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

Towards a distributed solar energy future

A study by Auroville Consulting assesses the techno-commercial impact of generating solar power close to the point of consumption. The study was undertaken on ten feeders of a substation in the Erode district of Tamil Nadu. The results indicated that 100% solar energy penetration, in energy terms, is not only possible but a winning proposition, especially for the distribution companies.

In recent years decentralized solar energy systems have gained increasing attention as these offer several benefits compared to centralized generation systems. They have a short gestation time and can contribute to meeting the growing electricity demand in India. Well-planned siting of distributed solar energy generation can reap technical and commercial benefits. For example, locating it near the load centres reduces transmission and distribution losses (T&D) losses and also defers or avoids infrastructure upgrade costs while lowering the cost of supply (CoS).

Despite the benefits of distributed solar energy generation, achieving high solar penetrations presents grid operators with challenges associated with solar energy's intermittent nature. A recently published report by Auroville Consulting assesses the techno-commercial impact of high solar energy penetration on the distribution network. The study was undertaken on ten feeders of a selected substation in the Erode district of Tamil Nadu.

The approach taken may be best described as considering the selected distribution network as an energy island – one that remains interconnected to the larger grid, draws services from it, and in turn, provides services to it. The objective was to explore what it takes to develop a net-zero energy distribution network by introducing distributed solar energy, Time-of-Day (ToD) tariffs and energy storage solutions, wherein 100% of the annual electricity demand is met from local solar energy generation.

The solar energy generators were interconnected at existing high-tension (HT) feeders to optimize the utilization of existing distribution infrastructure assets and to reduce T&D losses. This approach deviates from the current emphasis that solar energy generators require a dedicated feeder—as is promoted, for example, under KUSUM-Scheme A by the Ministry of New and Renewable Energy.

The technical part of the feasibility analysis includes determining the feeder's solar hosting capacities, total distribution losses and feeder-level voltage violations, while the economic feasibility analysis estimates potential financial savings for TANGEDCO on account of CoS reduction.
To read the full article click on source. *Source*

Solar tariffs may reach a new record-low once again: Experts

In a greatly encouraging response, over 5000 MW of bids were received for the 1070 MW solar tender issued by the Solar Energy Corporation of India, which analysts said may lead to record low tariffs.

In a greatly encouraging response, over 5000 MW of bids were received for the 1070 MW solar tender issued by the Solar Energy Corporation of India, which analysts said may lead to record low tariffs. SECI is the nodal agency through which the ministry of new and renewable energy conducts wind and solar auctions.

In the bid submission that took place Wednesday, almost all the major developers in the country expressed interest in taking part, sources said. "We expect aggressive bidding and possibly a new tariff

low in this auction," said Vinay Rustagi, managing director of renewable energy consultancy firm, Bridge To India. Queries sent to the Managing Director of SECI remained unanswered as of press time.

Experts said that during the early solar auction years (between 2015 and 2017), tenders were heavily oversubscribed in a similar manner. "The past two years were a bit of an exception as many developers exited the market in the face of various execution and financing challenges," Rustagi said. The oversubscription could be attributed to the demand-supply mismatch that has arisen in the market right now. "As the pace of transition towards renewables is accelerating globally, huge pools of capital have been earmarked for the sector by sovereign wealth funds, international utilities and oil & gas companies etc," he said. But the pace of new auctions has slowed down at the same time.

Developers prefer to participate in plain vanilla solar auctions over hybrid and storage based ones because of technical and execution simplicity, according to Rustagi. The renewable energy ministry has been moving away from conducting auctions for plain solar and wind projects of late. This tender may have received an overwhelmingly enthusiastic response because Rajasthan distribution companies have agreed to purchase the power. "The usual offtake uncertainty is not there," Rustagi said. *Source*

8000 MW renewable park to light up India-Pak border areas in Rajasthan

The park to be set up near borders areas will be of 8,000 megawatts (MW) capacity, which will comprise 4,310 MW of wind energy; 3,760 MW of solar energy and 120 MW of power from biomass.

India's border areas with Pakistan in Rajasthan would soon be illuminated with renewable energy as the state government will soon ink an MoU with National Thermal Power Corporation (NTPC) and Solar Energy Corporation of India (SECI) to establish Ultra Mega Renewal Energy Power Park, government officials said. The park to be set up near borders areas will be of 8,000 megawatts (MW) capacity, which will comprise 4,310 MW of wind energy; 3,760 MW of solar energy and 120 MW of power from biomass. Currently, Rajasthan's solar generation capacity is 4,883 MW.

The Rajasthan Renewable Energy Corporation Limited (RRECL) would be singing a separate MoU with the NTPC and the SECI to materialise the GoI Mega Power Park project. A senior official of the department, on condition of anonymity, said the Park will ensure uninterrupted power supply to the border areas. An annual expenditure of Rs 40 crore is incurred for supplying power to the border which, with renewable energy, will reduce to one-third of the present cost.

Rajasthan energy minister BD Kalla said the work to connect borders with solar energy is in progress. The state would soon ink an MoU with the NTPC and the SECI. "Initial talks were held during a national seminar in Gujarat. Rajasthan Renewable Energy Corporation Limited (RRECL) intends to take a service charge under the MoU, which is Rs 2 lakh per MW, which will be used for the development in the state, the talks are on over the issue," he said.

Rajasthan has over 1000 kilometre-long international border which is currently supplied power through traditional methods. Currently, discussions are on over the state's demand of Rs two lakh per MW as service charge, which would be used for the state's development. The Union energy ministry is not willing to pay the money saying that Rajasthan is already getting money from the renewable energy development fund.

Meanwhile, the Rajasthan government had also approved a proposal for setting up solar power parks to generate 10,000 MW green energy with an investment of Rs 50,000 crore. The state has given nod to

the proposal of Adani Green Energy Limited to set up solar power parks at five locations and a solar panel manufacturing unit which will generate around 7,500 direct and indirect jobs, the officials said.

Principal secretary, energy, Ajitabh Sharma said, “The firm will also set up units to manufacture solar equipment which will happen for the first time in Rajasthan at such a mega scale. The proposal received is the largest investment committed to the state in renewable energy generation; Rs 50,000 crore will be invested over the next 5-6 years. Five solar power parks will be set up in Jaisalmer, Bikaner, Jodhpur, Jalore, and Barmer.” *Source*

Covid impact: India's solar PV installations to drop to 4 year-low in 2020, says WoodMac

The firm also said without policy enforcement, India’s 100 GW solar target is unlikely to be met. With the ongoing Covid-19 pandemic impacting project activity, the total installations of solar photovoltaic (PV) systems in India is likely to drop to a four year-low in 2020, according to Wood Mackenzie (WoodMac).

