TATA POWER

TATA

GREEN MARKET CAPSULE

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TPTCL'S E-NEWSLETTER

Tata Power Trading Company Limited (TPTCL)

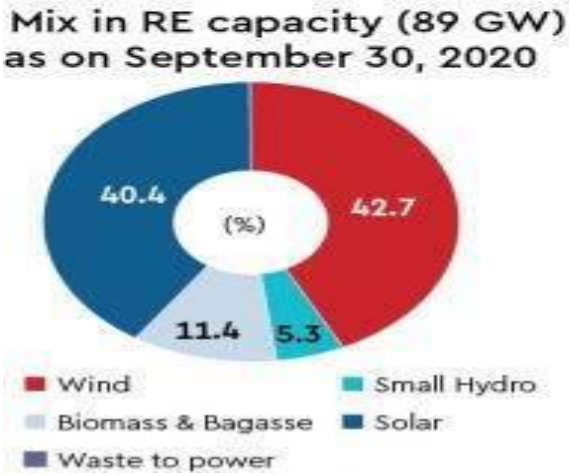
Contents:

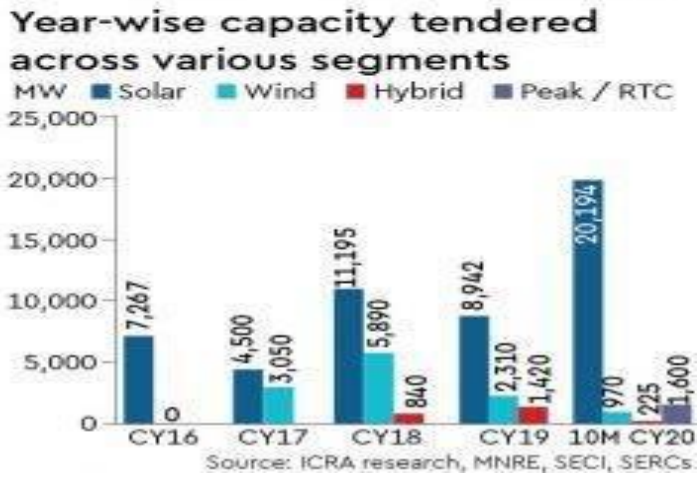
Lighting up Lives!

Power News

Renewable energy capacity addition to gather pace in H2FY21

While there has been a slowdown in renewable capacity addition in H1FY21 owing to Covid-19, project execution is expected to pick up from Q3FY21, with easing of supply chain challenges, ICRA has said. This is going to be led by solar power, on the back of strong policy focus and competitive tariffs. The agency has projected RE capacity addition of 7.5-8.0 GW in FY21. This is expected to rise to ~11-12 GW in FY22, given the large backlog of projects awarded by central agencies and state utilities.





Source

India is in midst of a major transformative shift in its energy sector: Pradhan

The Minister of Petroleum & Natural Gas and Steel Dharmendra Pradhan on Saturday invited investors, developers and businesses to be a part of India's renewable energy journey, assuring them that it will be a highly rewarding and mutually beneficial venture. At the Valedictory Address at the 3rd RE-INVEST 2020, he said that India is progressively becoming a favoured destination for investment in renewables. During the last 6 years, over $64 billion investment has been made in renewable energy in India.

Pradhan said that India has a very liberal FDI policy in energy sector, including renewables. "Foreign investors can either invest on their own or enter into joint ventures with an Indian partner for financial and/or technical collaboration for setting up of renewable energy-based power generation projects," he said. The Minister assured that "Ease of doing business" is the government's utmost priority. "Our continuous focus is on maintaining sanctity of contracts and safeguarding investments. We have

established dedicated Project Development Cells (PDC) and Foreign Direct Investment (FDI) cells in all Ministries for handholding and facilitating domestic and foreign investors. Adequate measures and safeguards have also been undertaken to address the concerns of businesses and investors arising out of the Covid pandemic."

Pradhan said that India is in the midst of a major transformative shift in its energy sector, to end energy poverty in India. “While doing so, our twin objectives are to enhance availability and affordability of clean fossil fuels and green fuels, and to reduce the carbon footprint through a healthy mix of all commercially-viable energy sources. We are consistently taking energy policy initiatives. Revamping policies, and taking needful measures. We are developing next generation infrastructure based on five guiding key enablers of energy availability and accessibility to all, energy affordability to the poorest of the poor, efficiency in energy use, energy sustainability to combating climate change as a responsible global citizen and security for mitigating the global uncertainties," he said.

Pradhan mentioned that the government's energy agenda is inclusive, market-based and climate sensitive.

