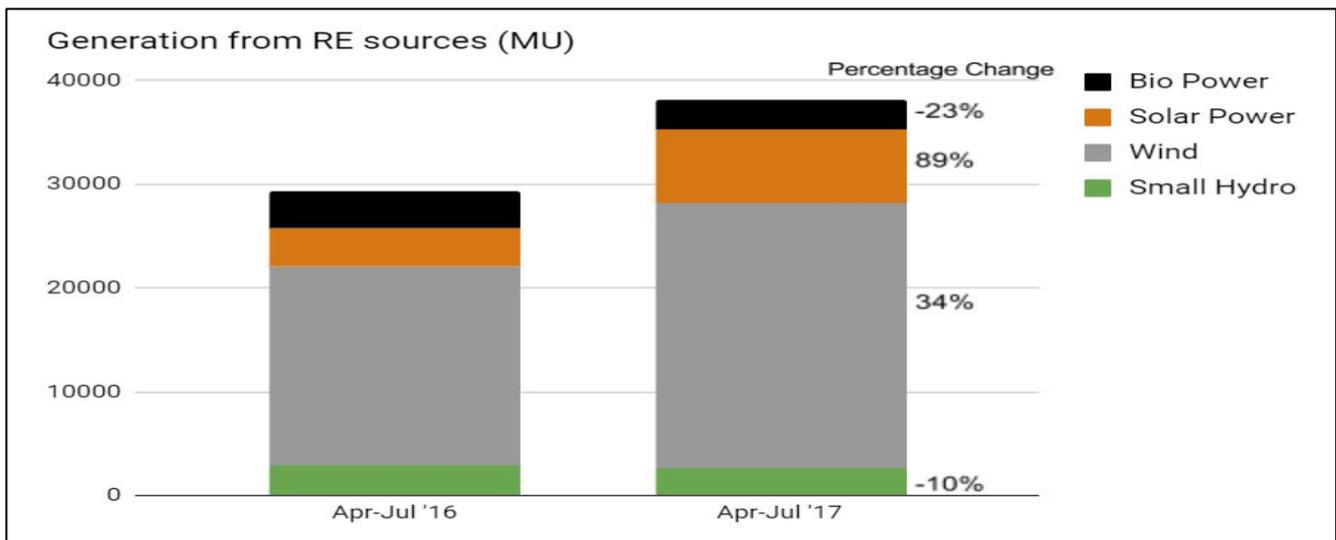


RE Generation

RE power capacity and generation statistics for the month



As per the recent CEA report there has been no increase in RE capacity between July and August 2017. This is not surprising as record low tariffs of solar and wind power force developers to re-evaluate projects. The installed capacity of wind and solar have risen drastically since the past four years. The Compounded Annual Growth Rate (CAGR) is maximum for solar (49%) while it is the lowest for small hydro projects (3%). Given the current situation of focus on wind and solar, and record low tariffs for these, capacity growth in small hydro and biomass is likely to remain subdued going forward.



Compared to the generation between April to July this year and last year, Wind and Solar projects has shown significant growth. This is on expected lines, as capacities have grown immensely for both categories. Generation from Small Hydro has reduced by 10%. Similarly, there has been a reduction of 23% in the generation from biomass. This includes power generation from bagasse plants.

Source: Reports from CEA





About REConnect

About REConnect Energy: REConnect Energy is India's largest renewable energy services company with services offered under energy transactions management and predictive analytics for energy markets. In predictive analytics, the Company offers its energy forecasting and scheduling services to various utilities and wind/solar project developers. The current renewable energy forecasting portfolio stands at about 10,500MW at wind/solar farm level forecast and about 26,000MW at utility scale forecast where state/regional level forecasting is provided to some of the largest utilities in India. Under renewable energy certificate (REC) market, the Company represents about 45% of the market at national level. The Company is also supported by [INFUSE Ventures](#), a venture fund supported by MNRE.

Awards & Industry Recognition

- ★ Best Indian Start-up, Indo-German Boot Camp (GIZ), Social Impact Lab - Berlin, Germany
- ★ Top 30 Global Energy Start-ups, NewEnergy Expo-2017, Astana, Kazakhstan
- ★ Top 50 Indian Start-ups, The Smart CEO - 2016, Bangalore, India
- ★ Best Wind Energy Forecaster of the Year (2014/15/16/17), Indian Wind Energy Forum
- ★ Technology Start-up Enterprise of the Year (Energy & Utilities) - 2017, 24MRC Network, India
- ★ Top 100 Global Energy Start-ups, Start-up energy transition Awards, Berlin, Germany
- ★ Times Network Award in Innovation in Digital Energy Solutions, New Delhi, May 2017

Interview Video Links