"According to Wood Mackenzie’s analysis, Indian PV installations will sit at just 4.9 GW in 2020, down 42 per cent on 2019 and the lowest level since 2016," the global research and consultancy firm said in a statement. Wood Mac also said coronavirus cases in India are continuing to rise and social distancing measures are likely to slow installation activity for the rest of the year at the very least. "Without policy enforcement, India’s 100 GW solar target is unlikely to be met," the statement said.

Overall, as global solar PV markets continue to weather the challenges posed by the coronavirus pandemic, solar PV installations are expected to hit 115 GWdc this year, up 5 per cent from the total installed globally in 2019. "The most severe of lockdowns have ended in almost all countries, with construction on PV sites able to continue as planned, albeit with many projects facing delays caused by disruption earlier in 2020," the statement quoted Wood Mackenzie Head of Solar Ravi Manghani as saying during a presentation at the GTM Solar Summit 2020.

He said the year-over-year growth in installations will continue each year to 2025, topping out at 145 GWdc and the one exception will be 2024 when the US market will slow following the final stepdown in the ITC schedule. According to the firm, the Chinese market is continuing its robust recovery and Wood Mackenzie now expects 39 GWdc of installations by the end of 2020. Of this total, 27 GWdc will be installed in the second half of the year. *Source*

Renewable energy industry asks for increased focus on wind-solar hybrid projects

India’s total wind-solar hybrid capacity is expected to reach 11.7 GW by 2023, according to a recent report

The government should push for wind-solar hybrid (WSH) project tenders and should not keep their tariffs too low in order to go full throttle with such projects in India, industry executives said. India’s total wind-solar hybrid (WSH) capacity was expected to reach 11.7 gigawatt (GW) by 2023, a whopping 80 times increase, according to a recent report by the Institute for Energy Economics and Financial Analysis (IEEFA) and JMK Research.

“To go full throttle with hybrid projects in India, the government should not only push for such tenders, but also bring a shift in its approach towards tariffs for hybrid projects. Any tariff below Rs 2.6 per kWh would be a deterrent,” Sunil Jain, chief executive officer at Delhi-based renewable energy developer, Hero Future Energies (HFE), told.

Industry recommendations have been to evaluate the cost of establishing advanced transmission infrastructure to support power evacuation, as compared to governmental push on lowering the tariff for hybrid projects. Co-existing land availability of both good wind and solar resource sites has been a big challenge with only three states -- Gujarat, Andhra Pradesh and Karnataka -- qualifying for wind-solar hybrid plants in the true sense.

“In spite of existing challenges, hybrid projects are definitely a way forward as the sector matures even though plain vanilla solar projects will continue to attract more attention for at least some years to come,” said Jain, which has commissioned the country’s first WSH project in Karnataka of 50 MW capacity in 2018. Wind-solar hybrid projects, especially the co-located hybrid ones, are expected to be more competitive as they are supported by higher plant load factor expectation and reduction in project cost as against standalone systems due to sharing of common infrastructure such as land and evacuation network, according to Girishkumar Kadam, vice-president at ICRA.

Another key industry player said he expects more demand for hybrid projects going forward. “In the open access segment, we have seen concessions being reduced, increasing transmission charges and stricter banking norms thereby restricting the amount of renewable energy that can be supplied to an open access customer,” said Guru Inder Mohan Singh, chief operating officer, at Gurugram-based distributed solar energy firm, Amplus Solar, which has over 650 MW of operational and under construction assets across India.

He added that solar-wind hybrid projects would help address these issues becaused of shared transmission charges and availability of more hours of energy to the customer.

The project economics is expected to remain favourable for hybrid projects through an open access route for private independent power producers given the attractive tariffs in the commercial and industrial segment, analysts say.

They, however, added that this segment would continue to remain affected due to regulatory risk associated in open access across the states given the apprehension among discoms in losing such cross-subsidising customer segments. MNRE recently issued a round-the-clock tender for 5 GW project capacity which would be based on bundling of renewable and thermal generation. However, with this, the RE capacity addition would happen only in standalone segments over the next two-three year period.

“The share of hybrid projects should witness a gradual increase thereafter, which will also depend upon the timely award of such projects and signing of power purchase and power supply agreements,” said Kadam. Regarding future prospects, HFE’s Jain said that setting up small solar projects in multiple locations under the wind turbines, after taking into account the shadow effect, could be a possible new approach towards hybrid projects.

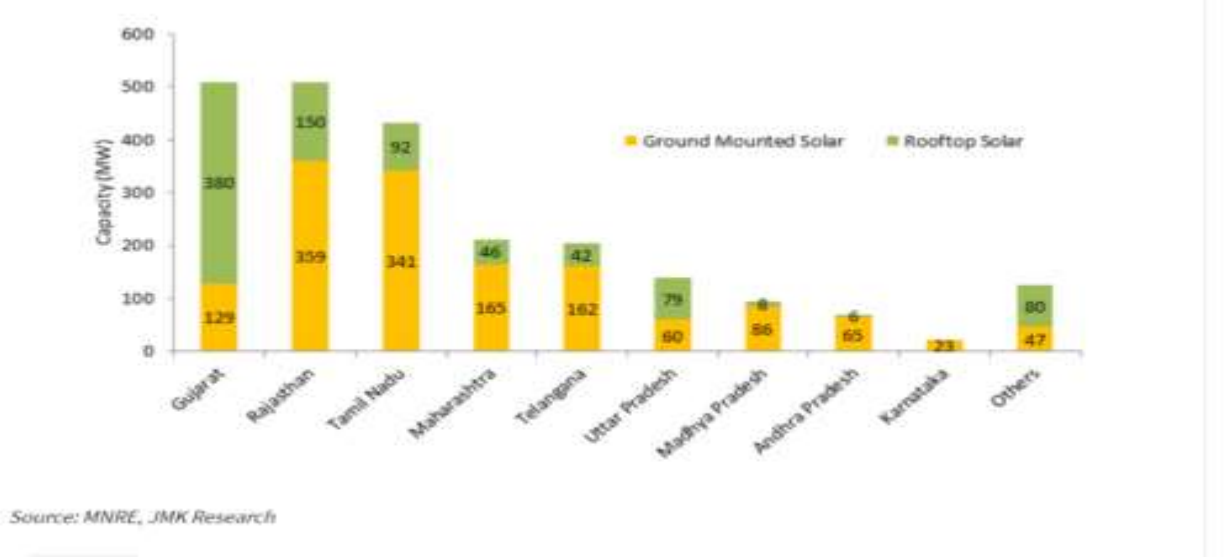
“With elaborate and advanced software and algorithm support, industry players will definitely find ways to execute efficient and high-performing hybrid assets,” he added. MNRE has identified 10 locations for setting up hybrid wind-solar parks in the country. Wind-solar hybrid projects, either co-located or being at different locations, mitigate the concerns over the intermittency and seasonality of generation to a larger extent. *Source*

India added 883 MW of rooftop solar in nine months despite Covid-19

With 380 MW of generation capacity, Gujarat accounted for 43% of new rooftop solar installations during the January-to-September period. While big solar has been hard hit by Covid-19 disruption, rooftop PV has kept up its momentum.

