23 August 2019, Volume XVI, Issue 11

Energy News Monitor

SOLAR SUSTAINS MOMENTUM DESPITE ECONOMIC SLOWDOWN

Monthly Non-Fossil Fuels News Commentary: July - August 2019

India

India expects to achieve a renewable energy capacity target of 260 GW by 2024, as the country sees rapid growth in renewable capacity backed by government orders, private equity and pension fund investments. India's renewable power capacity soared by almost 150 percent in the last five years to 77.6 GW, while the government set a target of 175 GW by 2022. India is also formulating a policy to build a 30 GW local capacity for manufacturing solar cells and modules by 2024, the MNRE.

The MNRE issued guidelines for rollout of the ₹344.22 bn PM-KUSUM scheme, which would encourage farmers to generate solar power in their farms and use the clean energy to replace their diesel water pumps. The PM-KUSUM scheme entails setting up of 25,750 MW solar capacity by 2022 with the total central financial support of ₹344.22 bn.

In a bid to fast-track wind energy projects, the Centre has made certain amendments to the bidding guidelines for such projects. The amendments have been made based on the experience of bidding and consultation with various stakeholders, the MNRE said. The development assumes significance as the government has set an ambitious target of having 175 GW of clean energy capacity by 2022, including 100 GW solar and 60 GW of wind energy. As per the MNRE, now the timeline for land acquisition for wind power projects has been extended from seven months to scheduled commissioning date i.e. 18 months.

The Cabinet Committee on Economic Affairs in February approved the launch of the scheme with the objective of providing financial and water security. The scheme has three components. The Component-A provides for setting up of 10,000 MW of decentralised ground/ stilt-mounted grid-connected solar or other renewable energy-based power plants. The Component-B of the scheme provides for installation of 1.750 mn stand-alone solar agriculture pumps, while the Component-C envisages solarisation of 1 mn grid-connected agriculture pumps. The guidelines issued stated that the Component-A and Component-C will be implemented initially on a pilot mode for 1,000 MW capacity and one lakh grid-connected agriculture pumps, respectively, while the Component-B will be implemented in full-fledged manner with total central government support of ₹190.36 bn.

The power ministry said it has approved proposal for early regulatory nod by CERC for transmission schemes for 66.5 GW RE generation in order to fast-track green projects in the country. The ministry has issued an order in this regard. As of May 2019, about 80 GW of RE generation has already been commissioned and the balance 95 GW has to come up in the next three years.

The IEA expects India to revise its renewable energy capacity addition target in the coming years. India is likely

to revise the target upwards and this will entail a higher flow of investments into the renewable energy sector. India currently has a target to set up 175 GW of renewable power, led by solar energy, by 2022.

India's renewable energy cost is the lowest in the Asia Pacific, consultancy WoodMac said. India's LCOE using solar PV has fallen to $38/MWh this year, 14 percent cheaper than coal-fired power that has traditionally been the cheapest source of power generation, WoodMac said. LCOE comprises the cost of generating a MWh of electricity, the upfront capital and development cost and the cost of equity and debt finance and operating and maintenance fees. Australia, which ranks second in terms of low renewable costs, will see solar power to be cost-competitive against coal next year, WoodMac said. Solar LCOE has fallen 42 percent in the past three years and will reach $48/MWh in 2020, beating out all fossil fuel competitors, WoodMac said.

The Maharashtra government is contemplating to prepare a policy wherein vacant plots and agriculture land will be taken on lease to set up solar energy projects. The Energy Department said that many people have evinced interest in leasing out their land for a period of 30 years to set up solar projects. The land can be leased on rent at 8 percent as per the ready reckoner rates. The state's capacity for solar power generation is 1,500 MW, of which the current production is about 700-800 MW. The state has set a target of generating 14,400 MW power through non-conventional means.

