

Renewable Energy Monitor

October 2015

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- Solar power tariff touches new low of Rs 5.05.
- India ratings: solar power tariffs to reach grid parity by FY18.

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India's Paris Pledge: 40% Renewables by 2030; 33-35% reduction in emissions intensity.

India's Intended Nationally Determined Contribution (INDC) will see a fivefold increase in renewable energy in the world's third largest electricity market by 2022, driving significant further cost reduction and innovation, according to the Institute for Energy Economics and Financial Analysis (IEEFA). India has formally committed to lift renewable energy installations from the current 36GW

fivefold to 175GW by 2022. In addition, India has announced a significant new target to take renewable installs to 40% of installed capacity by 2030, relative to only 13% today. A tenfold increase in India's renewable base will drive technology, innovation and cost reduction not just in India, but globally. And we have already seen a 70% drop in the installed cost of solar in the past five years. As IEEFA detailed in its August 2015 '[India's Electricity Sector Transformation' report](#), well over US\$100 billion has been committed in India's renewable sector in 2015 alone.

Maharashtra approves state solar net metering policy. The Maharashtra Electricity Regulatory Commission (MERC) has officially approved its net metering policy for rooftop PV in the state. The introduction of net metering, announced in a gazette notice, will allow commercial and domestic solar consumers to get credit for the solar power they generate. The scheme will apply to PV systems with <1MW capacity under 20-year agreements. A MERC statement said eligible consumers must use or intend to use a PV system installed on a rooftop or any other mounting structure in their premises, to meet all or part of their own electricity requirement. The scheme comes under the 'Net Metering for Rooftop Solar Photovoltaic Systems Regulations 2015'.

APERC to evolve solar-wind hybrid policy. The Andhra Pradesh Electricity Regulatory Commission (APERC) is in the process of evolving a solar – wind hybrid policy facilitating co-development of solar and wind energy projects. The Commission has embarked upon the hybrid policy in view of the 'great synergy' between the solar and wind projects wherein power transmission infrastructure created by either of them could be utilized by the other. Accordingly, the existing open access and interim balancing & settlement code were being amended to suit the requirements in the changed scenario.

Gujarat solar power policy 2015. The Energy and Petrochemicals Department Government of Gujarat brought out the second solar power policy announced by the Government. The first one was unveiled in 2009. The new solar power policy 2015, is set to boost entrepreneurship. Experts welcomed the policy, terming it a step towards decentralisation of solar power generation. The policy, effective till March 2020, looks to encourage investors to set up megawatt-scale projects under solar photovoltaic and solar thermal technologies. It is also aimed at encouraging smaller generation units, mainly kilowatt (kW)-scale solar projects, in the form of solar rooftop systems. The minimum size of a MW-scale project would be 1 MW and that for a kW-scale project would be 1 kW, the policy document noted. The policy is yet to be notified by the government.

Gujarat becomes the first state to implement agro-solar policy. Gujarat will soon be the first state to launch a new renewable energy program that will use solar energy to power the agricultural sector. This new policy will get in place in the coming months and the state government will be working with the farmers to create a mutually beneficial energy production ecosystem. With this new system the state claims to empower the Indian farmer with not only a self-sustaining energy production system but also provide an alternate source of income.

Delhi new solar policy 2015 draft released. The policy aims to promote solar power, especially roof-top via a combination of generation targets, regulations, mandate and incentives. The government plans to install solar panels on the roof-tops of every government buildings, starting with Delhi Secretariat. The draft policy promotes net metering for all solar plants above 1 kW based on the net metering regulations issued by the Delhi Electricity Regulatory Commission in 2014. It mandates the deployment of solar plants on all government-owned roof-tops in the next five years and requires DISCOMS to meet at least 75 percent of their solar renewable purchase obligation within Delhi. It also provides a generation-based incentive of Rs.2 per solar energy unit in the domestic segment for three years. In addition, it calls for the exemption of electricity tax on solar energy, and waives VAT on all solar plant components, including solar panels and solar inverters, for five years. The task of drafting Delhi's solar energy policy was led by an IIT Kharagpur alumni Mr Namit Arora and Rajneesh Shrivastava of the [EE&REM Centre](#) - the state nodal agency responsible for the effective implementation of the policy.

Cabinet clears policy for offshore wind farms 2015. The Union cabinet approved the [National Offshore Wind Energy Policy](#) 2015, aiming to harness wind power along India's 7,600 km coastline. The decision paves the way for offshore wind energy development, including projects and research and development activities up to a seaward distance of 200 nautical miles, which constitutes the exclusive economic zone (EEZ) of the country. The move was panned by experts who said India should instead first achieve the full potential of the onshore wind power.