India added around 2.32 GW of solar capacity in the first nine months of this year. The new generation capacity included 1,437 MW of ground-mounted projects and 883 MW of rooftop solar, according to Haryana-based JMK Research, which cited data released by the Ministry of New and Renewable Energy (MNRE).

The volume of new large-scale PV has fallen well short of the 7-8 GW forecast by JMK before the Covid-19 outbreak but rooftop installs appear to have maintained momentum despite coronavirus lockdowns, with Gujarat accounting for 43% of new systems.



Source: MNRE, JMK Research

JMK Research attributed the drastic shortfall in big solar commissioning to Covid-prompted disruption but said it expected most of the delayed capacity to arrive within eight months.

“Because of Covid-19 there were construction delays, restricted movement of equipment supply, and labor shortages, eventually leading to project delays,” said the analyst. “To compensate for this, the MNRE has issued a blanket [project deadline] extension of five months to all project developers. Now, most of this delayed capacity is likely to come up in the first half of 2021.”

Leading states

Rajasthan led the way for large scale PV this year, with 360 MW of new capacity, closely followed by Tamil Nadu (341 MW). Gujarat ranked first for rooftop solar, with 380 MW of new systems thanks to helpful state-level policies and schemes.

JMK Research said the primary reason for the state’s significant rooftop PV activity was the Surya Urja Rooftop Yojana program, which targets rooftop generation for 8 lakh residential consumers by March 2022. The scheme offers a 40% state subsidy for systems with a generation capacity of up to 3 kW and

a 20% subsidy for 3-10 kW arrays. The Haryana consultant highlighted state policy aimed at micro, small and medium-sized enterprises (MSMEs) as another driver for rooftop PV.

“The policy, introduced in September 2019 by the Gujarat government, allows MSMEs to install solar projects with more than 100% of their sanctioned load or contract demand,” said JMK. “Earlier, the permitted installation limit was 50% of the sanctioned load. As per the new policy, MSMEs are also able to sell excess solar energy to the state government for INR1.75/ kWh. The policy also permits MSMEs to buy solar power from third parties.”

After Gujarat, Rajasthan (150 MW) and Tamil Nadu (92 MW) were the next best-performing states for new rooftop solar. *Source*

Clear 10-year roadmap for clean energy needed to boost innovation: Amitabh Kant

Speaking at the India Energy Forum by CERA Week, Kant said, "We should provide 10-year roadmap on where we want to be in clean (energy) technology. We should provide policy clarity to innovation stakeholders because a lot of innovation will keep happening as we go along."

NITI Aayog CEO Amitabh Kant on Monday stressed on the need for a clear ten-year road map to boost clean energy technologies and creating standards for innovations. Kant also called hydrogen as fuel of the future especially for commercial vehicles which can ensure efficiency in movement across the country. Speaking at the India Energy Forum by CERAWeek, Kant said, “We should provide 10-year roadmap on where we want to be in clean (energy) technology. We should provide policy clarity to innovation stakeholders because a lot of innovation will keep happening as we go along.”

Developing countries like India need to create standards for new technologies which sometimes become a hurdle for Indian entrepreneurs to disrupt the global market with local innovation, Kant said. India should focus on strengthening standards and certification infrastructure, he added. Kant also showcased India’s ambitious target of having 450GW of renewable energy by 2030 at the international forum.

About the role of traditional energy, he said, “Our belief is that hydrogen is an area where traditional energy companies can be a game changer given the similarities in the engineering needs of oil and gas and hydrogen processing technology.” Traditional or conventional energy companies are looking at hydrogen and biofuels these days. “This is an opportunity for them. My belief is that hydrogen is going to be future particularly for movement of commercial vehicles. Hydrogen will bring in efficiency in movement from city to city,” Kant said. *Source*

Tamil Nadu‘s New Tariff Order for Solar Procurement

The Tamil Nadu Electricity Regulatory Commission (TNERC) has issued a tariff order for solar power procurement by distribution licensees. The effective date of the order is October 16, 2020. According to Mercom’s Renewable Energy Regulatory Updates, in February, the Commission had issued a consultative paper for procuring solar power by distribution licensees and asked stakeholders to submit their comments and suggestions. It proposed distribution licensees to procure power through the competitive bidding process prescribed by the central government.

Mercom’s India Solar Project Tracker notes that Tamil Nadu has nearly 3.6 GW of solar projects and another 485 MW in the pipeline.

Competitive Bidding for Distribution Licensees:

The Commission passed its order after reviewing the feedback it received from the industry. It also took provisions under the Electricity Act, the National Electricity Policy, Tariff Policy, and other related policies into consideration. In its order, it permitted the procurement of solar power by distribution licensees to meet their renewable purchase obligations (RPO) through the competitive bidding route.

Licensees are expected to adhere to the bidding guidelines issued by the Central Government. They must also adopt ceiling tariffs discovered in the tariff-based competitive bidding process conducted by the Solar Energy Corporation of India (SECI) and, subsequently, approved by the Commission.

They are also allowed to bid again without a tariff cap if a competitive bidding process is unsuccessful. However, licensees must obtain the Commission's approval before doing so. The order also allowed distribution licensees to purchase power from projects contracted through a competitive bidding process conducted by SECI. Licensees are expected to get the Commission's approval if they deviate from the prescribed bidding guidelines. The Commission noted that clean development mechanism (CDM) benefits will be shared at 100% in the first year and reduced 10% annually until both the developer and consumer get an equal share (50:50).

The Commission added that licensees are allowed to exceed their RPO limits for purchasing power if the rates discovered in the competitive bidding process are comparable and below the variable cost of power from conventional fuel-based power sources.