Pradhan highlighted several initiatives that are spearheaded by the Indian oil & gas industry to broaden the Renewable Energy canvas, and also are also offering enormous investment opportunities. “We have embarked on a major biofuel programme in the country, which has huge investment opportunities. Biofuel is not just science but also a Mantra that will provide a new energy to not only India but also the entire world. It has the power to create a balance between our environment and economic development.We have launched the National Biofuel Policy (NBP) in 2018 to promote biofuels in mass scale with a target of 20% ethanol blending in petrol and 5% of bio-diesel by 2030. We are setting up twelve 2G Ethanol Bio-Refineries in 11 States with an overall capacity of 1100 Kilo Litre per Day (KLPD)."

The Minister mentioned another major transformative energy initiative in the country of developing a gas-based economy leading to ‘One Nation One Gas Grid’. “We have already laid over 16,800 km long gas pipeline network, and additionally 14,700 km gas pipelines are under different stages of construction. An estimated investment of 60 billion US dollars is lined up in developing gas infrastructure, which includes pipelines, city gas distribution and LNG regasification terminals. The vast gas-based infrastructure will offer enormous opportunities for integrating different sources of energy in the country. This is yet another potential area of growth with vast investment opportunities," he said

Pradhan invited the participants to look at the investment opportunities in Compressed Bio-Gas (CBG) initiative. “We have a well-developed roadmap for SATAT (Sustainable Alternative Towards Affordable Transportation), an important initiative of our government, which targets to setup 5000 compressed biogas plants with a target of 15 MMT per year with an investment potential for US $ 20 billion. Indian oil marketing companies are offering to private entrepreneurs assured price and offtake guarantee. The SATAT initiative is in line with the goals of AatmaNirbhar Bharat, Swachh Bharat Mission and boosting MSME sector. Reserve Bank of India has included CBG projects under Priority Sector that will help in getting the loan for CBG plant. I am glad to inform that a total of 1500 CBG plants are at various stages of execution. “

Pradhan mentioned that while speaking at the fourth India Energy Forum by CERAweek last month, Prime Minister Narendra Modi highlighted seven key drivers of India’s energy strategy going forward. He said that apart from achieving the renewable energy target of 450 gigawatts (GW) by 2030, India will focus on developing in an integrated manner a gas-based economy, cleaner use of fossil fuels, greater reliance on domestic fuels to drive biofuels, increasing the contribution of electricity, moving into emerging fuels like hydrogen, and promoting digital innovation across all energy systems.

He said that oil and gas companies in India including oil PSUs are investing in developing renewable energy projects by focusing more on green energy investments such as renewables, biofuels and hydrogen going forward. Pradhan said that as COVID-19 challenges the fundamental assumptions of our lives, the urgency of a green revolution in the energy sector gains greater importance. “While the immediate economic impact may slow us down, we are presented with an opportunity to pause, rethink, and design a new and faster transition to a low carbon future more aggressively," he said. *Source*

India targets to fully covert Andaman and Nicobar, Lakshadweep islands to Green Energy

The Andaman & Nicobar, and Lakshadweep Islands will be using renewable energy to meet their total requirement under the goals set by the centre, according to Minister of State (Independent Charge) for Power and New and Renewable Energy R K Singh. Speaking at the valedictory session of the third RE-Invest conference, Singh said: “We have given target to our Islands (Andaman & Nicobar Islands, Lakshadweep) to become totally green, that means their energy needs should be met from Renewable Energy.”

In an earlier session at the RE-Invest summit, Singh had also extended cooperation to Maldives for switching to renewable energy. He also reiterated that India is one of very few countries to have met its commitments made under climate change mitigation goals. Singh said that India has installed about 1,36,000 megawatts (MW) of Renewable Energy capacity with capacity addition of another 57,000 MW under implementation. The target is now to achieve 450 gigawatts of Renewable Energy capacity by 2030.

Minister for Petroleum and Natural Gas, Dharmendra Pradhan said that India is in the midst of a major transformative shift in its energy sector, to end energy poverty in India. “While doing so, our twin objectives are to enhance availability and affordability of clean fossil fuels and green fuels, and to reduce the carbon footprint through a healthy mix of all commercially-viable energy sources,” Pradhan said.

“We have launched the National Biofuel Policy (NBP) in 2018 to promote biofuels in mass scale with a target of 20 per cent ethanol blending in petrol and 5 per cent of bio-diesel by 2030. We are setting up twelve 2G Ethanol Bio-Refineries in 11 States with an overall capacity of 1100 Kilo Litre per Day (KLPD),” he said.

