Renewable Energy Monitor

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Policy

Scaling up: Centre plans to double capacity of solar parks. The MNRE (Ministry of New and Renewable Energy) will soon seek the Union Cabinet's nod for doubling the capacity of solar parks to 40,000 MW from 20,000 MW approved in December 2014. Solar parks provide integrated infrastructure for utility-scale solar power plant developers to set up their generation units.

These parks are also connected to the grid which eliminates any concerns on evacuation of the solar power that is generated. Dr A K Tripathi, Scientist 'G' MNRE also said that the Ministry will soon start tariff-based auctioning of wind power capacity. Similar auctioning in solar power has seen a drastic drop in tariffs. To facilitate this, the Ministry has already prepared a wind map of India to identify the locations with high potential of wind energy. Further, the Ministry is also undertaking a pilot project to develop hybrid wind and solar power plants in Telangana. The three-day **Renewable Energy India Expo** will witness participation from exhibitors of 40 countries. A total of 650 exhibitors will be showcasing their technologies.

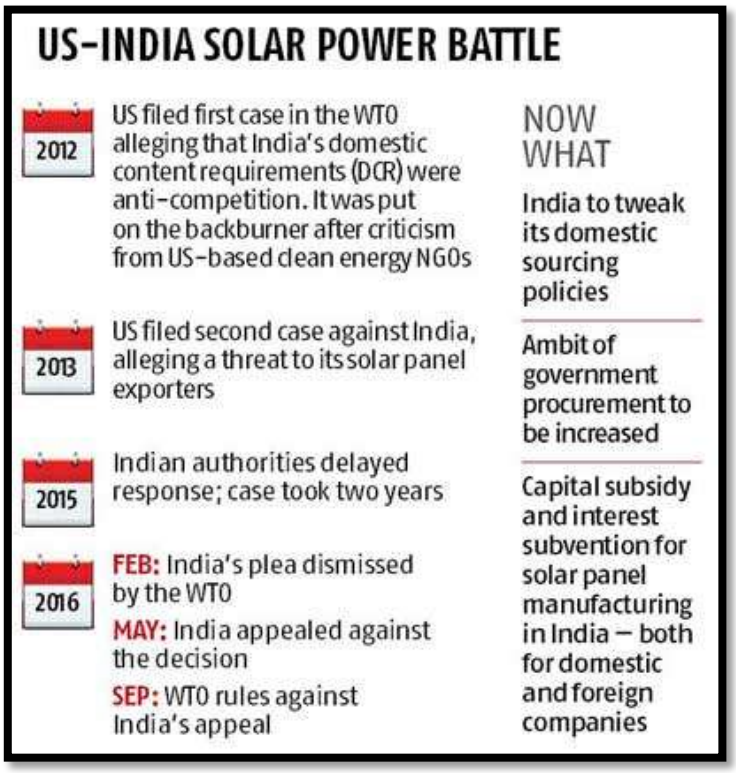
NIIF to manage $2-bn green energy fund. The Centre has decided the NIIF (National Infrastructure Investment Fund) will manage a $2-billion fund for renewable energy. The NIIF would contribute $490 million to its corpus, an official said. Mr Piyush Goyal, minister of state for coal, power, renewable energy and mines, had announced last year the government would set up $1 billion private equity fund for renewable energy projects. He said public sector companies would pool in for the corpus.

The renewable energy fund was envisaged during the climate change discussions in Paris in 2015 and it was then decided that it would be managed by a global investment manager. The fund is both for old projects looking for re-finance and new projects. With it being an equity fund, consolidation was likely in the sector with solar projects awarded under the first phase of the National Solar Mission in 2010-2012 likely to see a change of ownership, experts said. Most small wind power players that have put their projects on sale will also benefit from this fund.

Renewable push may hit thermal plants: Experts. Various power sector experts, including those at CEA (Central Electricity Authority), have warned that the unprecedented surge in renewable energy capacity in the next few years will severely stress thermal power plants, but power secretary Mr P K Pujari remains upbeat about the sector. Thermal power plants are operating at an all-time low of just over 50% of their capacities, triggering a debate within the industry on whether the country really needs the planned addition of 175 gigawatts of renewable energy by 2022. Industry fears that large-scale addition of renewable capacity will further erode the margins of thermal power projects. According to industry sources, CEA, which has made various demand projections in different scenarios up till 2021-22, has projected that national average operating capacity, or plant load factor (PLF), of thermal plants could drop below 50% if the targeted renewable energy generation is added by 2021 and the 50,000 mw under various stages of construction power plants come on line.