Open Access Charges:

In its consultative paper, the Commission had proposed to levy 100% of the charges applicable for conventional power for transmission, wheeling charges, scheduling, and system operation charges for open access. However, stakeholders said that given the low yield in solar power generation, this might affect the project's viability. They asked the Commission to retain the existing charges.

After taking these views into opinion and factoring in the adverse effects of COVID-19, the Commission retained the rates of open access charges at 50% of that applicable for conventional power for transmission, wheeling charges, scheduling, and system operation charges. However, it noted that 100% of the respective charges would be applicable for projects availing renewable energy certificates (REC).

Cross Subsidy Charges:

Previously, the Commission had proposed to levy 100% of cross-subsidy surcharge applicable to conventional power. However, it retained the existing charges at 70% after requests from stakeholders.

Grid Availability Charges:

The Commission declared that excess power drawn during the solar generation period between 7 AM and 6 PM that is over the generated amount would be charged at high-tension (HT) industrial tariffs. It also said that any power drawn outside this period would also be charged at HT industrial tariffs since solar generators do not need start-up power, unlike some other power sources.

Energy Accounting and Billing Procedure:

The Commission did not amend its proposed energy accounting and billing procedures, citing complications that arose due to the COVID-19 pandemic. If a captive user or third-party buyer draws

more power than they generate, the energy and demand charges will be regulated as per the Commission's open access regulation and the deviation settlement mechanism (DSM). Distribution licensees are expected to raise bills at the end of the billing period for the net energy supplied if a solar power generator captively uses power or sells it to a third party.

The Commission declared that wheeling solar power would only be allowed when power is being generated. This will then be adjusted for the billing period. Excess consumption will be charged at the tariff that applies to the consumer. Excess energy that has been generated but not consumed (subject to the cap fixed) can be sold for 75% of the respective solar tariff. If a tariff has not been set, this power can be sold at 75% of the lowest tariff discovered through competitive bidding during the year. Some stakeholders pointed out that solar energy generation is more predictable than wind power generation. They asked for the cap on excess generation to be removed and for permission to adjust energy from higher to lower slots. The Commission decided not to implement any cap on payments for excess power generated or unused energy.

Applicability:

The Commission said that these orders would apply to solar power projects that are of at least 1 MW capacity. It added that open access charges, other terms and conditions specified in the order apply to solar power generators regardless of when they were commissioned. It also declared that the control period would be valid until March 31, 2021, and the tariff period would be as prescribed in the bidding guidelines.

Mercom previously reported that the Tamil Nadu Energy Development Agency had issued the state's Solar Energy Policy 2019. The policy targets 9 GW of installed solar capacity in Tamil Nadu by 2023. Recently, the TNERC issued an order with detailed guidelines for wind power procurement. The order provided details on the mode of power procurement, energy banking, transmission, wheeling, scheduling, and system operation charges. *Source*

NHPC plans to develop 600-MW ultra mega solar park in Uttar Pradesh

State-run hydropower major, NHPC, is planning to develop a solar park of around 600 Megawatt (MW) capacity in Deoria district of Uttar Pradesh, it said in a virtual event on Wednesday. The proposed site is an island with Ghaghra river flowing from both its sides. "NHPC is planning to develop a solar park of 600-MW capacity in Deoria district of Uttar Pradesh. We are actively examining cooperation with the UP government as well as UPTCL to make this solar park a reality," said A K Singh, Chief managing director, NHPC in a joint stakeholder consultation organised with the industry body National Solar Energy Federation of India.

The time required for carrying out the survey and investigation would be two months and the land will be taken on a long-term lease basis. The nearest 400 kV substations are at Kasara in Mau and Rasra in Balia, about 45 kilometre from the site, according to B P Rao, general manager, NHPC. The company said the project is expected to be completed by the end of 2022 or beginning of 2023 and it would be developed in a joint venture with the UP government or special purpose vehicle mode. However, a final decision would be taken after assessing the viability of the project.

The grid connectivity and power evacuation would be finalised by Uttar Pradesh Power Transmission Corporation after carrying out the necessary studies, said the hydropower giant. NHPC is planning to conduct a more detailed survey of the topography and the soil conditions and appraise the developers in the coming months.

The hydropower generator in May decided to foray into the solar power business and diversify its portfolio by developing solar projects as intermediary procurer through developers. NHPC presently has an installation base of 7,071.2 MW from 24 power stations on ownership basis including projects taken up in joint venture. *Source*

Indexed renewable energy tariffs can save up to Rs 21,880 cr. for discoms over 5 yrs: Study

Indexed (inflation linked) renewable energy tariffs can save India's discoms up to Rs 21,880 crore over the next five years, a joint study by IEEFA and CEF said.

Inflation indexation of tariffs for future solar capacity could provide much-needed financial respite to the distressed power distribution sector and help India move away from coal-fired power, a joint briefing note by the Institute for Energy Economics and Financial Analysis (IEEFA) and CEEW-Centre for Energy Finance (CEF) said.

Zero indexation tariffs have been the norm in India for many years, co-authors CEEW-CEF Adviser Gagan Sidhu and IEEFA Research Analyst Kashish Shah said in the study. Indian solar power tariffs hit a record low of Rs 2.36 per unit in June 2020, with zero inflation indexation for 25 years. However, state-owned power distribution companies (discoms) have not been able to take full advantage of new cheaper renewable energy due to two-part thermal contracts which command a fixed capacity charge even if no power is drawn, the study said.

The study proposed that solar tariffs start at a very low Rs 2.00/kWh for the first year of the 25-year PPA (power purchase agreement), rising at an indexed rate of 2.2 per cent of annual inflation for 15 years and then at a flat rate of 0 per cent for the remaining life of the contract. The discoms face the twin challenges of a decline in electricity demand, exacerbated by the COVID-19 crisis, and expensive and under-utilised legacy thermal power contracts at a time when ambitious growth in new renewable energy capacity is being targeted, Sidhu said.

"Our modelling shows that the discoms could save up to Rs 21,880 crore (USD 3 bn) over the next five-year period under a partially indexed tariff structure, even with ongoing deflation of solar tariffs. This is compared with cash outflows resulting from incremental renewable capacity auctioned under a flat tariff regime," Sidhu added.