Pradhan also invited the participants to look at the investment opportunities in Compressed Bio-Gas (CBG) initiative. “The SATAT (Sustainable Alternative Towards Affordable Transportation) initiative targets to setup 5,000 compressed biogas plants with a target of 15 million metric tonnes per year with an investment potential for $ 20 billion. Indian oil marketing companies are offering to private entrepreneurs assured price and offtake guarantee.” Pradhan said that 1,500 CBG plants are at various stages of execution. *Source*

COVID-19: Distributed renewable energy sector saw increased revenue losses in Jan-June 2020

• However, despite the impact of COVID-19, 62 per cent of DRE enterprises reported financial growth in FY20 -- a 17 per cent increase from the previous year

Revenue losses in the distributed renewable energy (DRE) sector increased between the fourth quarter (Q4) of the financial year 2019-20 (FY20) and the first quarter (Q1) of FY21 due to COVID-19, according to a latest market survey of 63 DRE businesses by a non-profit firm. However, it added that despite the

impact of COVID-19, 62 per cent of DRE enterprises reported financial growth in FY20 -- a 17 per cent increase from the previous year. Whereas, 86 per cent of the members were able to meet their projected revenue.

The report said that to overcome the adverse economic effects of the pandemic, various sources of debt and CSR funds could be helpful. “The most widely appreciated step during COVID-19 was the reduction of 25 per cent of existing rates of tax deducted at source and tax collection at source till 31 March 2021,” according to the report titled ‘State of the DRE sector in India report 2019-20’ by CLEAN Network.

It said that inability to provide collateral and changes in the government policies for the sector were the major hindrances regarding financing in the DRE sector. Regarding employment and hiring, the report said that there was a severe decline in employment over the past one year, largely due to reduced business opportunities arising from the COVID-19 pandemic. “Around 57 per cent of enterprises reported that they are postponing the hiring activity for cost reduction in their business due to COVID-19,” it added. Apart from this, the report said that a lack of adequate financing channels, consumer affordability, gap in consumer awareness, and limited market linkages were the biggest barriers to the growth of DRE business.

Methodology:

The survey took responses from CLEAN’s members and key stakeholders including enterprises, financial institutions, and civil society organisations. The report showcases key highlights from the sector across technology, markets, finance, policy, and skills and training. *Source*

Crashing prices, low demand to hit India’s solar power ambitions

• Latest round of auctions for solar power generation projects sees further collapse in bid prices. It may spell trouble for producers, consumers as well as India’s renewable energy targets.

At the latest round of auctions of solar power projects held by the Solar Energy Corporation of India, record lows were touched as bidders tried to grab the projects of 1070 mw that were up for the taking. Two international bidders, one each from Saudi Arabia and Singapore, quoted INR 2.00 per unit for projects of 200 mw and 400 mw respectively. India’s biggest utility, the National Thermal Power Corporation (NTPC) was not far behind with a bid of INR 2.01 per unit.

These prices are the lowest ever recorded in India and beat the previous low bid of INR 2.36 by a Spanish producer for a 300mw power plant in the auction held in June 2020. The lowest bid until then had been INR 2.44 per unit that was set by ACME Solar for a 600mw project in Rajasthan in 2018. However, this project has been delayed as ACME Solar is trying to negotiate an exit from it.
Some analysts believe that the low prices in the latest round of auctions are mainly due to the fact that power purchase agreement has been signed with the state of Rajasthan for the new projects and this gives a great degree of certitude of purchase for the producer. Another reason being cited is that these power plants would have solar cells made with new technology enabling higher efficiency of power generation.

Clouds of uncertainty over power sector

Despite the success of the latest round of auctions, the situation of India’s power sector remains gloomy, mainly due to the uncertainty surrounding the power demand as well as the fate of delayed renewable power projects.

In 2017, Indian Prime Minister Narendra Modi had declared that the country would raise its renewable energy production capacity to 175 GW of which 100 GW would come from the solar energy. Though there was a sharp spike in new solar power projects in the first couple of years, the pace has decelerated dramatically since then and India looks almost certain to miss both the targets. Currently, India's total renewable energy capacity is 65 GW and is unlikely to cross the 100 GW mark by end of 2022.

This is mainly due to a major slowdown in new projects getting off the block in the past two years. The slowdown itself is due to several factors including lack of available land for setting up power plant, delays in negotiation of Power Purchase Agreements or PPAs as well as complications in arranging bank finance or credit for the projects. But one of biggest reasons behind the slowdown is unviability of several projects due to very low power prices in the energy market due to a slowing economy.

