



The Energy Solutions Company

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Dear Reader,

We are very happy to inform that we have been registered as the first Qualified Coordinating Agency (QCA) in Karnataka. We are the largest aggregator in Karnataka, currently scheduling 2,050 MW, and increasing.

The Central Electricity Authority has released the 19th Electrical Power Survey report. This document is released by the CEA periodically and provides extensive state wise, region wise and category wise projections of the electricity demand for the coming years.

The 19th EPS estimates overall power consumption will grow at 5.9% over the next decade, with the highest rate of growth in the Domestic sector (7.5%).

REC trading took place in the month of July but only for non-solar RECs. This was because of a Supreme Court order dated 17 July 2017, which allowed conditional trading of non-solar RECs.

The trading session for July saw good demand in non-solar RECs. Total non-solar demand was 4.95 lakh (8.88 L in April) and the clearing ratios on IEX and PXIL were 4.31% and 3.52% respectively. Comparable demand for July 2016 was 2.35 lakh.

The regulatory section of this newsletter covers draft RPO trajectory of MP, Retail tariff in Haryana, Wind Tariff in Rajasthan and Bihar's policy on RE promotion and other updates. MP has also proposed changes which will take away "Must Run" status from RE projects. This is a significant change, and one that may have a big impact on the RE capacity in the state. It's noteworthy that till last year, MP had the highest wind tariff in the country - this resulted in large capacities being set up.

We hope that you find this newsletter an informative read and, as always, we look forward to feedback and comments.

- Team REConnect





Analysis of 19th Electricity Power Survey of India

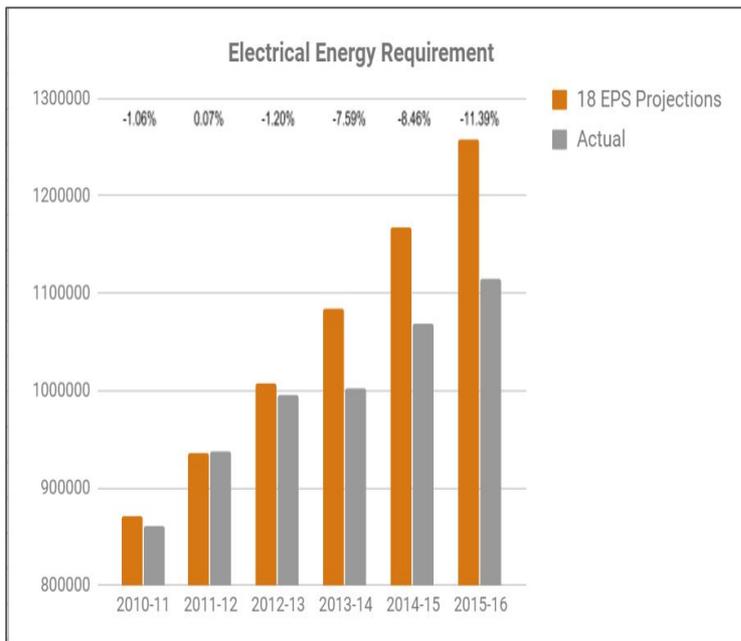
CEA has released the 19th Electric Power Survey Report

The Central Electricity Authority (CEA) released the 19th Electricity Power Survey of India Report. The CEA periodically carries out Electrical Power Survey (EPS) for estimating the electricity demand of all states and UTs, regions and for the country.

The last EPS report (the 18th Survey) was published in December 2011. It contained the electricity demand forecast from 2009-2010 to 2021-22. It also covered the long term electricity demand forecast for the year 2026-27 and for the year 2031-32. On those lines, the 19th EPS report covers the electricity demand for FY 2016-17 to 2026-27 and the forecasted electricity demand projection for years 2031-32 and 2036-37.