Of the 2.3 mn buildings in Coimbatore circle, only 2,681 buildings have set up solar panels in the last five years. The buildings include houses, commercial buildings and educational institutions. About 4–5 units of power could be generated from a solar panel with a capacity of 1 kWh on a sunny day. A panel with a capacity of 1 kWh costs around ₹50,000 to ₹60,000. At present, solar panels are installed in all TNEB owned buildings and they are plans to extend it to the rented buildings where the board's offices are functioning.

In a major push to boost investment and production as well as setting up of solar power projects the Uttar Pradesh government has made it possible to lease out agricultural land, so far prohibited, for agricultural purpose or for setting up solar plants. The new law permits lease of agricultural land for agricultural purposes for up to 15 years and for a solar project for up to 30 years. The change in rules will be highly beneficial for Bundelkhand where acres of land has been lying fallow as leasing was not permitted.

Fifty thousand solar pumps will be given to farmers and 'gaushalas' in Haryana with the assistance of NABARD. About ₹16.96 bn will be spent on this special scheme. 238 MW of green energy will be generated in the state with the installation of these solar pumps.

Uttarakhand allocated solar energy projects worth ₹6 bn to local entrepreneurs. Together, these projects will generate 148.85 MW power. Another lot of solar power projects worth ₹2 bn will also be distributed soon among local entrepreneurs. Each entrepreneur are expected to earn on an average ₹6.650 mn per annum from these environment friendly projects.

The Andhra Pradesh government in a shocking move has asked all wind power developers to stop power production. The state government notified all power units that they are curtailing wind power procurement by 100 percent. The moves comes the same day when the Andhra Pradesh High Court stayed the proceedings for revising the rates of renewable power and cancelling agreements signed by last government.

Gujarat has emerged as the state with the most rooftop solar panels installed. According to data tabled in Rajya Sabha, Gujarat has an installed rooftop solar power capacity of 261.97 MW, against 1,700.54 MW for all of India. Gujarat is followed by Maharashtra (198.52 MW) and Tamil Nadu (151.62 MW) in terms of installed rooftop capacity. According to the data, out of the 261.97 MW installed, 183.51 MW is subsidized. As part of the grid-connected rooftop solar programme, the Union government provided financial assistance and incentives worth ₹6.78 bn in financial year 2016-17 and ₹4.46 bn in 2018-19. The Union government aims to install rooftop solar capacity of 40,000 MW by 2022. The reply also stated that no formal study has been done to assess the

amount of power generated through solar panels on rooftops of houses.

Public sector power utility, APDCL has come up with a single window clearance system for accelerating deployment of Grid Connected Solar Rooftop installations in Assam. APDCL said that it has come up with a web portal which will facilitate as a single-window clearance system for the consumers willing to install rooftop solar power plants in their premises. The portal is hosted by APDCL and serves as an integrated platform for multiple solar rooftop stakeholders -- Assam Energy Development Agency, Solar Energy Corp of India, Ministry of New & Renewable Energy and Solar Power Developers and Consumers. The portal is a platform for providing information pertaining to Installation of Rooftop Solar PV Systems in the state of Assam and enables interactions between multiple stakeholders.

In line with the Delhi government's solar policy initiatives, power distributer Tata Power-DDL organised an event 'Solarise Shakurbasti' to promote the use of rooftop solar power in the north Delhi area.

The UT administration of Chandigarh has decided to review all pending cases of solar subsidy. A meeting was also held with the UT electricity department to simplify the process for getting required approval from the electricity department. As per the government's directive, a subsidy of 30 percent on capital cost is available for rooftop SPV plant. Recently, the Chandigarh administration extended the deadline to install solar plants a third time. The CREST, the nodal agency for installation of solar plants in Chandigarh, had recently proposed to extend the deadline to install solar plants by three months.