Even before it was crushed beyond recognition by the ongoing Covid-19 pandemic, the Indian economy had registered a steep fall in the growth rates and this had led to curtailment in demand and the subsequent fall in prices. This has led many project developers to go slow on implementation of their projects. But the arrival of the pandemic and the prolonged lockdown announced on March 25 have led to a total collapse in power demand across the country. According to the International Energy Agency, IEA, a body of the Organisation of Economic Cooperation and Development, India registered one of the largest electricity demand destructions globally as Covid-19 caused power demand to fall by 28 pc up to the end of March 2020.

"Under the conditions of the strict lockdown which started on March 25, 2020, power demand from hospitals, essential services and the residential sector was on the rise, while industrial demand and commercial activity dropped substantially. By the end of August 2020, total power demand in India had not recovered to previous levels prior to Covid-19," says a report by the IEA.

"The pandemic has also affected the generation mix. Thermal power plants are running at low capacity in the absence of industrial demand, while the share of renewables on the grid has been increasing, mostly because of their "must-run" status. In some states, India's system operators are already running a power system with very high shares of renewables. This situation is likely to continue into 2020/21, when older power plants will need to close down for maintenance and refurbishment to meet new environmental requirements," the IEA goes on to say.

However, a TERI report says that the pre-pandemic projections for demand growth in India's power sector could be impacted by 7-17 pc for the next five years. The pandemic may have also put paid to the projections of the rise in the share of renewable power in India's energy mix.

Headed to partial solar eclipse

In August, the Central Electricity Authority indicated in a report the serious situation of the renewable energy sector, notably the solar energy. According to the CEA report, capacity of 39.4 GW in over 90 renewable energy projects, will facing serious delays on account of different factors. Of these, over 28GW relates to solar power projects that are running behind schedule. Of these 8GW projects have not even broken ground yet since their PPAs have not yet been signed. Many others have not had their financial closure or land acquisition done.

Moreover, some companies, notably in the state of Andhra Pradesh face a Hobson's choice as the state government has told power producers in the state to either cut the tariffs that they had agreed to in the PPA or shut down their plants altogether.

For India to catch up on its commitment of giving renewable energy a proper place in its energy mix, a couple of tricks may yet remain. One would be to shut down older power plants, especially the coal fired ones, due to their much higher pollution levels. In the three years to May 2019, the CEA had already retired or decommissioned 30 power projects based on coal and lignite with total generation capacity of 8.5GW. But even if decommissioning of thermal power projects picked up pace, it may not be enough. Nearly 60GW of new thermal power projects are on the planning stage and the recent opening up densest of Indian forests for coal mining is likely to provide a further boost to the thermal power generation.

Another reason why thermal power in India refuses to bow down to renewable is the large role it has in the fate of India's troubled banking sector. A total of INR 1.8 trillion (USD 25 billion) in stressed assets or bad loans currently sits on the books of various Indian banks that are reluctant to see them being phased out as it would also extinguish any hopes of them recovering any of the loans.

Over the past couple of years, 33 thermal power projects, with total capacity of 40GW, that have run into severe financial difficulties have been taken up for resolution. Of these 14 were said to have been resolved, but even now these 14 are struggling to meet debt servicing obligations due to inadequate cash generation, caused by both low offtake and delayed discom payments. This has led to the banks as well as the utilities running these projects seek extension of their PPAs as well as retention of their high prices in order for the banks to have some hopes of salvaging even the smallest share of their loans to these power companies.

With the Indian economy likely to remain in doldrums for at least another year, demand for power is almost certain to stay far below the expected levels and this will keep pricing pressure on all generators. While some of the older thermal producers may be able to handle the crisis as their plants have already been paid for, the renewable energy projects, especially those yet to be commissioned or still in planning stage may find that a dark future awaits them.

The news comes at a bad time for India as the country lags behind several other nations, notably Germany and China, in enhancing its renewable energy production capacity. It will also show India in a bad light as several countries like Japan, New Zealand, Canada and United Kingdom have already said that their economies would go to zero net emissions by 2050, India, the leader of the International Solar Alliance is missing out on its lofty and oft-stated goals. *Source*

India's solar power tariffs hit a new record low of ₹2 per unit

NTPC on its part has decided not setting up new greenfield coal-fueled power projects and plans to make a total capital expenditure of Rs1 trillion between 2019 and 2024 to become a 130 GW power producer by 2032

New Delhi: India's solar power tariffs hit a new record low of Rs2 per unit on Monday during a bid conducted by state run Solar Energy Corporation of India Ltd (SECI), said a government official aware of the development. The previously lowest recorded solar tariff in the country was of ₹2.36 per unit.

Saudi Arabia' Aljomaih Energy and Water Company and Singapore headquartered Sembcorp's India arm' Green Infra Wind Energy Ltd. placed the winning bids of Rs2 per kilowatt-hour (kWh) to win the contracts to build 200 MW and 400 MW of solar projects respectively. State run NTPC Ltd placed the second lowest winning bid of Rs2.01 per unit to secure the balance 470 MW capacity.