Govt moves to protect solar industry after WTO setback. In a bid to promote domestic solar equipment manufacturing while complying with global trade norms, India is looking to revamp its domestic sourcing scheme under the NSM (National Solar Mission). The new norms are likely to push local manufacturing through subsidies and increased procurement of homemade solar panels by government agencies and PSUs (public sector utilities). This is being done in the wake of the **WTO's** (World Trade Organization) ruling against India's DCR (domestic content requirement) norms. The US had contested that India's DCR

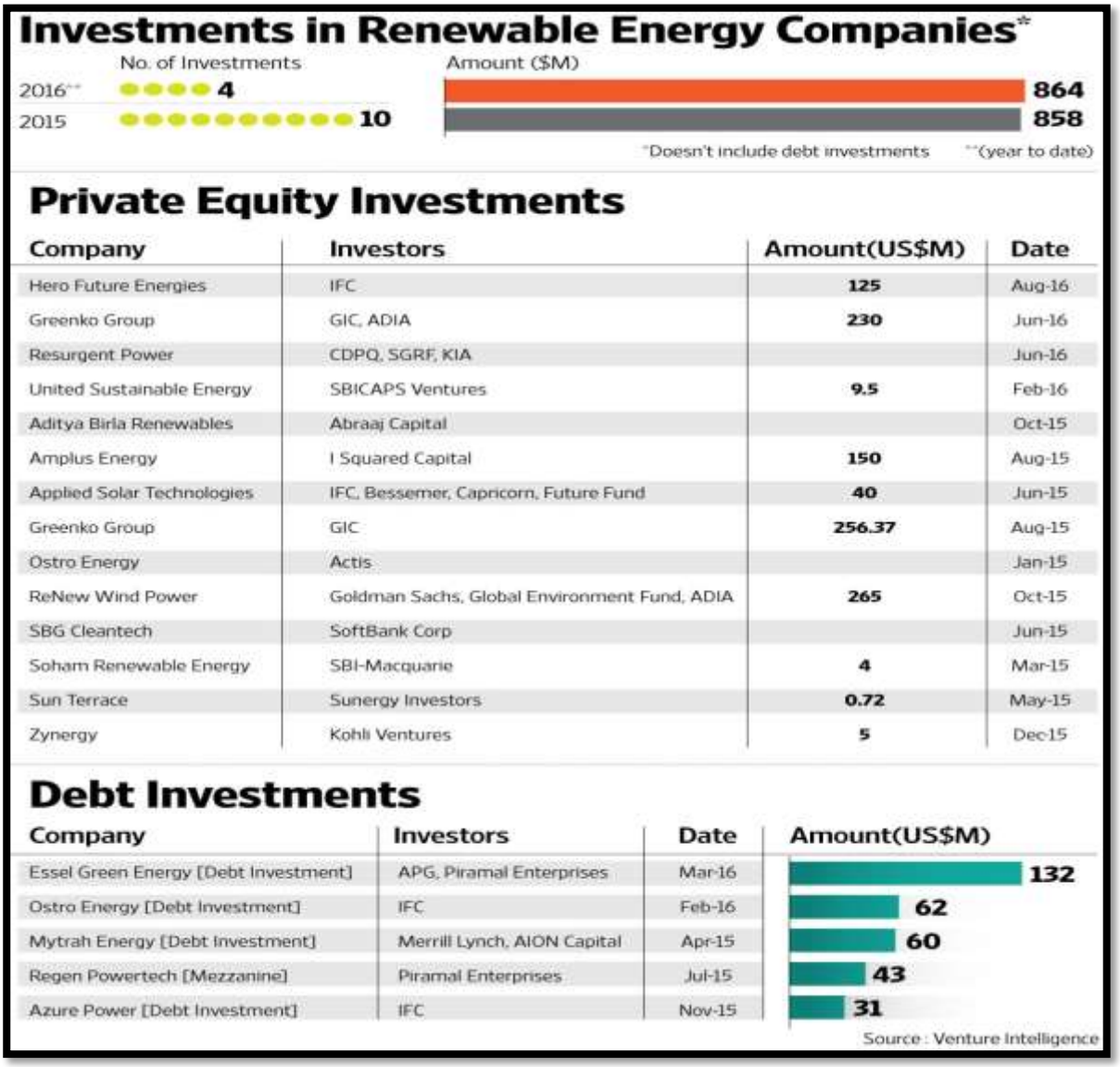
was "inconsistent with regulations under GATT (General Agreement on Tariffs and Trade) and TRIMs (Trade-Related Investment Measures)". Under DCR, it was mandatory to source India-made solar cells/modules for a certain portion of solar capacity.