National Offshore Wind Energy Policy 2015: Salient Points

- To Explore and Promote Deployment of Offshore Wind Farms in the Exclusive Economic Zone (EEZ) of the country, including those under Public Private Partnership
- To Promote Investment in Energy Infrastructure
- To Promote Spatial Planning and Management of Maritime Renewable Energy Resources in the Exclusive Economic Zone of the country through suitable incentives.
- To Achieve Energy Security
- National Reduce Carbon Emissions. 6/21
- To Encourage Indigenization of the Offshore Wind Energy Technology.
- To Promote Research and Development in the Offshore Wind Energy Sector.
- To Create Skilled Manpower and Employment in the offshore wind energy sector.
- To facilitate development of Project EPC and Operation & Maintenance with regard to offshore wind industry.
- To develop coastal infrastructure and supply chain to support heavy construction & fabrication work and the Operation & Maintenance activities.

Union Minister Mr Piyush Goyal said under the policy, there will be wind energy mapping of the country and locations with high potential will be identified. Government will get all approvals for these areas from departments such as defence, shipping and space and offer them under bidding. He further said estimates showed the Gujarat coastline has the potential to generate around 106,000 megawatts (MW) of offshore wind energy and Tamil Nadu about 60,000 MW. Worldwide installed capacity of offshore wind projects is around 8,500 MW and of that, around 4,500 MW is in the United Kingdom alone.

Uttar Pradesh biomass energy policy 2015. Uttar Pradesh is targeting 1,000 megawatt (mw) of biomass energy under the new UP Biomass Energy Policy 2015, which is being finalized. The government is mulling providing 100% stamp duty on acquiring private land for setting up biomass power plant. If such plant is set up under a joint venture with state nodal agency UP New and Renewable Energy Development Agency (NEDA), the latter would provide land as its equity share. The draft policy is ready and now NEDA is soliciting suggestions from experts and general public before the government implements it. The policy would be effective for the next 10 years and be subject to amendments. The dual purpose of the policy would be to meet a part of energy demand-supply gap in UP and to encourage renewable energy resources. Those eligible to set up biomass power plants under the policy includes government agencies, private companies, joint ventures, local bodies (both urban and village panchayat) etc. Under the policy, maximum 2 acres of land per mw capacity could be acquired for setting up biomass power plant.

Centre sets renewable energy target. The Union government has announced an increased renewable energy target of 175 GW by 2021-22, from 38 GW. Of this, 100 GW is planned from solar, 60 GW from wind, 10 GW from biomass and 5 GW from hydropower. If these targets are realised, renewable energy (RE) is expected to contribute about 20 per cent of electricity generation by 2021-22. By 2030, India should be able to generate 40 per cent of its fuel from non-fossil fuel sources and adoption of this for domestic consumption will get a 15 per cent subsidy.

Master plans approved for 50 solar cities. The government has approved a proposed [master plan to develop 50 solar cities](#), for which master plans have been prepared for 46. Each solar city will aim at a minimum 10% reduction in projected demand for conventional energy within five years through the installation of renewable energy technologies including solar, wind, biomass, small hydro and waste to energy. Energy efficiency measures may be included depending on the resource availability in each town or city. The Ministry of New and Renewable Energy (MNRE) said plans have already been prepared for 46 out of the 50 municipalites. The total cost for the 50 sanctioned cities and towns would be INR236.9 million (US\$3.55 million) for which INR61 million has been released. Each city may receive financial support of up to INR5 million to prepare the master plan. Three of these cities under the programme are planned to be set up the national capital region, the ministry of new and renewable energy said in a status note. At least one city in each state to a maximum of five cities in a state may be supported by the ministry.

Out of the proposed 60 solar cities, sanctions have been issued for 50 cities that include New Delhi, Agra, Chandigarh, Gurgaon, Faridabad, Amritsar, New Town (Kolkata), Howrah, Madhyamgram, Kochi and Bhopal. Master plans have been prepared for 46, including Agra, Gandhinagar, Rajkot, Surat, Thane, Shirdi, Nagpur, Aurangabad, Imphal, Chandigarh, Gurgaon, Faridabad, Bilaspur, Raipur, Agartala, Guwahati, Jorhat, Mysore, Shimla, Hamirpur, Jodhpur, Vijayawada, Ludhiana, Amritsar, Dehradun, Panaji and New Delhi (NDMC area), the report said. Further, in-principle approvals have been given to five cities - Thiruvananthapuram, Jaipur, Indore, Leh and Mahabubnagar. The ministry had empanelled 26 consultants in June 2009 to prepare the master plans. Eight cities are to be developed as "Model Solar Cities", the ministry said, adding Nagpur, Chandigarh, Gandhinagar and Mysuru have so far been selected for this. Fifteen cities will be developed as "Pilot Solar Cities" of which 13 including Agartala, Coimbatore, Rajkot, Shimla, Faridabad, Thane, Raipur, Shirdi, Leh, Aizawl, Puducherry, Vijaywada and Amritsar have been named. The criteria set for identification of such cities include a population between 50,000 to 50 lakh (with relaxation given to special category states