"A record low bid price of ₹2 per unit was discovered during this auction," said the government official cited above requesting anonymity. Spokespersons for Aljomaih Energy and Water Company couldn't be

immediately contacted. Spokespersons for Sembcorp Industries and NTPC didn't comment on the development. Interestingly, it is the foreign players who have taken the lead in placing the aggressive bids recently during this auctions conducted by India. During the last round, the lowest bid was placed by Spain' Solarpack Corporación Tecnológica, S.A. The previously recorded low solar bid was of ₹2.44 per unit in May 2017.

The bids comes in the backdrop of fund-starved state electricity distribution companies (discoms) unwilling to sign contracts with intermediary procurers such as SECI for these previously-awarded projects at a comparatively higher tariff. Due to the recent low-price bids, the discoms are tariff-shopping and are reluctant to ink power supply agreements (PSAs) for these projects.

Also, debt financing for green energy projects drying up with large Indian banks declining to fund projects that have committed to sell power at less than ₹3 per unit. The banks have been wary of lending to developers as they suspect the viability of projects that have agreed to sell power at rock-bottom tariffs. This bids also assumes importance given that the rapid pace of clean energy capacity addition by India. Clean energy projects now account for more than a fifth of India's installed power generation capacity. India has 34.6 GW of solar power, with an aim to have 100 GW of solar capacity by 2022. The country is seeking additional clean energy investment of around $80 billion till 2022, growing more than threefold to $250 billion during 2023-30.

Also, these record low bids come at a time when the US President designate Joe Biden has promised a 'Clean Energy Revolution'. Biden's campaign promise includes ensuring that the US "reaches net-zero emissions no later than 2050", recommitting to the Paris Agreement on the first day of his administration, and "a federal investment of $1.7 trillion over the next ten years."

The bids also showcase the NTPC's pivot towards green energy. The state-run conventional power generation firm is rewriting its playbook, given that India's energy landscape is rapidly evolving. NTPC on its part has decided not setting up new greenfield coal-fueled power projects and plans to make a total capital expenditure of Rs1 trillion between 2019 and 2024 to become a 130 GW power producer by 2032. It has around 4GW of renewable capacity, mostly solar, and plans to add at least 5GW solar capacity in two years. It will acquire at least 1GW of operational solar projects as part of its strategy to have a 32GW clean energy portfolio by 2032.

India has been trying to rejig its energy mix in favour of green energy sources and has become one of the top renewable energy producers globally, with a plan to achieve 175GW by 2022 and 500GW by 2030 as part of its climate commitments. *Source*

Coronavirus scars solar power industry; Q3 capacity addition falls 80% year-on-year

India's new solar installations fell by 80% year-over-year (YoY) to 438 megawatts (MW) of solar capacity in Q3 2020 from 2,177 MW added in Q3 2019. In the first nine months of 2020, the installed capacity totalled 1.73 gigawatts (GW), a 68% decline compared to 5.48 GW added in the same period of 2019. However, tiding over the lockdown blues, the addition is a 114% increase compared to 205 MW installed in the previous quarter, says Mercom Capital Group, which tracks the renewable energy industry worldwide.

According to the company's report, several project deadlines have moved to Q4 2020, and the commissioning dates for a large number of projects have been postponed to the first half of 2021. However, the country's solar industry is showing signs of recovery with increased activity compared to the previous quarter. "The solar industry in India is glad to see the back of 2020, which will end up as

one of the worst years for solar in India as COVID-19 took a heavy toll on the industry. However, the market is almost back on its feet and the mood is upbeat as the industry heads to 2021 - one of the best years forecasted for the sector," says Raj Prabhu, CEO of Mercom Capital Group.

The report further states that India still has a robust large-scale solar project development pipeline of 44.7 GW, with another 34.6 GW of projects tendered and pending auction at the end of Q3 2020. The worst seems to be over for the rooftop market, and installers are reporting intense competition. Mercom India Research forecasts approximately 3.3 GW of solar installations in 2020 as most of the projects scheduled for commissioning in the second half of 2020 were moved to the first half of 2021.

The report noted that large-scale installations totalled 283 MW compared to 120 MW in the previous quarter. YoY, large-scale installation levels decreased by 85% compared to 1,932 MW installed in Q3 2019. Rooftop solar installations accounted for 155 MW in Q3 2020, an increase of 82% compared to 85 MW installed in Q2 2020. Rooftop installations declined 37% Y-o-Y compared to the 245 MW added in Q3 2019. The commercial and industrial (C&I) segment dominated the Indian solar rooftop market in Q3 2020 and accounted for a 95% market share.