Key findings from the 19th EPS:

Actual demand growth was significantly lower than expected in the 18th EPS:



Key reasons for lower actual demand are:

- It was presumed that all the households in the country would be electrified by 2016-17

- Increase in the energy efficiency of appliances and increased energy conservation measures by industries have played a role in reducing demand. BEE's efforts under the appliance energy rating project and PAT mechanism have likely played a key role in this. As on May 2017, close to 5.25% of energy has been saved on an annual basis¹.
- It's noteworthy that demand growth in FY 2013-14 was very low (0.67% compared to overall CAGR of 8.50%). A possible reason for the same could be the "policy paralysis" under the previous government that industry and media talked about and its effect on power consumption, especially in the industrial and commercial sector.

Overall power consumption is expected to grow at a rate of 5.84%.

Year	Electrical Energy Requirement (MUs)	CAGR (%) of electrical energy requirement
2016-17	11,60,429	
2021-22	15,66,023	6.18
2026-27	20,47,434	5.51



1: Achievements under performance, achieve and trade (PAT) by BEE, May 2017



The EPS says the following:

*“The higher CAGR of electrical energy requirement during 2016-17 to 2021-22 as per 19th EPS is to cater to **Power for All** initiative of the Government of India/ State Governments, **Make in India** initiatives, **Dedicated Freight Corridor** and the other developmental activities envisaged by Central and state government.”*

Demand growth will be most rapid in the “Domestic” sector, growing at a annualised rate of 7.5% over the next decade. This is potentially bad news for the sector as domestic and agricultural (expected to grow at 6%) segments are heavily subsidised. This also underscores the need for urgent reforms, including potentially the need for Direct Benefit transfer (i.e. Aadhar linked subsidies like in LPG; this has been proposed by the NITI Aayog in the draft energy policy; was covered in the previous newsletter)

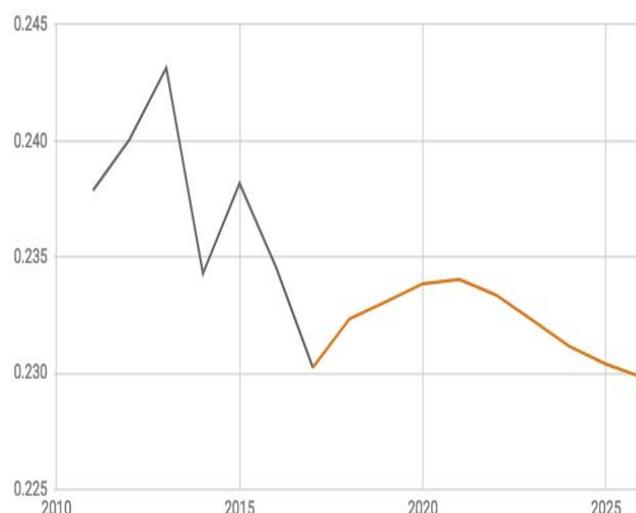
	2016-17	2021-22	2026-27	CAGR
Domestic	2,59,311	3,86,790	5,32,651	7.46%
Commercial	91,936	1,28,888	1,78,358	6.85%
Irrigation	1,95,473	2,76,277	3,53,538	6.10%
Industries	2,80,855	3,86,244	5,19,425	6.34%
Others	93,005	1,22,246	1,58,616	5.48%

GDP growth vs energy demand:

The Gross Domestic Product (GDP) of a country is the value that the finished goods produced in a given timeframe. India is experiencing rapid growth in GDP over the last several years. In Fact, it is one of the fastest growing large economies of the world. At the same time, India is growing more efficient in consuming power.

The graph below depicts the electricity intensity of India - the number of units required to producer \$1 equivalent of goods and services. Between 2012 to 2016, this has declined by 5.3%.

Units of energy required per dollar of GDP



However, despite a strong downward trend in the past, curiously the projections in the 19th EPS imply a rise in the intensity in the next 5 years, with a fall later. This will result in the electricity intensity a decade later to be the same as in 2015-16.

The decline in electricity intensity is a long term trend. Its forecasted reversal, therefore, needs to be viewed with some scepticism. A possible conclusion from the above analysis is that, like the 18th EPS, the 19th EPS is also overestimating demand by a wide margin.

On the other hand, if the electricity intensity does indeed increase, India will struggle to meet its commitments under the Paris agreement, where it committed to reduce the overall energy intensity by 20-25% from 2005 levels.