(Source: Business Standard, 17 September 2016)

The MNRE (Ministry of New and Renewable Energy) claims to have alternate plans to tackle the WTO setback. The MNRE would increase the government's procurement and provide capital subsidy as well as interest subvention to local solar cells/modules manufacturers. Government officials and industry executives who are part of the consultation process on the new norms said the MNRE has requested the finance ministry to allot funds for subsidy to solar panel makers.

IDFC Alternatives to create a platform for renewable energy assets. IDFC Alternatives, a unit of infrastructure-focused lender IDFC Ltd, is currently expanding its team with senior executives. The company had previously created such an aggregation platform in the roads sector which has now grown into a 20-member team. Asset management firm IDFC Alternatives Ltd will float a platform to hold its renewable energy assets. The platform will work as a board-run entity and a professional team will manage its daily affairs. Mr Aditya Aggarwal, partner (infrastructure), IDFC Alternatives said creation of independent aggregation platforms offers better and more efficient portfolio management, enables taking controlling stakes, allows for optimization of common operating costs and offers easier liquidity through public markets and/or strategic sales. Sectoral operating platforms allow for in-house technical expertise while also ensuring a greater control over the eventual destiny. IDFC is currently investing out of its second infrastructure fund wherein it picks controlling or a 100% equity stake in operating infrastructure assets. The firm has already committed over $325 million and is looking to deploy an additional $300 million over the next one year, he added.



(Source: Mint, 19 September 2016)

RE certificates may be junked. Renewable energy certificates, battling declining demand, could be scrapped, officials said. The industry, however, sees a turnaround by 2017-18 and does not want the certificates to meet the fate of carbon credits. The market for these certificates, launched in 2010, crashed in 2015 year with over 10 million of them remaining unsold. In August 2016 the price was Rs 3.5 per unit for solar certificates and Rs 1.5 per unit for non-solar certificates. These prices are far below prevailing rates of solar and wind power. Of the 9.4 million certificates issued in August 9.3 million were unsold.

Touted as an alternative to carbon credits, the mechanism caught the industry's imagination with companies setting up projects especially for the purpose. An industry executive said the scrapping of the certificates could cause damage, given states are moving in the right direction, strengthening enforcement with proposed amendments in the Electricity Act could increase procurement.

Total Solar REC issued: 2,192,565
Total Solar-REC unsold: 2,170,628
Total Non-Solar issued: 7,336,837
Total Non-solar REC unsold: 7,200,485
Solar REC price: Rs 3.5 per unit (kWh)
Non-Solar Price: Rs 1.5 per unit
SERC: State Electricity Regulatory Commissions ***1 REC=1 Mw*** ***Source: REC Registry & Industry***

(Source: Business Standard, 23 September 2016)

Around 1,200 projects are under the certificate mechanism with a total capacity of 5,383 MW. If large companies meet even 10 per cent of their renewable energy purchase obligation, a backlog of 17 million certificates will be cleared.

The Hindu Business Line 7 September 2016| Business Standard, 8 September 2016| The Economic Times, 14 September 2016| Business Standard, 17 September 2016| Mint, 19 September 2016| Business Standard, 23 September 2016

Schneider's India focus to be on renewables, smart grid. Schneider Electric Infrastructure Ltd., which provides efficient power supply solutions, is focusing on renewable energy sector and smart grids for growth in India, Prakash Kumar Chandraker, Managing Director and Vice President, Schneider Electric Infrastructure Ltd. said. The company, listed on the BSE and NSE, and a subsidiary of French multinational Schneider Electric SE, is coming out with new solutions to boost the efficiency of its clients, the official added. Currently, the company is helping solar photovoltaic (PV) developers to evacuate 1,026 MW of power to the grid. This is about 60 per cent of the total solar PV installation in the country. Wherever grid connectivity is not possible, the company is setting up micro-grids to ensure supply to an area that is not covered by the grid. In the area of smart city, the company has undertaken several smart grid initiatives in India. It has installed smart grids in Bihar, Jammu & Kashmir and Odisha, where marked improvement has been seen. Currently, it is working to upgrade the system at three cities in Kerala namely Kochi, Kozhikode and Thiruvananthapuram, which will have smart grids by next year.