Tata Power said it has partnered with NTT Com-Netmagic to build 50 MW solar photovoltaic power plant in Solapur, Maharashtra. The NTT Com-Netmagic is a managed hosting and multi-cloud hybrid IT solution provider. The power will be supplied through open access under a long-term power purchase agreement, it said. Poolawadi Windfarm Ltd, a subsidiary of Tata Power Renewable Energy Ltd, has signed definitive agreements to supply 50 MW solar power to NTT Com-Netmagic. The capacity will be built in a phased manner with an initial capacity of 35 MW increasing up to 50 MW within 24 months of initial commissioning of the plant.

Avaada Energy is in the process of implementing 2 GW of open access solar plants in Maharashtra, Tamil Nadu, Haryana, Karnataka, and Odisha. According to the company, the plants were being built for corporates who are looking to optimise their operating costs and meet their energy needs through solar, rooftop and hybrid energy solutions. The company claims to have commissioned over 1.8 GW of renewable energy plants and has a portfolio of over 500 MW of open access solar plants in commercial category. Avaada Energy plans to develop 5 GW of renewable energy portfolio in Asia and Africa by 2022.

India's largest solar PV module manufacturer and EPC player Waaree Energies announced it has launched a financial lending facility for solar power developers. The financing solution focusses on the residential and the small-scale industries segment and will cover up to 70 percent of the total project cost repayable though EMIs. The company has partnered with Metafin Cleantech, a Non Banking Financial Company active in in renewable energy and clean tech space, for providing this facility. The government is working on a target to raise the country's solar power generation capacity to 100 GW by 2022. Solar rooftop systems are expected to contribute around 40 percent of this capacity.

Adani Green Energy Ltd plans to add over 800 MW of renewable energy projects in the current financial year and 3300 MW in two more years, the company said. Adani Group company has a current project portfolio of 4,560 MW including 46 operational projects and 18 projects under construction. Adani Green reported continued to have plant availability in excess of 99 percent for the first quarter of the current fiscal. During this period, its grid availability stood at 98.7 percent, which was 95.5 percent in the corresponding period of the previous fiscal.

Amplus Energy Solutions has announced investment of ₹5 bn for its second open access solar project of 100 MW in district Deoria of Uttar Pradesh. Prior to this, Amplus

had committed investment of ₹2.50 bn for setting up a 50 MW open access solar project in Mirzapur. The project is under construction and expected to be commissioned by September 2019. The Deoria plant will generate 700 jobs and supply green energy to many industries located in the state, it said. Earlier this year, Amplus had announced two open access projects in Haryana. Amplus owns India's largest single location open access solar project in Gadag, supplying 175 MW solar power to businesses in Karnataka.

Bharat Heavy Electricals has secured a prestigious order worth ₹4.86 bn from Nuclear Power Corp for erection work of reactor side equipment of 2x1000 MWe (Units 3&4) Kudankulam Nuclear Power Project in Tamil Nadu, being set up under foreign cooperation (Russia).

The NCLT approved hydro giant NHPC's ₹9.07 bn bid for the debt-ridden Lanco Teesta Hydro Power Ltd. The Hyderabad bench of the NCLT approved the recommendations of the Committee of Creditors of Lanco Teesta Hydro Power, which had in its meeting in December last year voted in the bid's favour. As per the resolution plan, NHPC would pay ₹8.77 bn to the financial creditors and ₹111.2 mn would go to the operational creditors of Lanco Teesta Hydro Power. Besides NHPC, another PSU Satluj Jal Vidyut Nigam Ltd had also bid for the debt-ridden company. The project would generate 2,400 mn units of electricity in a 90 percent dependable year with an installed capacity of 500 MW (4x125MW).