Regulatory Updates

Tariff changes, RPO notifications, Regulatory changes and orders

MPERC DETERMINES DRAFT RPO REGULATIONS:

The Madhya Pradesh Electricity Regulatory Commission (MPERC) has determined the RPO percentages which are to be followed by the obligated entities of Madhya Pradesh. The percentages determined by them are as follows:

Year	Solar	Non-Solar	Total
2017-18	1.50%	7.00%	8.50%
2018-19	1.75%	7.50%	9.25%
2019-20	4.00%	8.00%	12.00%
2020-21	6.00%	8.50%	14.50%

A comparison of the proposed RPO regulations to the RPO trajectory given by the MoP is as follows:



The proposed RPO targets for the state of MP have been consistently lower than the MoP trajectory.

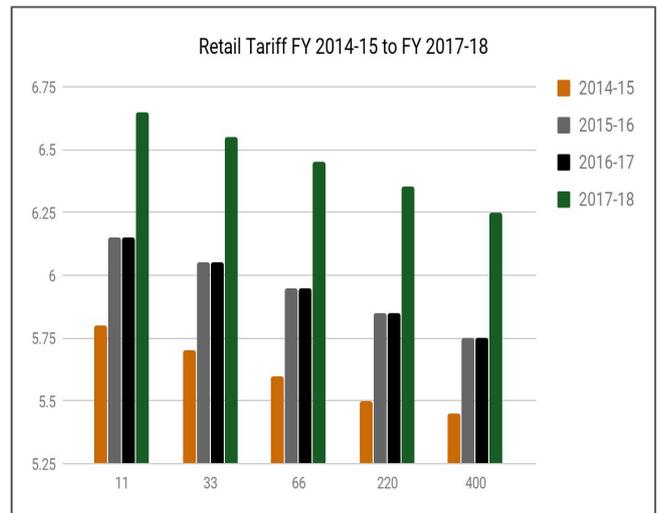
The regulation can be accessed [here](#).

HERC DETERMINES RETAIL TARIFF FOR FY 2017-18

The Haryana Electricity Regulatory Commission (HERC), in an order dated 19/07/2017 has released the retail tariff for the state for FY 2017-18.

Overall, HERC approved increase in tariffs ranging from 0% to 8%.

A change in retail tariff for the HT category at different supply voltages is as follows:



Cross Subsidy Surcharge: 1.63 Rs/kWh

Wheeling Charges: 0.84 Rs/kWh

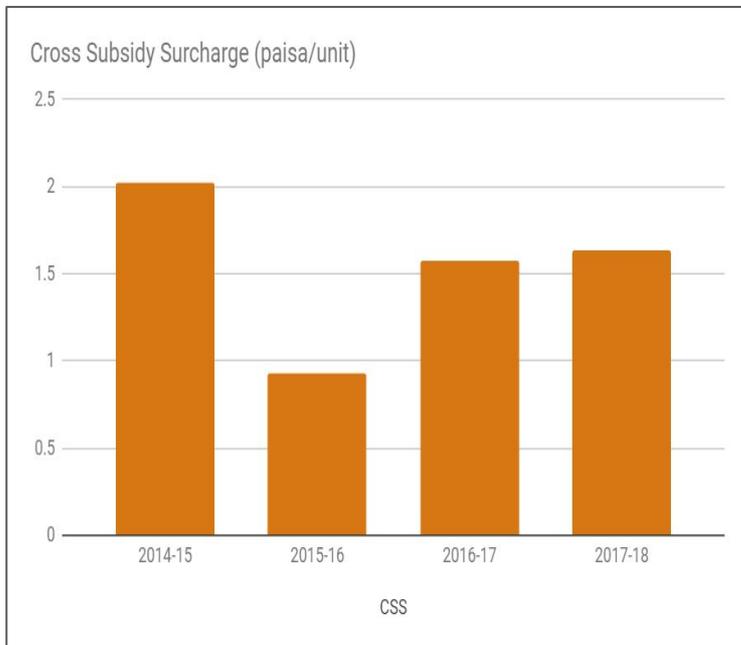
Wheeling loss: 24.79% and 21.96% respectively.