including northeast states), initiatives and regulatory measures already taken along with a high level of commitment in promoting energy efficiency and renewable energy.

[The Hindu Business Line](#), 12 August 2015 | [DNA](#), 12 August 2015 | [Business Standard](#), 17 August 2015 | [The Hindu Business Line](#), 19 August 2015 | [The Times of India](#), 23 August 2015 | [The Hindu](#), 23 August 2015 | [PV Tech](#), 24 August 2015 | [Deccan Herald](#), 24 August 2015 | [The Times of India](#), 25 August 2015 | [The Hindu](#), 26 August 2015 | [Mint](#), 10 September 2015 | [PV Tech](#), 23 September 2015 | [Business Spectator](#), 2 October 2015 | [Deccan Herald](#), 14 October 2015 | [GEDA](#) |



Solar

Solar installations in India are set to double in 2015 year and as well as next year also. According to the Ministry of New and Renewable Energy, India today has installed solar capacity of 4,262 MW, of which 518 MW were built in the current financial year. MNRE expects 4,345 MW of fresh capacity to come up in 2015-16 (including the 518 MW achieved so far.) Further, going by the bids on the anvil, the government expects to add 10,859 MW in 2016-17 alone. The numbers add up to close to 19,000 MW by March 2017 compared with the previous target of 20,000 MW by 2022. The MNRE put out its estimates soon after Prime Minister Narendra Modi reviewed its progress across the country on September 30. Numbers put *Tamil Nadu on the top* of the list for 2015-17. The State is expected to see fresh solar power additions of 1,214 MW, closely followed by Telangana with 1,166 MW, Madhya Pradesh (432 MW) and Andhra Pradesh (350 MW).

(i) Cumulative Commissioned as on 29-09-2015

Commissioning Status of Grid Connected Solar Power Projects								
Sr. No.	State/UT	Total MNRE Projects MW	State Policy MW	RPO MW	REC Scheme MW	Pvt. Initiative (Roof top) MW	CPSUs MW	Total commissioned capacity till 18-09-15 (MW)
1	Andhra Pradesh	94.75	133.17	0	38.7	2.82	10	279.44
2	Arunachal Pradesh	0.265	0	0	0	0	0	0.265
3	Chhattisgarh	4	34.08	0	4.6	0.5	0	43.18
4	Gujarat	20	873.05	50	6	51	0	1000.05
5	Haryana	7.8	0	0	0	0	5	12.8
6	Jharkhand	16	0	0	0	0	0	16
7	Karnataka	15	66	10	0	4.22	9	104.22
8	Kerala	0.025	12	0	0	0	0	12.025
9	Madhya Pradesh	225.25	277.55	0	80.78	0	65	648.58
10	Maharashtra	72	126	50	121.32	9.38	0	378.7
11	Orissa	12	30	0	4.5	0.42	10	56.92
12	Punjab	10.5	182.05	0	7.52	0.25	0	200.32
13	Rajasthan	889.1	35	40	210.6	0	0	1174.7
14	Tamil Nadu	26	18	0	98.16	15.82	0	157.98
15	Telangana	0	37.75	0	23.4	6.1	0	67.25
16	Tripura	0	0	0	5	0	0	5
17	Uttar Pradesh	12	42	0	0	1.75	15.51	71.26
18	Uttarakhand	5	0	0	0	0	0	5
19	West Bengal	2.05	5	0	0	0.16	0	7.21
20	Andaman & Nicobar	0.1	0	0	0	0	5	5.1
21	Delhi	0.335	0	0	2.14	4.237	0	6.712
22	Lakshadweep	0.75	0	0	0	0	0	0.75
23	Puducherry	0.025	0	0	0	0	0	0.025
24	Chandigarh	5.041	0	0	0	0	0	5.041
25	Daman & Diu	0	2.5	0	0	0	0	2.5
26	Others	0.79	0	0	0	0	0	0.79
	TOTAL	1418.781	1874.15	150	602.72	96.657	119.51	4261.818

Source The Hindu and MNRE

The leaders of today have little to show—Rajasthan has 50 MW against its name, while Gujarat is not there in the list at all. While some in the industry – none of them was willing to be named – were doubtful of the numbers, the figures seem to be in agreement with the projections made by the Citigroup in its recent report, titled Energy Darwinism II. The report projected India to have solar installations of 26,523 MW by 2020.