"We assumed that flat solar tariffs would decline at just 2.5 per cent year over year for the next five years, reaching Rs 2.13/kWh by 2025/26," Sidhu said. This is an interim solution to ease the unsustainable near-term financial pressure on discoms, the study said. The pandemic has compounded the discoms" long-standing structural and financial issues, and lower renewable tariffs achieved through indexation would give them vital breathing room to implement more durable and lasting reforms, it added. *Source*

Haryana Asks Another Open Access Solar Project to Supply Power to DISCOMs

The Haryana Electricity Regulatory Commission (HERC) approved the draft power purchase agreement (PPA) to be executed between LR Energy Private Limited and the Haryana Power Purchase Center (HPPC) for the purchase of 20 MW of solar power for 25 years. The regulator’s order said that the open access solar project would supply power to the state DISCOMs. The Commission directed LR Energy to file a separate petition for the determination of the tariff. The HPPC is a joint forum created and owned by the state distribution licensees, namely, Uttar Haryana Bijli Vitran Nigam Limited (UHBVN) and Dakshin Haryana Bijli Vitran Nigam Limited (DHBVN).

Background

HPPC had filed a petition to approve the draft PPA with LR Energy to purchase 20 MW of solar power for 25 years at a tariff to be determined by the Commission. The project is being developed in Haryana's Bhiwani district as an open access/captive power project. The project achieved final connectivity for the sale of power under open access on October 10, 2019. The construction of the project is in the advanced stages, nearing completion.

The HPPC noted that with its current arrangements, it would have a total installed capacity of 1.19 GW of solar and 1.5 GW non-solar renewable energy power by the end of the financial year (FY) 2021-22 to meet its renewable purchase obligation (RPO) targets. Considering the anticipated upward revision of solar RPO targets beyond 10.5%, additional solar power will be required to fulfill the anticipated solar RPOs for FY 2022-23.

The state DISCOM further said that since the project is close to being commissioned, it can immediately supply power that will count towards meeting RPO from FY 2020-21 onwards. The Commission has the power to determine a project-specific tariff for the solar project if the developers opt for it.

The HPPC added that the project was conceptualized as an open access/captive power project. In case this project starts selling power under the captive route, this will lead to loss of cross-subsidy surcharge and additional surcharge from the industrial consumers who will be the captive users of the project. At this stage, these charges amount to ₹1.77 (~$0.02)/kWh, and that will be a direct loss to the DISCOMs, which will be ultimately borne by the end consumers.

"In the overall interest of the consumers of the state, it may be preferred that the project sells power to the DISCOMs rather than selling to consumers under captive route," said the state DISCOM. Besides this, with the project being set up in Bhiwani, power distribution losses would also be low, the developer said. It will also generate employment for the local population.

Commission's Analysis

In its order dated June 01, 2020, the Commission had already noted that the DISCOMs had defaulted in meeting their solar RPO targets. The shortfall in meeting the solar RPO up to FY 2018-19 was 1,850 million units (MUs). Further, during FY 2019-20 (until December 2019), the shortfall in their solar RPO stood at 1,532 MU's.

The Commission noted that though the state had decided to waive off the backlog due to the ongoing pandemic, it had directed the DISCOMs to make every possible effort to meet the RPO targets.

The Commission cited the case of Amplus Sun Solutions, where it had approved HPPC's draft PPA with Amplus Sun Solutions Private Limited. The PPA was signed for 50 MW of solar power from its project in Bhiwani. Interestingly, this decision to procure 50 MW of solar energy from Amplus has landed in court. The Punjab and Haryana High Court has ordered this petition would be treated as public interest litigation. After considering all the facts, the Commission approved the draft PPA to be executed with LR Energy Private to purchase 20 MW of solar power for 25 years. It directed the generator to file a separate petition for the determination of tariff.

Mercom's Renewable Energy Regulatory Updates cites a similar order in which the HERC approved a draft PPA by HPPC. The draft PPA was to be executed with LR Energy for 10 MW of solar power on a

short-term basis for three months. The order allowed HPPC to issue the letter of intent and sign the PPA. Both parties can extend the contract up to March 31, 2021, at ₹2.70 (~$0.036)/kWh. *Source*

MNRE proposes draft policy for promoting distributed renewable energy

The ministry of new and renewable energy (MNRE) on Monday proposed a framework for promoting application of distributed renewable energy (DRE) in rural areas. DRE applications are those which are powered by renewable energy and used for earning livelihoods directly such as solar dryer, solar powered cold storage, solar charkha, solar lighting systems.

With this, the ministry plans to enable a market-oriented framework to attract the private sector for development and deployment of DRE livelihood applications, provide easy access to end user finance, introduce standards, monitoring and evaluation mechanisms. The framework for promotion of DRE livelihood applications allows interventions to assess demand for their deployment across sectors of the rural economy.

“This demand assessment activity will help in mapping needs of beneficiaries with appropriate fit to DRE livelihood applications. MNRE will develop a list of DRE livelihood applications in consultation with stakeholders, which will be updated regularly,” it said. For the standardisation of research and development, MNRE and other ministries would be helping in development of new devices and applications for the rural economy.

“In addition, private sector, technology incubation centres, bilateral and multilateral agencies and NGOs will participate in the research and development activities,” the draft policy said. MNRE would be pursuing financial institutions for credit facilitation.

The market for distributed solar products for rural areas -- such as solar lanterns, pump sets and mini-grids -- was estimated to grow to Rs 10,117 crore by 2023 before the pandemic hit. It is now reeling under financial stress due to lack of liquidity to support operations and government schemes yet to make a visible impact. The draft policy is open for stakeholder comments till 2 November 2020. *Source*

India’s RE Capacity at 89.22 GW, 436 MW Added in September: MNRE

MNRE has informed in its monthly summary that India’s total installed RE capacity reached 89.22 GW by the end of September 2020.

The Ministry of New and Renewable Energy (MNRE) has informed that India’s total installed renewable energy (RE) capacity has reached 89.22 GW by the end of September 2020. The information was issued in the Ministry’s monthly summary (September) to the Cabinet.

In the monthly summary, the Ministry revealed that a total of 435.99 MW of RE capacity was added during the month of September, which took the cumulative capacity to 89.22 GW at the end of the month. As per the notice, this includes 38.12 GW of wind capacity, 36.05 GW of solar capacity, 10.31 GW of bio-power capacity, and 4.74 GW of small hydropower. The ministry has also revealed that further projects worth 48.21 GW of renewable capacity are at various stages of implementations, and projects worth 25.64 GW are under various stages of bidding.