Transmission Losses: 3.82%

Additional Surcharge: 0.99 Rs/kWh

The change in cross subsidy surcharge for HT consumers over a period of two years is as follows:





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

BIHAR RELEASES POLICY FOR PROMOTION OF NEW AND RENEWABLE ENERGY SOURCES 2017:

Bihar has released its policy for promotion of new and renewable energy sources. This is a comprehensive policy which is inclusive as well as techno-neutral. Following are the key proposals in the policy:

- Bihar shall be made self sufficient by addition of 3343 MW of renewable energy to the grid by 2022.
- Technology specific targets as determined in the policy are 2969 MW of solar, 244 MW of biomass and bagasse cogeneration and 220 MW of small hydro.
- Dedicated rooftop solar target of 1000 MW with both net metering and gross metering mechanisms.
- For RE projects, 100% banking of energy will be permitted for all 12 months.
- Exemption of VAT, duty and CSS for different consumers.

- Key thrust to the mini-grid sector, with target of 100 MW with specific subsidies and proposed rollout framework.

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

Currently Bihar has an installed capacity of 295 MW. The policy suggests that the state is aiming for a very significant increase in installed capacity. This target looks overambitious and difficult to achieve.

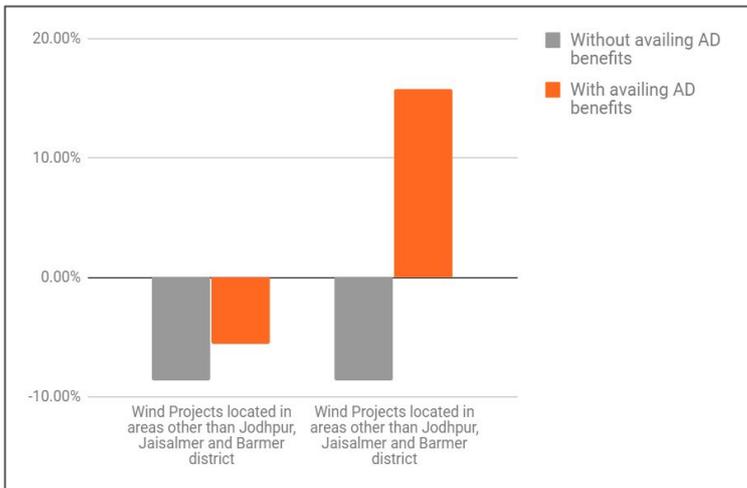
RERC DETERMINES RE TARIFF FOR FY 2017-18:

The Rajasthan Electricity Regulatory Commission (RERC) has determined the generic tariff for sale of wind power for the FY 2017-18.

The capital cost (which includes the cost of transmission system including pooling station upto the interconnection point which also includes the grid connected charges payable to the transmission licensee) determined by the RERC is Rs 525 lakh per MW for the wind projects commissioned in the FY 2017-18.

Particulars	Tariff without AD (Rs/kWh)	Tariff with AD (Rs/kWh)
Wind Projects located in Jodhpur, Jaisalmer and Barmer district	5.26	4.87
Wind Projects located in other areas	5.52	5.12

As compared to last year, the change in wind tariff can be seen as follows:



Considering that now wind projects are likely to be awarded through the reverse bidding route, tariffs declared by RERC are unlikely to be any consequence.

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

MPERC PROPOSES AMENDMENT TO REGULATION ON CO-GENERATION OF ELECTRICITY FROM RENEWABLE SOURCES

The Madhya Pradesh Electricity Regulatory Commission (MPERC) has released the seventh amendment for Cogeneration and generation of electricity from RE sources of energy.

The following substitutions have been proposed in the amendments are as follows:

- Open access shall be available for any person generating electricity from Cogeneration and renewable sources of energy as per section 42 of the Electricity Act, 2003. This shall be subject to the availability of adequate capacity in the transmission/distribution licensees system within the state.
- Conditions of “scheduling” and “merit order dispatch principles” shall be applicable to the generators from Co-generation and RE

- sources of energy as per the commission's decision from time to time. Before this amendment, merit order dispatch principles were not included in case of generation from Cogeneration and RE sources.
- For reasons such as synchronisation of plant with grid, shutdown of plant or during emergencies, the generator/co-generation from RE sources would be allowed to draw power exclusively for its own use from transmission/distribution licensee's network.
- Billing of power in case when its availed during synchronisation of plant will be done at the rate defined in the retail supply tariff order. Similarly, in other cases, it will be billed as per the rate for temporary connection under HT industry category.
- The charges applicable as wheeling charges, cross subsidy surcharge and additional surcharge shall be as per the Commission.