Rest of the World

New PV installations are set to reach a record high this year, driven by improving markets in Europe and the US and fast growth in India and Vietnam, consultancy WoodMac said. Low auction prices are also expected to help boost new solar PV capacity by the end of this year to 114.5 GW, 17.5 percent higher than 2018 and the first time new installations have exceeded 100 GW. Last year, new capacity dipped slightly, mostly due to a slowdown in the world's largest solar PV market, China, which ended feed-in tariff subsidies for new projects. The rise forecast this year will be driven mainly by Europe - in particular Spain, the US, India, Vietnam, as well as Egypt and the United Arab Emirates. The increase comes despite the slowdown in China, which is giving priority to renewable projects which can operate without subsidies after a rapid fall in manufacturing costs. Up to 2024, however, China, India and the US will account for more than half of total solar PV installations. Globally, auctions, rather than subsidies, are increasingly popular to incentivise renewable energy development. A separate study by the International Renewable Energy Agency said electricity generated by onshore wind and solar PV will in the next year be consistently cheaper than from any fossil fuel source. French local authorities said that a high-profile "solar highway" experiment in Normandy had failed, but vowed to try again with new panels on a shorter stretch of road. From the time the one-km road was inaugurated with great fanfare in December 2016 until March this year, the experimental route had produced 229 MWh of electricity, far less than an initial forecast of 642 MWh. The panels will now be taken up and replaced new-generation ones on a 400 metre (440 yard) stretch.

The European Commission has proposed duties ranging from 8 percent to 18 percent on imports of biodiesel from Indonesia to counter what it says are unfair subsidies, the latest twist in a case that has lasted seven years. The subsidies would be a double blow for Indonesian biodiesel after the EU decided in March that palm oil should no longer be considered as green and so should be phased out of renewable transportation fuel. The Commission, which coordinates trade policy for the 28-member EU, launched an anti-subsidy investigation in December following a complaint by the European Biodiesel Board.

The EIB wants to stop funding new fossil fuel-reliant projects by the end of 2020, a draft of the EU lending arm's new energy strategy showed. The EIB board, which is made up mostly of EU finance ministers, is expected to discuss the proposals at a meeting in September, though a final decision could take longer. Resistance could potentially come from coal-reliant eastern EU members or countries such as Italy where the EIB is helping fund the Trans-Adriatic Pipeline for gas. Incoming President the European Commission has called

for the EIB to spend half of the roughly €70-80 bn a year it invests on green projects, suggesting turning parts of it into a "climate bank". The EIB estimates that under 5 percent of its lending currently goes on fossil fuel projects. According to non-governmental group CEE Bankwatch Network it spent €12 bn ($13 bn) in the area between 2013 and 2017.

Indonesia may require an estimated $15 bn in investment to meet its target of reaching 7.2 GW of geothermal power capacity by 2025 and is studying ways to reduce project costs, the energy ministry said. The capacity would be an increase from less than 2 GW of geothermal power currently, the ministry said. Progress in geothermal power development in the past decade has been slow and the dependency on coal power has caused air pollution around the capital Jakarta. PT Pertamina Geothermal Energy, a unit of state energy company PT Pertamina, is aiming to invest $2.7 bn in geothermal power through 2026. The company aim to increase its geothermal capacity to 1.1 GW by 2026 from 672 MW currently.

Germany's power network agency Bundesnetzagentur said it had awarded licences to build onshore wind turbines with the capacity to produce 208 MW as its August auction, aiming for a possible maximum of 650 MW, was again undersubscribed. The average price was €0.62/kWh with most of the 32 permits awarded to bidders in Brandenburg and North Rhine Westphalia states, the agency said. The next tenders will be held on 1 September and 1 October.

British-based renewable energy investor Quercus is looking to sell a 320 MW portfolio of wind and solar energy assets in Europe. The assets, part of which are held in a joint venture with Swiss Life, are located in the UK, Italy, Spain and in Eastern Europe. The deal, which is likely to be a private sale rather than an auction, is expected to happen after the summer. EU ambitions to reduce greenhouse gas emissions by at least 40 percent by 2030 in line with the Paris Agreement are helping drive green energy deals. Quercus has said it is looking for partners to build out 1 GW of new solar energy capacity across Greece, Italy, Portugal and Spain.

Saudi Arabia has invited bidders for the second round of its renewable energy programme. The programme is managed by the Renewable Energy Project Development Office of Saudi Arabia's Ministry of Energy. The second round of the programme, comprising six projects, tenders a total solar PV capacity of 1.47 GW to qualified companies.