Green-powered boat readies for world voyage. Dubbed the *"Solar Impulse of the Seas,"* the first boat to be powered solely by renewable energies and hydrogen hopes to make its own historic trip around the world. A water-borne answer to the Solar Impulse - the plane that completed its round-the-globe trip using only solar energy in July - the Energy Observer will be powered by the Sun, the wind and self-generated hydrogen when it sets sail in February as scheduled. The multi-hulled catamaran is in a shipyard at Saint-Malo on France's west coast, awaiting the installation of solar panels, wind turbines

and electrolysis equipment, which breaks down water to produce its component elements, hydrogen and oxygen.

The **Energy Observer** was designed in partnership with a team of naval architects and the CEA-Liten research institute in the French city of Grenoble, which is dedicated to renewable energy technologies. At a total cost of 4.2 million Euros ($4.72 million), the green energy boat will be fitted with sensors to act as veritable moving laboratory for CEA-Liten, whose director Ms Florence Lambert describes the project as a "great challenge" to take on. Energy Observer's world tour is expected to take six years. After a careful crossing of the Mediterranean, the catamaran will venture out into the Atlantic and then Pacific oceans. In all, 101 stopovers are planned from Cuba to New Caledonia to Goa on India's west coast. There are still hurdles to overcome, not least in funding: the Energy Observer's trip is expected to cost a minimum of four million Euros a year, notably to develop a travelling exhibition.

Developers struggle to sell solar power to cash-strapped discoms. Solar power developers say grid connection and evacuation is a big issue. One of the developers said while solar projects are completed on time, they have been waiting for grid connection for months without the benefit of deemed generation. They indicated that delays in state government projects were common and that land acquisitions are posing big problem in states. Projects promising to generate solar power below Rs 5 per unit are having a hard time tying up loans for their power plants although lenders are offering loans for 15 to 25 years for projects in solar parks. Power purchase agreements signed by solar power generators are one sided - while developers are facing the threat of losing performance guarantees in case they do not supply power as promised, distribution utilities are not penalised for delayed payments.

In Tamil Nadu some solar projects are being asked to back down about 50 per cent of generation without compensation. The state is opting for cheaper power from the exchanges instead of honouring solar power purchase agreements it signed. Tamil Nadu's power distribution companies are unpredictable with payment delays and curtailment.

Adani unveils world's largest solar plant in Tamil Nadu. **Adani Group's** solar power plant at Kamuthi, Tamil Nadu, is built at a cost of around Rs 4,550 crore and will generate 648MW of electricity. Adani Green Energy (Tamil Nadu) Ltd said that it built the plant at Kamuthi in Ramanathapuram district at a cost of around Rs.4,550 crore. The plant has been connected to a 400 kilo volts substation of Tamil Nadu Transmission Corp. The company said the plant was built in a record time of eight months with equipment and machinery from around the world. Around 8,500 personnel worked on the project, installing an average of 11MW a day.

The massive plant comprises of 3,80,000 foundations, 25,00,000 solar modules, 27,000 Mt of structure, 576 nos of inverters, 154 nos of transformers and 6000 km length of cables. The entire plant was completed in all shape and ready to generate the 648 MW of clean and green energy. The entire 648 MW is now connected with Kamuthi 400 KV substation of Tantransco making it the WORLD'S LARGEST SOLAR POWER PLANT AT A SINGLE LOCATION.

Solar solutions provider d.light raises $22.5 million. D.light, which sells solar-powered lamps in villages with unreliable or no electricity connections, has raised $22.5 million in a Series D round of funding. The company has raised $15 million in equity from KawiSafi Ventures Fund, Energy Access Ventures, NewQuest Capital Partners and Omidyar Network. More than $5 million has come in grant funding from Shell Foundation, the US Agency for International Development, Development

Innovation Ventures and UN Capital Development Fund. D.light has also raised some debt through SunFunder.

San Francisco-based D.light will use the funds to expand its distribution network, financing solutions and product portfolio. The company was started 10 years ago by Tozun and Sam Goldman. India, where d.light first started selling its products a decade ago, contributes to a little more than half of the company's sales. Sub-Saharan Africa is its other key market. D.light, which sold around 4 million solar lamps and larger solar-powered home lighting systems in financial year 2015-16, has grown at around 60-70% year-on-year over the past three years.