Other key highlights:

A. The cabinet report also stated that an expenditure of Rs 1710.52 crore had been incurred during the month, which is around 29.73 percent of the total budget estimate for the ministry for the financial year 2020-21.

B. Five solar parks of total capacity of 4300 MW were sanctioned under the Ministry's solar parks scheme. These five parks will come up in the states of Madhya Pradesh, Uttar Pradesh and Himachal Pradesh.

C. An Expression of Interest (EOI) was issued by the Ministry, inviting proposals for the installation of innovative stand-alone solar pumps under the schemes implemented by the Ministry.

D. SECI issued an LoA for 970 MW ISTS-connected wind projects. It also issued a tender for the selection of EPC contractors for 100 MW solar along with 50 MW/150 MWh BESS at Rajnandgaon, Chhattisgarh.

E. The Ministry had issued an order to provide a preference for domestic manufacturers in the renewable energy sector in purchases by the ministry and its organisations. This was in pursuance of the instructions issued by the Department for Promotion of Industry and Internal Trade (DPIIT).

For August, the Ministry had revealed that a total of 751.52 MW of RE capacity was added during the month, which took India's total to 88.65 GW by the end of the month. On the financial front, the ministry had notified that an expenditure of Rs 1424.33 crore has been incurred up to August 31, 2020. Which is equivalent to roughly 24.7 percent of the budget estimate for the ministry for the year 2020-2021. *Source*

Rajasthan Regulator Says DISCOMs Not to be Blamed for Failure to Meet RPO Targets

The regulatory body directed the DISCOMs to make up for the shortfall in the next three years

The Rajasthan Electricity Regulatory Commission (RERC) ruled in favor of the state distribution companies (DISCOMs) in a petition demanding action against them for not achieving their renewable purchase obligation (RPO) targets. The Commission noted that there was no case to initiate action against the DISCOMs or impose a penalty as they had tried their best to comply with the targets. The Commission directed the DISCOMs to assess the energy requirements more realistically in advance and sign the power purchase agreements (PPAs) accordingly in the future. It also asked the DISCOMs to make up for the RPO shortfall in the next three years.

Background

Earlier, the Rajasthan Renewable Energy Corporation Limited (RRECL) had filed a petition requesting the Commission to take action against the DISCOMs for non-compliance with RPO targets for the financial years 2015-16, 2016-17, and 2017-18. In May last year, RERC issued new amendments to its regulations on renewable energy certificate (REC) and RPO compliance framework passed in 2010. The new rules came into effect from April 1, 2019.

The RPO targets for the years mentioned above are:

Rajasthan DISCOMs' RPO Targets	
Year	RPO (%)
2015-16*	10.2
2016-17*	11.4
2017-18*	14.25
**Note - The above mentioned targets have not been fulfilled by the DISCOMs. They have not been able to achieve the targets in wind, biomass and solar energy.*	
Source: RERC	Mercom India Research

The DISCOMs did not fulfill the targets, and there was a shortfall in compliance. RRECL added that it was the duty of the DISCOMs to submit a detailed statement regarding the total electricity consumed and the renewable energy purchased at the end of each financial year. The state DISCOMs argued said that the purchase of energy from renewable sources depends on renewable energy availability. Hence, the shortfall in RPO compliance cannot be attributed to the DISCOMs; rather, it is the renewable energy availability that has to be looked into.

The DISCOMs pointed out that the regulation specifies that in case of genuine difficulty complying with the RPO because of the non-availability of renewable energy, the Commission may allow to carry forward the requirement to the next year or waive it. Therefore, there was no deliberate failure of the DISCOMs in not purchasing the electricity from renewable sources.

Further, they said that the reason for not achieving the RPO target was that some of the projects had not come upon the scheduled date of commissioning. The DISCOMs stated that one of the main reasons for the shortfall was the fact that the actual capacity utilization factor (CUF) achieved by the wind generators was only 15.83%, 15.17%, and 17.07% in the year 2016-17, 2017-18, and 2018-19, respectively against the normative CUF specified by the Commission.

Similarly, solar power projects commissioned up to 2015-16 had not achieved the CUF, as stated in the PPA. Therefore, RPO targets weren't met as there was not enough power generation. The DISCOMs added that they were encouraging rooftop solar power projects in the residential and government buildings as the generation from these would help them meet the targets. Additionally, the Government of Rajasthan has also decided to develop small solar projects of 600 MW capacity in 2019-20 as per the KUSUM guidelines. Nearly 1 GW capacity has been planned for FY 2020-21, and another 1 GW for FY 2021-22.

With these plans, the DISCOMs said they would achieve the RPO targets along with the shortfall of past years.

Commission's Analysis

The Commission pointed out that the DISCOMs had made every effort to comply with RPO targets and had signed a sufficient number of PPAs under which the required quantum of electricity could have been obtained. The regulatory authority pointed out that even though the DISCOMs signed an adequate number of PPAs in the past, the generation in terms of energy was not to the expected level. Consequently, there was a shortfall in RPO compliance.

After hearing both the parties, the Commission advised the DISCOMs to assess the energy requirement for RPO compliance more realistically in advance and sign the PPA accordingly in the future and comply with RPO regulations without fail. Mercom's Renewable Energy Regulatory Updates cites a similar order in which the Bihar Electricity Regulatory Commission approved the request of the Bihar State Power Holding Company Limited to carry forward the shortfall in its RPO for FY 2019-20 to 2020-21.

Previously, Mercom had written about the need for stronger enforcement of the RPO targets. While the DISCOMs want lenient policies for RPO compliance, the developers and other stakeholders feel it could threaten the renewable targets India has set for itself. *Source*

India's green energy sector may get bag full of investments in next 3 years; thanks to these factors

The investment in renewables may see a 35 per cent growth over the Rs 1.1 lakh crore invested in the past three fiscals.

Investments in the renewable energy sector may climb as much as 35 per cent as global investors eye Indian markets with a bag full of investments. Whetted global investor interest and enabling regulations can fuel the addition of as much as 35 GW of renewables capacity, involving Rs 1.5 lakh crore of investments, in the three years through fiscal 2023, showed a CRISIL estimate. The investment may see a 35 per cent growth over the Rs 1.1 lakh crore invested in the past three fiscals, the estimate further showed. On the back of India's drive towards the usage of clean energy, the project tenders are getting oversubscribed amid strong participation by global investors.