A unit of Brazil's JBS SA plans to invest 180 mn reais ($47.5 mn) to build a biodiesel plant entering service by 2021, as the company looks to cash in on Brazil's accelerating clean fuel drive. Seara Alimentos, JBS' processed foods unit, will use fat and scraps from pork and poultry as raw material for biodiesel. JBS, the world's largest meat producer, added the new plant in Santa Catarina state will double the company's biodiesel capacity to over 600 mn liters/year. JBS already operates two other biodiesel plants in Brazil running mainly on bovine fat. With its third unit under way, JBS will seek to strengthen its position among Brazil's 10 largest biodiesel producers.

Electricity production from solar panels in France rose 15.4 percent to a record 1.4 TWh in June due to long sunny spells and increased generation capacity, the RTE power systems operator said. French solar power capacity rose 9.5 percent year-on-year in June compared with last year as more solar production units were connected to the grid, RTE said. Electricity output from wind turbines across France soared 36 percent to 1.9 TWh compared with June 2018, boosted by the passage of Hurricane Miguel during the month, RTE said. A lack of rainfall weighed on French hydropower supply which plunged 24% compared with the same month last year to 5.8 TWh. RTE said French electricity consumption was stable at 32.6 TWh in June, although the highest peak consumption during a heatwave in 11 years was reached on 27 June at 58.7 GW.

Portugal's huge auction of solar energy broke a world record, with one of the 24 licences on offer selling for €14.76/MWh. Of the entities initially competing for the 1,150 MW auction, there were 13 winners. Spain's Iberdrola won seven of the 24 licences available and France's Akuo won 370 MW. Based on the locations where solar plants will be installed, auctions were held

where the winners would be those offering the highest discounts to the bidding tariff of €45/MWh. Last year, Solar Power Europe said in a report that the lowest bids on solar energy auctions worldwide took place in India at a rate of €16.7/MWh. It is the largest licensing auction of any kind of energy launched in Portugal and represents more than double the current installed capacity of solar energy in the country.

The capacity of Iran's renewable power plants has reached 760 MW, Iranian Energy Ministry's news portal (known as PAVEN) reported. As reported, a total of 115 renewable power plants were active across Iran as of July 2019 and the construction is ongoing for another 32 plants to supply an extra 380 MW of renewables to the national power grid. According to PAVEN, currently renewable power plants have created 43,450 job opportunities across the country and the volume of private investment in this sector has exceeded 124 tn rials (over $2.95 bn). It said the bulk of electricity generation from renewables, around 85 percent, came from solar and wind plants, adding that biomass accounted for only once percent of the total output. Renewables, including hydropower, account for just six percent of the country's total energy generation, versus natural gas' 90 percent share. Overall, in the next five years, Iran is aiming for a 5,000 MW increase in renewable capacity to meet growing domestic demand and expand its presence in the regional electricity market. According to Iran's Renewable Energy and Energy Efficiency Organization (known as SATBA), the number of small scale solar power plants across the country which are used by households or small industries is being increased noticeably as Iranian households and small industries have embraced the new technology with open arms and investors also seem eager for more contribution in this area. Currently over 100 large-scale renewable power plants are operating across Iran.

The Philippines' Department of Energy vowed to fast-track the implementation of two key RE policies, following the directive to reduce the country's dependence on coal. The Southeast Asian nation aims to double its power generation capacity by 2030 to support a growing economy, but it still relies heavily on coal, the cheapest yet dirty fuel option. Under the first policy, called the Renewable Portfolio Standards, power distribution utilities will be mandated to source a minimum portion of energy from renewable sources, thus guaranteeing a market for RE producers.

Japan's Marubeni Corp has agreed to back a blockchain power purchasing platform, WePower, that is looking to establish itself in Australia to tap rapid growth in solar and wind power, the two firms said. WePower has designed a blockchain platform that it says makes it easy for small- and medium-sized businesses to buy power from wind and solar project developers, offering standardized, digital power purchase agreements to help underwrite new projects.