The last date for submission of comments is 18 August, 2017 and a public hearing has been scheduled on 22 August, 2017

The most significant change proposed in the amendment is the plan to do away with “Must Run” status for RE, and subjecting it to “merit order dispatch principles”. The draft National Electricity Policy released by the NITI Aayog recently has also proposed this, but over the long term.

This change, if enacted, is likely to have a big impact on the recently installed wind capacity in MP. Till 2015-16, MP offered the highest tariff in wind anywhere in the country (Rs 5.91/kwh). As a result, significant capacity was installed (2497.79 MW). Now, if “merit order dispatch” is applied, power from such projects, being the most expensive, may often not be taken at all.

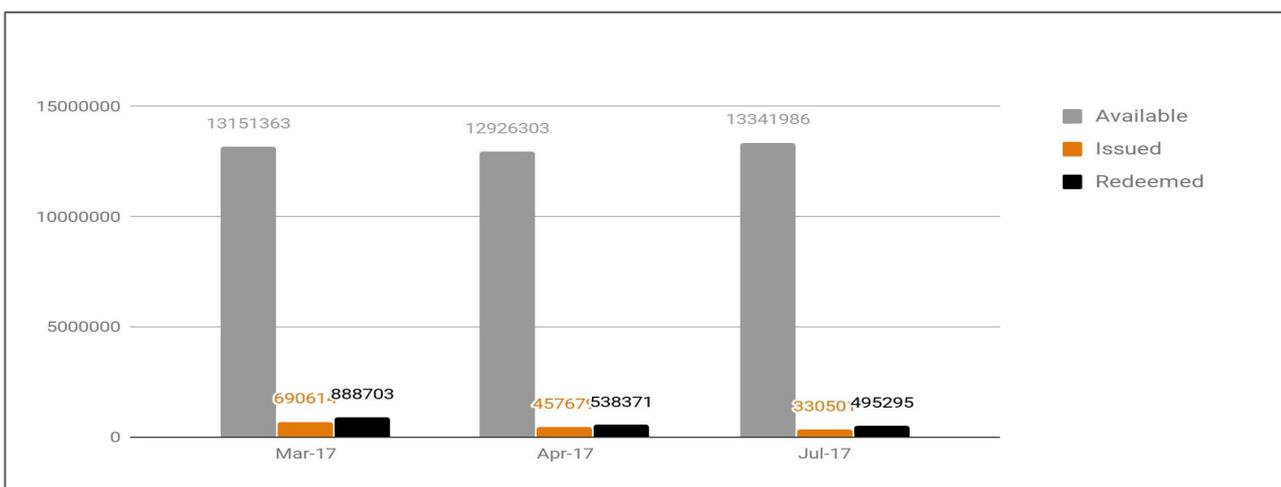
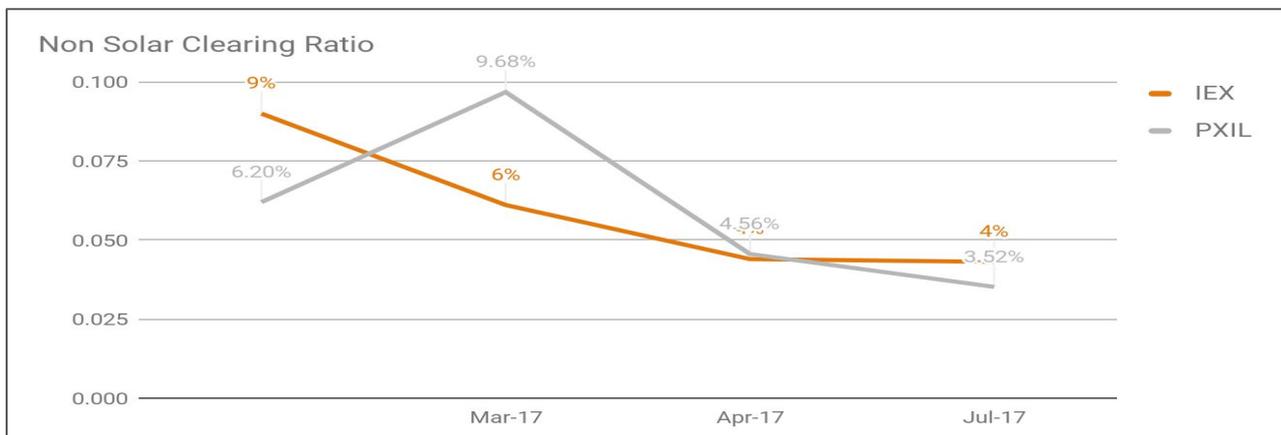
The order can be accessed [here](#).