"There are some short-term risks it has to deal with, like the uncertainty around basic customs duty (BCD), DISCOM dues, and the difficulty in getting power sale agreements signed," says Prabhu. Although more than 75% of labour shortage issues have been resolved, the country is still facing some manpower shortages as workers fear travel risks, even though the restrictions have been lifted. In the near term, there could be some supply disruptions and a shortage of solar components. Because of solar glass paucity and the anticipated demand rush in China in Q4 to meet the year-end goals, developers are experiencing module shortages along with their prices firming up. The module scarcity and upward pressure on pricing could linger into Q2 2021. *Source*

Delay in supply pacts with discoms seen to hit renewable energy projects

The delay in signing power supply agreements (PSA) by Solar Energy Corporation of India (SECI) with discoms for over 20,000 MW of power projects awarded in the last one year is threatening the renewable energy target of 175 giga watt (GW) by 2022. Manufacturing projects of 12,000 MW was awarded in June, while the peak-off-peak units of 1,200 MW were awarded in February. In addition, RTC projects of 400 MW were awarded in May. There are several other projects, totalling around 6,500 MW that were awarded in the last one year and are awaiting PSA with discoms.

In a recent MNRE notification for procurement of power from grid connected hybrid renewable projects through tariff based competitive bidding, a clause adds that if the nodal agency (SECI) is unable to enter into PSA within six months of issue of letter of award, then those projects will get cancelled. Industry experts believe the delay in signing power supply contracts has more to do with drop in module prices which gives an impression that tariffs may fall further. The latest project awards for RTC and peak-off peak were costly in comparison to prices on power exchanges, although they are comparatively different in terms of specifications.

The discoms are wary of the must-run status of renewable power and the renewable purchase obligations, which makes it compulsory to buy a percentage of renewable power depending on state's resources. The Union power ministry has mandated all discoms to purchase at least 21% of their total energy requirements from renewable energy sources by 2021-22. Kameswara Rao, lead, energy practice at PwC said, the un-contracted tendered capacity has become large and is indicative of a deeply fundamental mismatch.

The expectations of future demand, load profile; costs and reliability have diverged significantly from a discom's perspective. "The benefits of the current format, such as large scale, standardisation, and creditworthiness still hold, but the requirement of discoms has changed. A consultation with discoms is a start, but there is a need for a comprehensive revamp of the format, involving scalable storage and flexible contracting for future bids," Rao said.

Jyoti Gulia, founder of consultancy firm JMK Research, said that government should consider implementing the bidding approach as followed in thermal sector wherein all the relevant approvals are taken from discoms as well as state regulators before planning a bid and not the other way round as what is been pursued in renewable sector. This would avoid unnecessary delays and help project developers streamline their project schedules. Vinay Rustagi, managing director of consultancy firm Bridge To India, said that power from many of these projects is costly due to complex tender designs.

SECI is trying to bundle this relatively high cost power with low cost power from other tenders to offer an agreeable price to discoms. "However, the possibility of some of these projects being cancelled cannot be ruled out if discoms don't come forward to purchase power. As more time passes by, the risk of cancellation increases," Rustagi said.

SECI, however, is confident of achieving the target in coming months as it believes Covid played the spoil sport in holding physical meeting with discoms and expects some of the PSAs to be signed in coming months. "We do not consider the delay as cause of worry and are confident of selling all these capacities. "We don't believe that these projects are costly. The Rs 2.66/kWh price for manufacturing projects is the cheapest that no other states have offered. "The entire concept of blending was introduced in projects to allay the fear of discoms that prices may drop further in future bids," a senior SECI official told FE. *Source*

Renewables' share in energy mix falls marginally to 10.7 pc in Q2: Report

September quarter typically records the highest wind energy generation every year. "Renewable energy's share in the energy mix decreased marginally from 11.4 per cent in Q2 FY20 to 10.7 per cent in Q2 FY21," it said. The CEEW Centre for Energy Finance (CEEW-CEF) is an initiative of the Council on Energy, Environment and Water, one of Asia's leading think tanks.

The share of renewables in energy mix came down marginally to 10.7 per cent in September quarter this fiscal year from 11.4 per cent in the year-ago period, as per a report. According to the latest edition of the CEEW-CEF's quarterly Market Handbook, the prominent reason for the decline was the unseasonable and sharp reduction in wind speed in resource-rich states Gujarat, Rajasthan, and Tamil Nadu. The reduction in wind speed in these states led to 41 per cent decline in wind generation in July 2020 as compared to the same month last year, it said.