Global investments have risen from around 15 per cent of total capital investment in fiscal 2015-18 to around 50 per cent of total investments in fiscal 2018-20, said Hetal Gandhi, Director, CRISIL Research. Going forward, global investments and internal accruals can generate around half of the Rs 1.5 lakh crore investments required, Hetal Gandhi added. The removal of tariff caps, consistent regulatory policies, and rising renewable energy targets in India have contributed to attracting investors' interest. The Crisil report underlined that even during the Covid-19 pandemic, the 'must-run' status of projects has ensured continuous power offtake despite weak demand. Further, enablers such as extensions to under-construction projects have helped developers deal with mobility constraints, supply hurdles, and labour shortages.

However, the financial constraints of the financial sector may pose some threat to the blooming investment in the sector. A sagging economy and a weak financial sector may pose challenges to fund the credit requirement for this growth, however, with growing scale, the sector will churn out around 18 GW of fresh stabilised portfolio with top developers over the next three years that are amenable to refinancing, said Ankit Hakhu, Director, CRISIL Ratings. That means an aggregate debt capital of Rs 70,000 crore can be freed up to fund greenfield capacities, he added. *Source*

Uttarakhand Plans 1,000 Solar Projects of 25 kW For Unemployed Youth and Small Farmers

The control period for benchmark capital costs and generic tariffs stands extended to March 31, 2022

The Uttarakhand Electricity Regulatory Commission (UERC) has issued an order extending the control period for benchmark capital costs and generic tariffs as a one-time exception. This is for 10,000 of upcoming 25 kW grid-connected solar projects totaling 250 MW in the state to create income opportunities for youth who had to migrate back home due to the COVID-19 lockdown.

Background

Uttarakhand Renewable Energy Development Agency (UREDA) is launching a special program providing employment opportunities to the youth and small and marginal farmers for enhancing their income through the sale of power to Uttarakhand Power Corporation Limited (UPCL). These projects are part of the state government's proposal to help provide employment to migrants who had left the state amid the COVID-19 crisis but have slowly started coming back. The state had directed UREDA to organize the program.

The size of the projects is up to 25 kW projects to be allotted to unemployed youth and low-income residents of the state. UREDA believes that a competitive bidding process for projects this small may defeat the purpose of the program. It proposed for these projects to be implemented based on the tariff set by the UERC for ground-mounted solar projects. It said that these projects might take up to March 31, 2022, to be completed.

UREDA had filed a petition with the UERC asking it to extend the control period of benchmark capital costs and generic tariffs as declared by the Commission for 10,000 of its upcoming 25 kW grid-connected solar projects totaling 250 MW. It sought the deadline to be extended to March 31, 2022, from September 30, 2020, set previously. In its response, the UPCL said that the program proposed by the state is not yet finalized and that UREDA's petition was premature. It added that the projects under the proposed program do not fall within the state's Solar Policy, 2013.

UPCL further explained that as per the regulations, the generic tariff for solar energy has been reviewed annually and has seen improvements over time. It explained that costs need to be assessed annually to ensure that renewable energy is promoted fairly and also so that consumers are not unnecessarily burdened. In light of this, extending the benchmark capital cost and accepting it without any reverse bidding for capacities as large as 250 MW would lead to an undue burden on the end consumer, it said. It concluded that extending the control period would defeat the very purpose of reverse bidding and would not be in the best interest of the end consumer as well as for UPCL.

Commission's Analysis and Order:

The Commission, after examining the arguments presented by both parties, said it had observed the UPCL's concerns about the ambiguity surrounding the program, which has not yet been finalized. It clarified that the UPCL, which is to purchase power from the projects at the levelized generic tariff determined by the UERC without having to competitively place bids, would be eligible to use the power from these projects to meet their renewable purchase obligation (RPO) targets.

The UERC, however, noted that the program was floated by the UREDA as per the state government's directives to provide revenue opportunities to small developers. UERC found no default with UREDA's proposal but pointed out that UPCL did not object during the meetings held with government officials regarding the program.

It further highlighted the fact that the program was introduced to help migrant workers amid the COVID-19 crisis and that a rate has to be specified to help interested developers plan accordingly. In its final order, the Commission allowed the extension of benchmark capital cost and generic tariff for FY 2019-2020 up to March 31, 2022, as a one-time exception for these projects. It reiterated that the program was meant to help create employment avenues for those affected by the COVID-19 crisis and that a competitive bidding process works against this goal.

It directed the UPCL to procure power from these projects at the rates previously set by the Commission. It further directed the UPCL and UREDA to support eligible applicants in developing these projects so that they can be commissioned before March 22, 2022. According to Mercom's Renewable Energy Regulatory Updates, the UERC extended the validity of benchmark capital cost and levelized generic tariffs for solar projects to March 31, 2021. The Commission had previously extended the validity of the benchmark capital cost and levelized generic tariffs for solar projects up to September 30, 2020, back in May 2020.

A little earlier, the Commission had approved a generic tariff of ₹3.48 (~$0.047)/kWh for rooftop solar projects up to 10 kW, ₹3.14 (~$0.043)/kWh for projects above 10 kW, and up to 100 kW, ₹2.90 (~$0.039)/kWh for projects above 100 kW and up to 500 kW, and ₹2.85 (~$0.039)/kWh for projects above 500 kW and up to 1 MW. *Source*

India has opportunity to become global hub for solar PV manufacturing: Kant

Addressing a virtual conference on ' Re- Define What is Possible', Kant said the government is confident of building competence, capabilities and capacities, especially in the sunrise areas of growth

Solar photovoltaic (PV) manufacturing is one of the strategic sectors announced by the government and India has the opportunity to be the global hub for this, Niti Aayog CEO Amitabh Kant said on Tuesday. Addressing a virtual conference on 'India PV Edge 2020: Re- Define What is Possible', Kant said the government is confident of building competence, capabilities and capacities, especially in the sunrise areas of growth. "Solar PV manufacturing is one of the strategic sectors announced by the government as part of the post-COVID-19 Aatmanirbhar Bharat recovery initiative. Efforts are underway to make India a global hub for solar PV manufacturing," he said.

The Niti Aayog CEO further said India with its huge market and relevant manufacturing advantages can be a giga-scale manufacturing destination for the cutting-edge PV technologies across the entire value chain. "We are at a critical juncture where India has the opportunity to be the global hub for solar PV manufacturing and are confident of building competence, capabilities and capacities, especially in the sunrise areas of growth," he said.

Kant also expressed hope that PV technology improvements will exceed general market expectations and will be the key anchor towards reducing the solar deployment costs. Also speaking at the event, Niti Aayog Vice-Chairman Rajiv Kumar said India has a 31 gigawatts (GW) demand from government-sponsored schemes that require locally made solar panels and a large 300 GW target over the next 10 years.