Non-Solar RECs:

Supreme Court allowed conditional trading of Non-solar RECs on July 14, 2017 (our blog on the same can be accessed [here](#)). Demand was expected to be low for two reasons – 1) obligated entities are required to procure RECs at old RECs rate (Rs 1500/ REC); and 2) compliance is required to be done by March, therefore obligated entities have enough time to comply even after the final order of Aptel is received.

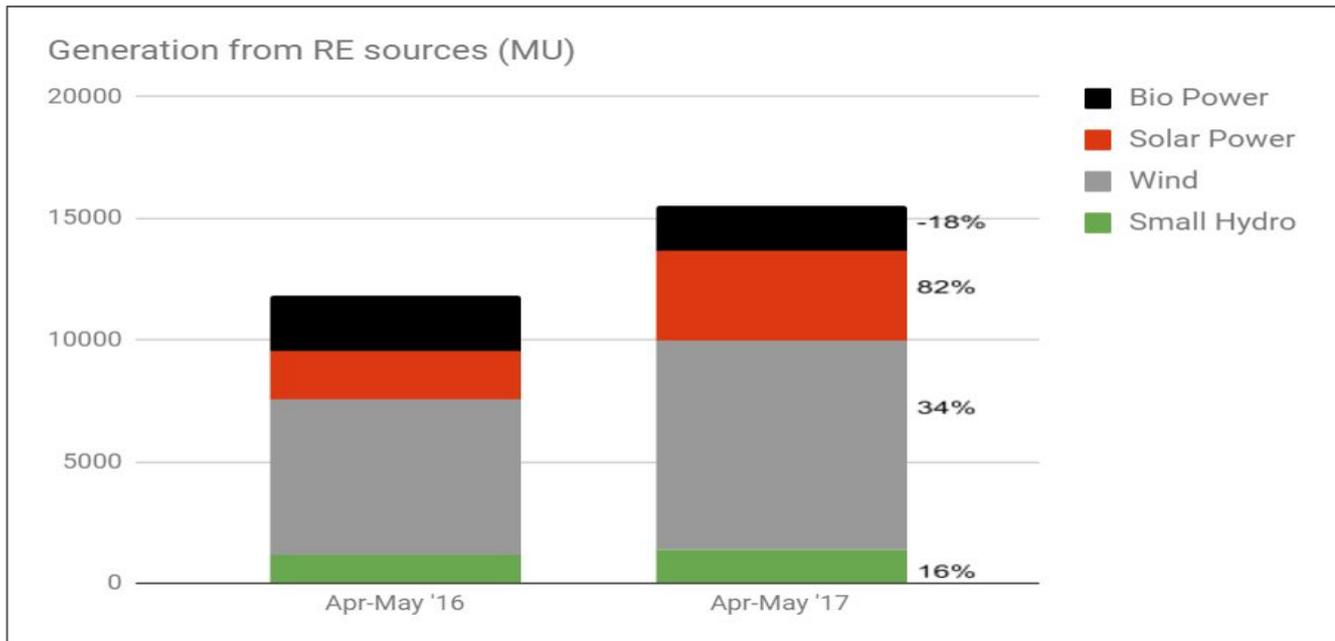
However, demand for Non-solar RECs was robust. In total 4.95 lakh RECs were bought (110.76 % higher than July 2016), and clearing ratios on IEX and PXIL were 4.31% and 3.52% respectively. Higher demand was primarily driven by demand for some utilities where state regulators had given RPO enforcement orders in recent months.