September quarter typically records the highest wind energy generation every year. "Renewable energy's share in the energy mix decreased marginally from 11.4 per cent in Q2 FY20 to 10.7 per cent in Q2 FY21," it said. The CEEW Centre for Energy Finance (CEEW-CEF) is an initiative of the Council on Energy, Environment and Water, one of Asia's leading think tanks. It also highlighted that 3.2 GW of renewables were auctioned in September quarter 2020-21 as compared to 4.4 GW (excluding 8 GW sanctioned as part of a manufacturing-linked upsizing of a solar auction from an earlier quarter) in April-June period.

Further, auctions for vanilla renewable energy projects gave way to auctions for blended generation mixes in the last quarter. Auctioning blended solar and wind projects is aimed at improving the

transmission infrastructure utilisation with higher capacity utilisation. It also highlighted that market concentration - the share of top five developers in the total project capacity sanctioned - increased to 84 per cent in the quarter under review as compared to 81 per cent in the previous quarter, and is expected to remain high going forward.

Further, aggregate renewable energy capacity additions slowed down in second quarter partly owing to supply chain disruptions due to COVID-19, which impacted grid-scale capacity additions. In contrast, rooftop solar picked up with 399 MW capacity added in the quarter, as compared to 188 MW in second quarter of 2019-20.

Gujarat, Rajasthan, and Tamil Nadu led the growth in rooftop solar installations. Meanwhile, coal capacity addition remained subdued with net addition in second quarter at 550 MW, approximately a third of renewable energy additions of 1,560 MW during the same period last fiscal.

"Among renewables, grid-scale and rooftop solar continued to dominate capacity additions in the quarter, accounting for a nearly 60 per cent share. A five-month extension granted by the Ministry of New and Renewable Energy for grid-scale project commissioning could result in a noticeable uptick in renewable energy capacity additions as the lockdown eases further," Nikhil Sharma, Associate at the CEEW-CEF, said. The report also indicated that short-term electricity prices, in both day-ahead and real-time spot markets, saw an increase to Rs 2.53 per kWh and Rs 2.42 kWh in the quarter from Rs 2.35 per kWh and Rs 2.22 kWh, respectively in June quarter.
This was due to a recovery in demand from discoms and increased volumes when compared to second quarter levels last fiscal. On the discom payables front, the report highlighted the Rs 1.4 lakh crore discom overdues to power producers as of September 30, 2020, representing an increase of 50 per cent compared to overdues in September 2019. However, the pace of increase in overdues dropped significantly, increasing only 5 per cent over the year-ago quarter. In June quarter, it spiked to 30 per cent. *Source*

India’s renewable future

As the second most populated country on the planet (and seventh largest in area), India has enormous energy demands. Today, most of that energy comes from coal and, as a result, India trails only China and the United States when it comes to CO2 emissions. India has already committed to the ambitious goal of transitioning to 60 percent renewable energy in its electricity sector by 2030, but recent research from the Harvard John A. Paulson School of Engineering and Applied Sciences found that the country could go even further with renewables and reduce overall energy costs.

In a paper published in Nature Communications, researchers found that wind and solar energy could meet 80 percent of anticipated electricity sector demand in India in 2040. The researchers found that achieving that level of reliance on renewable energy would reduce CO2 emissions by as much as 85 percent and the overall costs for power by as much as $50 billion.

“We came to the striking conclusion that investments in renewables today could play an important role in reducing the overall energy costs in India in the future,” said Michael McElroy, the Gilbert Butler Professor of Environmental Studies and senior author of the study. “This has clear policy implications for India’s electricity sector in planning for a low-carbon future.” McElroy and the team, which included researchers from Huazhong University of Science and Technology in Wuhan and Tsinghua University in Beijing, developed a new model that integrated all the various components of India’s electricity system to find the cheapest way to incorporate specific levels of renewables into the overall power grid.