Kumar urged the PV manufacturing industry to utilise this large demand to invest in state-of-the-art manufacturing lines and collaborate with start-ups and research institutions to continue to increase the performance of the solar panels and reduce the cost. Solar PV manufacturing is one of the strategic champion sectors announced by Finance Minister Nirmala Sitharaman as part of the Aatmanirbhar Bharat, an official statement said.

India PV Edge 2020 has served as a small step towards that ambition and will go a long way in making India the giga-scale manufacturing destination for breakthrough PV technologies, it added. The government has been making steady strides towards introducing renewable energy to all villages in the country, especially in the agriculture sector. *Source*

Only 25% aware of energy efficient appliances in India, shows data

The report also pointed out shortcomings in the awareness programmes organised by the Bureau of Energy Efficiency India has successfully provided metered electricity connections to 97 per cent households, but barely 25 per cent are aware of energy efficient appliances, said a recent report by the Council of Energy, Environment & Water (CEEW).

The report also pointed out shortcomings in the awareness programmes organised by the Bureau of Energy Efficiency (BEE). The study by CEEW found that 40 per cent of households ranked appliance cost as the most important factor in a purchase decision, followed by other parameters, including brand popularity, durability and energy savings.

After almost a decade and a half since launch of the 'Standards & Labeling' (S&L) programme, only a quarter of the electrified Indian households have heard of 'star labels', said the report. The awareness is relatively lower among the rural population.

"Low awareness about BEE star labels highlights the need for year-round and sustained awareness campaigns, in regional languages and through diverse media, to capture the attention of consumers in smaller towns and rural areas," the CEEW said. The report comes after a recent CAG observation on consumers paying extra for star-labelled appliances even though they were not necessarily energy efficient. *Source*

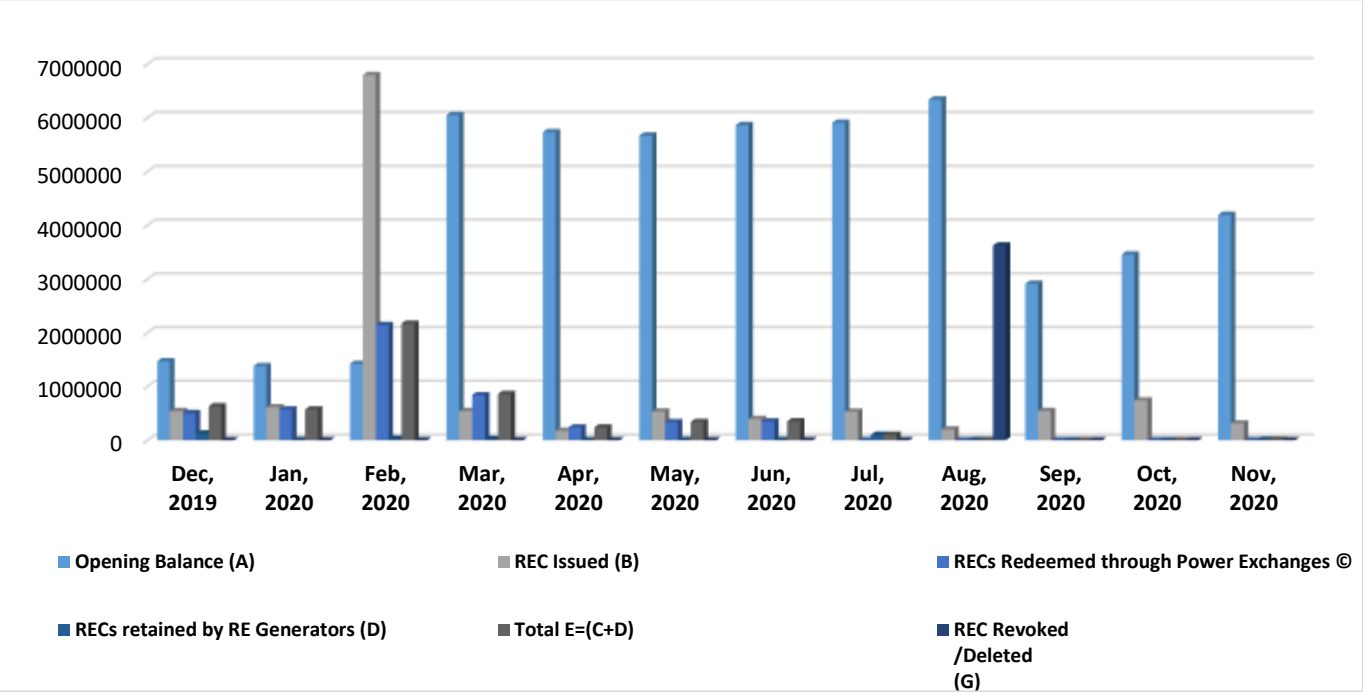
Source wise REC break up:-

SN	Source	Accredited		Registered		RECs Issued	RECs Redeemed Through Power Exchanges	RECs Redeemed Through Self Retention	Closing Balance
		As on date		As on date					
		Capacity	No. of Project	Capacity	No. of Project	Since Inception	Since Inception	Revoked/Deleted RECs	As on date
1	Wind	2741	525	2662	510	26546337	21953273	2131953	0

2	Urban or Municipal Waste	0	0	0	0	72892	72892	0	0
3	Solar Thermal	0	0	0	0	0	0	0	0
4	Solar PV	992	400	968	393	10089723	9561111	119359	0
5	Small Hydro	271	37	247	36	5220640	4765341	6899	0
6	Others	4	2	3	1	24200	12755	5010	0
7	Geotherm al	0	0	0	0	0	0	0	0
8	DISCOM	NA	NA	NA	NA	8513006	4628199	0	3623895
9	Biomass	477	43	408	38	10565914	9896423	156549	0
10	Bio-fuel cogenerati on	826	91	385	55	9014759	8610583	5001	0
	Total	**5311**	**1098**	**4673**	**1033**	**70047471**	**59500577**	**2424771**	**3623895**

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 Generator s (D)			
Dec, 2019	1467453	541671	504608	126244	630852	0	1378272
Jan, 2020	1378272	613776	570704	1502	572206	0	1419842
Feb, 2020	1419842	6797475	2142410	24578	2166988	0	6050329
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	312526	0	7833	7833	0	4498228
Total:		**70047471**	**59500577**	**2424771**	**61925348**	**3623895**	



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