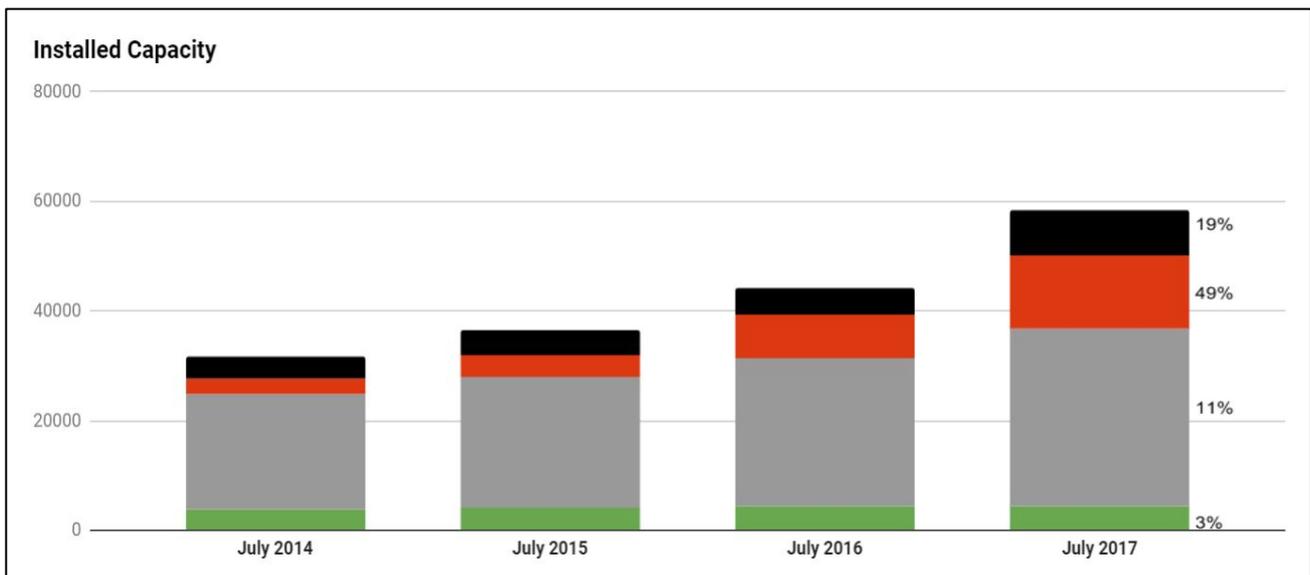


RE Generation

RE power capacity and generation statistics for the month



Compared to the same period last year, generation from Wind and Solar projects has shown significant growth. This is on expected lines, as capacities have grown for both categories. Generation from Small Hydro has grown by 16%. However, this is likely to be due to seasonal factors (better or early monsoon), rather than due to increase in installed capacity. Similarly, reduction in power from biomass is likely to be due to seasonal variation.



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%). In the current situation of record low tariffs, capacity growth in small hydro and biomass is likely to remain subdued going forward.

Source: Reports from CEA





About REConnect

REConnect Energy is India's leading service provider to the renewable energy sector. We provide advanced data analytics for grid management, REC and ESCerts trading services. We also work with power consumers to manage Renewable Purchase Obligation (RPO) liabilities, and develop and execute their energy sourcing strategy. We are India's largest provider of forecasting and scheduling services, serving government and power generators. We are a knowledge focused company that prides itself in providing premium services to our clients backed by proprietary technology, an in-house data science capability and in-depth research & analysis.

REConnect is run by an experienced and professional team. The team consists of members with relevant experience of working at IEX, L&T, JP Morgan, Arthur Andersen and Gensol. Key members of the team are alumnus of IIT Bombay and Columbia University (an Ivy League university).



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For more details of services provided and profile of the management team, please visit our [website](#).