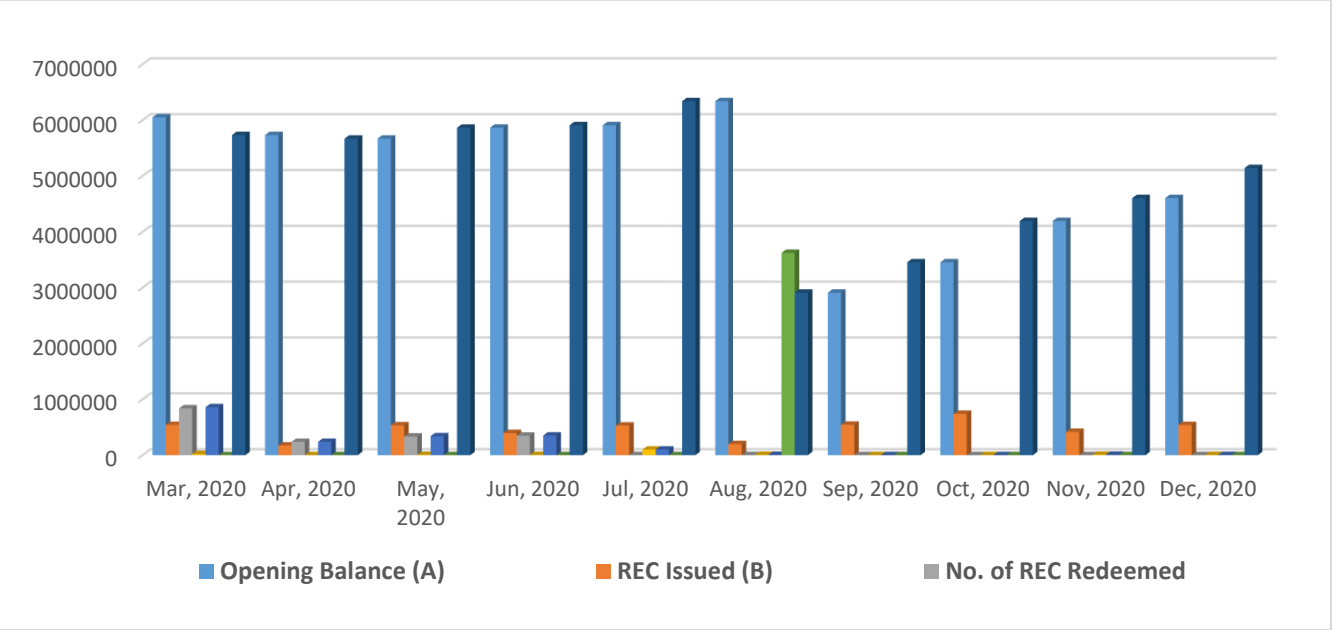
The researchers scaled current levels of energy consumption to estimate electricity demand in 2040. Their model considered the hourly demand over the course of the year for five regions -- north, west, south, east, and northeast -- and broke down the most cost-effective power strategy for each. For example, southern and western India could generate 80 percent of their total electricity demand with wind power. Wind energy has the added benefit of requiring less land than solar panels, which is important for these largely agricultural regions. India's east, north and northeast regions could be powered mostly by solar energy.

Nationwide, the team found that the most cost-effective strategy to reach 80 percent renewable energy by 2040 would require 58 percent wind and 23 percent solar with coal, hydro, nuclear, and gas filling in the gaps. The researchers estimated that this strategy wouldn't be significantly more expensive to implement than the Indian government's current 60 percent renewable goal and would result in operating cost $50 billion cheaper than the coal-dominated approach.

"We found that renewables can play a major role in decarbonizing India's electricity sector, while providing a source of electricity cheaper or at least competitive with what could be supplied using fossil fuel-based alternatives," said Peter Sherman, a graduate student in McElroy's lab and co-author of the paper. Next, the team will study ways to reduce carbon emissions from other parts of the Indian economy, including industry and transportation. "We are particularly interested in the possibility of increasing the future role for green hydrogen, hydrogen produced by electrolysis using carbon-free electricity," said McElroy. *Source*

REC Inventory position

Month Year	Opening Balance (A)	REC Issued (B)	No. of REC Redeemed		Total E=(C+D)	REC Revoked/ Deleted (G)	Closing Balance (F=((A+B-E)-G)
			RECs Redeemed through Power Exchanges ©	RECs retained by RE Generators (D)			
Mar, 2020	6050329	541311	838448	20233	858681	0	5732959
Apr, 2020	5732959	173854	237935	0	237935	0	5668878
May, 2020	5668878	534663	333770	4893	338663	0	5864878
Jun, 2020	5864878	396265	349056	3415	352471	0	5908672
Jul, 2020	5908672	530935	0	100471	100471	0	6339136
Aug, 2020	6339136	198726	0	4744	4744	3623895	2909223
Sep, 2020	2909223	544955	0	207	207	0	3453971
Oct, 2020	3453971	740650	0	1086	1086	0	4193535
Nov, 2020	4193535	417810	0	7833	7833	0	4603512
Dec, 2020	4603512	540794	0	3171	3171	0	5141135
Total:		**4619963**	**1759209**	**146053**	**19052**	**3623895**	



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Editorial team: Biswajit Mondal (Specialist-Short Term, Utility Marketing) Mob No-9717533211 Chandan Kumar (Specialist- Renewables Marketing) Mobile No-971740021.