Solar Cos, landowners going for leasing model. Solar project developers have found a solution to the land acquisition issue dogging the sector. Instead of buying land for their projects, these developers are entering into 25 to 30 years lease rental agreement with landowners. As part of the agreement landowners are receiving a lump-sum amount of at least Rs 1 lakh per acre per year from the project developers for the lease period. This is a co-development model where landowners are made part of the project. At the end of the lease period, land owners are free to sell off the land to the developers and it is a trend that has been picking up in states like Uttarakhand, Himachal, Punjab Andhra Pradesh and Telengana.

TerraForm gives consent to SunEdison's asset sale to Greenko. TerraForm Global, a Nasdaq-listed clean-energy holding company currently embroiled in a $2 billion dispute with parent SunEdison, has given its consent to the bankrupt firm to pursue the sale of its entire Indian and Uruguayan portfolio of solar and wind projects.The consent paves the way for Hyderabad-headquartered Greenko to buy out SunEdison's entire India portfolio — 390 MW operating solar assets and 48 MW of wind parks — for an enterprise valuation of $315 million. Both Sun Edison and Greenko are expected to make a formal announcement of the deal having finalised all pending documentation, said sources in the know. Once completed, this would be the biggest distress sale of all time in the sector. It includes an equity value of $30 million and around $280 million of debt, as per sources aware of the negotiations. Under the deal, a pipeline of another 800 MW will also get transferred to Greenko for no extra cost. Greenko, backed by GIC and Abu Dhabi Investment Authority, has agreed to pump in $50-60 million as equity funding to build these new projects and will also take on additional debt for capital expenditure. This, however, would still be much lower than the originally envisaged billion-dollar-plus valuation for the SunEdison assets.

The Hindu, 3 September 2016| The Hindu, 12 September 2016| The Economic Times, 19 September 2016| Mint, 21 September 2016| Adani, 21 September 2016 | Mint, 21 September 2016| The Economic Times, 22 September 2016| The Economic Times, 29 September 2016

Wind

India's Suzlon seeks partners for $3 billion of Australian wind farm investments. India's Suzlon Energy Ltd is seeking Australian partners to develop local wind farms as it taps a surge in global investor appetite for green energy assets after the Paris climate agreement. The wind-turbine maker plans to co-develop the projects in Australia at a cost of $3 billion over the next five years, for which it plans to tap investment from firms such as Goldman Sachs and Morgan Stanley, and funds that are looking to ramp up exposure to geographically diverse renewable assets. Global investors' thirst for renewable projects has grown since the Paris agreement in December that obligates states to take concrete measures to curb emissions that contribute to climate change. Suzlon, which already has a footprint in 19 countries, anticipates it will

attempt a similar strategy in Canada, Brazil, New Zealand and parts of Eastern Europe, to boost exports of turbines and gain exposure for its investors in a broad array of renewable assets.

Kerala start-up felicitated at Tomorrow's India Global Summit in Seoul. A start-up from Kerala **'Avant Garde Innovations'** that envisions electricity at every home and assures to put an end to power woes in the state with its innovative low cost high energy wind power generator, is felicitated at **`Tomorrow's India Global Summit** at Seoul in South Korea. The start-up founder Mr Arun George addressed the inaugural session of the summit.

It is felicitated by recognising it as an Indian start-up which is committed to bring affordable clean technologies to residential and commercial markets in the sector of 'Distributed Renewable Energy'. This start-up launched by two brothers, Arun and Anoop George in Kerala, with their innovative small wind turbine at an affordable price of Rs 50,000, can generate about one to three kilowatt hours (kWh) of electricity daily, enough to power a home. While, a small wind turbine would cost about Rs 5 lakh in the market, the brothers plan to reduce the costs further if support comes through for commercial production.

Reuters, 21 September 2016| The Times of India, 27 September 2016

Bioenergy

National Bioeconomy Mission can create more employment in India. IBSD **(Institute of Bioresources and Sustainable Development),** a National Institute of Department of Biotechnology, Government of India took a major initiative to launch a National Mission on Bioeconomy. This is a unique mission of its kind, which is being launched for the first time in India, which can create a large number of new jobs starting from the village level to the processing and value addition at the urban area, said Prof Dinabandhu Sahoo, Director of IBSD, who is the main force behind this National Mission.

IBSD has taken this major step to launch this mission on Bioeconomy through sustainable utilization of renewable biological resources for food, bio-based products and bioenergy through knowledge based approaches which have the potential to generate new solutions for the planet's most important challenges regarding energy, health, food, water, and climate change delivering social, environmental and economic benefits.

e.pao.net, 24 September 2016|