Solar power tariff touches new low of Rs 5.05. Mauritius-based SkyPower Southeast Asia Holdings has offered a tariff of Rs 5.051 a unit to the state government-owned MP Power Management Company, setting a new record low price in solar power generation. The offered price is without any subsidy and is lower than the Rs 5.50 tariff under viability gap funding, raising questions on the need to subsidise solar power. The offered price is without any subsidy component and is lower than even Rs 5.50 rate under the viability gap funding, putting a question mark on the need to have subsidy in solar tariffs.

Now, a resource centre to hone skills in solar electronics. The Electronics Sector Skills Council of India (ESSCI) in partnership with the Engineering Staff College of India (ESCI) has set up a Centre of Excellence aimed at creating a large pool of talent in the sunrise sector of solar photovoltaics and electronics. This is the first of its kind centre in the South and will operate as a resource centre for skill development in the solar electronics and impart specialized training on solar technology, installation and maintenance. It aims to serve as an institution of high learning, technological leadership, research, support and training to create a skilled workforce for the solar electronics sector. The Centre has mandated ESSCI to create capacity in solar technology and meet the emerging needs of the sector in the region. EESSCI has one such facility in the North and plans to set up similar centres in the west and east zones.

[The Financial Express, 5 August 2015](#) | [Indian Express, 18 August 2015](#) | [International Business Times, 19 August 2015](#) | [The Hindu Business Line, 6 October 2015](#) | [The Hindu Business Line, 7 October 2015](#)

Wind

Crisil sees Rs 1 lakh-cr wind power investment. According to a recent [Crisil report](#) grid parity and restoration of fiscal benefits will lead to the doubling of wind power capacity in the country in the next five years, with investments of Rs 1 lakh crore expected to flow into the wind sector. The sector is turning attractive and a focus on risk mitigants will lower the cost of funding.

ReGen Powertech to launch high capacity wind mills. ReGen Powertech plans to launch its 2.8 MW wind turbines in the international market in March-April next year. In the first year (2016-2017), it hopes to sell about 25 turbines (50 MW to 60 MW). The prototype was installed at a testing site of the company, located about 85 km from Coimbatore, and was commissioned in April 2015. The direct drive (gearless) machine, with 90 metre-long turbine and with 109 metre rotor diameter, was designed for the international market, he said. In the Indian market, ReGen has installed nearly 1,650 MW of wind mills, and plans to launch 1.5 MW (with 89 meter rotor diameter) and 2 MW turbines this financial year.

Mytrah Energy secures additional funding for new projects. Mytrah has secured sanction for loans of Rs 595 crore (approximately \$95 million), supporting an additional 100 MW of wind capacity. This takes the independent power producer's fully funded wind construction pipeline to 250 MW, it said in an update after its AGM.

Parts, components of wind turbines exempted from excise duty. Government exempted parts and components used in wind operated electricity generators (WOEG) like tower, rotor and blades from

excise duty, a move aimed at promoting clean energy. The Central Board of Excise and Customs (CBEC) in the Department of Revenue has issued a circular in this regard to reduce litigation and to improve ease of doing business in the important sector of non-conventional energy. The circular clarifies that "parts such as tower, nacelle, rotor, blades, wind turbine controller etc of WOEg are eligible for exemption from Central Excise duty". The circular was issued after trade received references from trade regarding availability of exemption from excise duty to the parts and components of WOEg, popularly known as 'wind turbines'. The government is focusing on renewable energy, considered as clean energy, to meet the country's growing power demand.

[The Economic Times](#), 10 August 2015 | [The Hindu Business Line](#), 11 August 2015 | [The Economic Times](#), 20 October 2015 |

Hydro

According to [REN 21 2015](#) report India with a share of 4.3% ranked as one of the world's top 6 countries in hydropower global capacity, 2014. Total capacity added in 2014 +1.2 GW.

Delhi Jal Board commissions first hydropower plant. Delhi Jal Board's first hydroelectric plant commissioned for Delhi is expected to generate 20,000 kilowatt hours of electricity annually. The plant is located at DJB's 9 million gallons per day capacity sewage treatment plant at Chilla. The plant will run on a hydraulic turbine which will be propelled by treated effluent being discharged from the STP. The treated effluent falls from a height of 4.8 m which, due to created pressure and velocity, leads to the rotation of the turbine which will then generate power.

Indian and Nepal to enhance hydro power development mechanism. Indian and Nepalese officials held a meeting in Delhi to address issues related to implementation of the power trade agreement signed between both countries in October 2014. The conference titled 'Enhancing India-Nepal Power Trading: Issues Involved' was organised by the Confederation Industry of India (CII) in collaboration with the Ministry of Power on 4th September 2015. The power trade agreement includes the development of transmission interconnections, grid connectivity, power exchange and trading through government, public and private entities. Experts from government and non-government organisations also attended the event.

[The Hindu Business Line](#), 23 August 2015 | [Business Standard](#), 8 September 2015 | [REN 21](#), 2015 |

Bioenergy

IOCL, BPCL, HPCL begin process of maiden purchase of biodiesel for blending with diesel. State-run fuel retailers have begun the process of their maiden purchase of biodiesel for blending it with diesel. Indian Oil Corporation, Bharat Petroleum Corporation and Hindustan Petroleum Corporation have invited tenders for procurement of 850 million litres of biodiesel from local manufacturers.

According to the tender document, IOCL will procure about 40 per cent of the total quantity while the balance will be shared between the other two firms. The biodiesel will have to be delivered at multiple locations across the country from August through March 2016. The technical and price bids are to be submitted online by 19 August 2015.

GE takes IISc biomass tech for power plants in the US. A home-grown technology to generate electricity using biomass designed by the [Indian Institute of Science](#) (IISc) is being taken to the US by General Electric. GE, which had licensed the biomass gasifier technology that generates electricity

from agro-waste and wood from IISc, will help Phoenix Energy set up power plants in California. GE demonstrated a model at its Tech event in Bengaluru.

Bio- fuel park- Indian biofuel village scheme rolled out in 70 villages and ready for scale up. In India, 70 villages in Karnataka have implemented the "[Hassan Biofuel Model-presentation by IISc](#)" of growing non-edible oil trees for biofuel production. The oil is pressed either by a state-owned press or by the farmers themselves and then used to power irrigation pumps, for use in their tractors, or sold for soap making and other products. The model promoted by the University of Agricultural Sciences, Bengaluru has received recognition and support from the World Agroforestry Center aims to transfer the model to other communities in Maharashtra, Punjab and Uttarakhand but also some African countries as well.



Scientists clone Punnai tree varieties rich in biofuel. Popularly known in Tamil folklore as the 'Tree that cures' or as the 'Tree that protects', the Punnai tree's population along coastal and river belts has been dwindling in the last three decades owing to its rich timber value. But scientists have now begun repopulating this tree for its biofuel and healing properties. The bio-fuel produced from Punnai tree can run a machine like a pumpset or even a generator, say researchers. Scientists with the Institute of Forest Genetics and Tree Breeding (IFGTB) have managed to clone a few varieties of this tree, scientifically called as *Calophyllum Inophyllum*, rich in oilseeds, rather than timber.

Railways to set up a bio-waste processing plant. The Delhi Division of Northern Railway is going to set up a first of its kind 'Bio-waste processing plant' at Kishanganj Railway Colony. The proposed bio-waste plant will turn biodegradable waste generated in the colony into compost and even electricity. The plant is expected to process about 1,000 Kg. of waste generated by the largest railway colony of Indian Railways. Mr Arora said that the estimated project cost will be Rs. 38 lakh for the proposed 1,000 Kg. feed plant and the plant is expected to be commissioned by March 2016. The complete unit will be housed in a 40-foot container and will be powered by solar cells.

Tax sops on molasses. In a latest notification, the Finance Ministry has "amended the [CENVAT Credit Rules, 2004](#) so as to allow input credit of duty paid on molasses in the 2015-16 sugar season used for producing ethanol for supply to the public sector oil marketing companies for the purposes of blending with petrol." The mills can avail the benefit if ethanol is supplied to Indian Oil Corporation, Hindustan Petroleum Corporation or Bharat Petroleum Corporation, it said. To encourage ethanol production, the government had in April exempted 12.5 per cent excise duty on ethanol. As a result, the sugar industry had initially estimated Rs.5 per litre benefit to the mills on production of ethanol.

[Business Standard](#), 9 September 2015 | [The Times of India](#), 1 October 2015 | [The Hindu](#), 8 October 2015 | [The Hindu](#), 12 October 2015 | [Biofuel Digest](#), 14 October 2015 |