Pakistan is planning a wave of new wind and solar plants that will expand its clean energy capacity to about fifth of its total. The South Asian nation plans to increase its renewables by more than four times by adding as much as 7 GW to bring its total to 8-9 GW by 2025. The new energy policy that targets lifting the country's total generation capacity by 40 percent to 42-43 GW is expected to be approved within a month. The shift to clean generation comes after Pakistan has nearly bridged a power deficit by adding 10 GW of capacity in the past six years to ease long, unannounced blackouts in major cities. Pakistan plans to auction the right to build renewable capacity annually starting in December. It will also deregulate clean energy for companies that want to build a wind farm or use solar panels to supply private businesses.

Kenya unveiled Africa's largest wind power plant, a project aimed at reducing electricity costs and dependence on fossil fuels and moving the nation to meet its ambitious goal of 100 percent green energy next year. The sprawling wind farm of 365 turbines on the shores of Lake Turkana in northern Kenya was designed to boost the nation's electricity supply by 13 percent, giving more Kenyans access at a lower cost. Kenya has made great strides in renewable energy in recent years and is considered to one of the few African nations making progress toward clean power. About 70 percent of the nation's electricity comes from renewable sources such as hydropower and geothermal - more than three times the

global average. Kenya has announced plans to move the country to 100 percent green energy by 2020 and the power from the $775 mn wind farm would help the government reach its goals.

Spanish authorities fear that a speculative rush threatens to hold back the development of renewable energy, saying coveted rights to connect to the national power grid are being secured with the sole aim of selling them on for a profit. Spain plans to ramp up solar and wind energy and phase out nuclear and coal-fired power stations, creating incentives for speculators to pounce on the rights to a limited number of grid connection points. A massive roll-out of renewables is high on Spain's agenda as consensus builds among European Union leaders to agree on balancing out the bloc's carbon emissions to net zero by 2050.

The US solar industry kicked off a lobbying push aimed at convincing Congress to extend a generous tax credit for solar energy systems that is set to begin phasing out next year. In a letter sent to congressional lawmakers and signed by more than 900 solar companies, the SEIA argued that the 30 percent tax credit for solar energy systems should be preserved because it has helped generate $140 bn in investment. The subsidy has also created more than 200,000 jobs even though solar energy accounts for only a little more than 2 percent of US electricity generation, the letter said. The credit's phase-out is a major change for an industry that has relied on it to underpin growth for well over a decade. Since it was implemented in 2006, US solar installations have grown more than 50 percent a year, according to SEIA. That growth has sparked declines in the cost of solar energy that enable it to compete with fossil fuel-generated power, making an extension far from a sure bet.

Anglo American Plc said it would use only renewable sources to power its mine operations in Chile beginning in 2021, thanks to a deal the global miner signed with the Chilean subsidiary of Italian energy giant Enel. Renewable energy supplied by Enel Chile will power Anglo American's flagship Los Bronces copper mine, as well as its El Soldado and Chagres operations, the company said. Global miners are increasingly seeking innovations to boost efficiencies, lower costs and reduce use of water and non-renewable energy at mines. In Chile, the world's top copper producer, that has largely meant a turn to solar and wind power and desalinated sea water. Anglo American said the deal, which takes effect in January 2021, will reduce its emissions of carbon dioxide by more than 70 percent.

New Jersey Energy Company PSEG plans to shut all but three of its fossil fuel-fired power plants in a bid to cut carbon emissions by 80 percent by 2046 from 2005 levels. PSEG said it could reach net-zero carbon emissions in 2050 by shutting all of its fossil-fuel plants, assuming advances in technology and public policy. PSEG has about 11,000 MW of generating capacity. About 60 percent of the power those plants produce comes from nuclear reactors, 30 percent from gas, 8 percent from coal and 2 percent from solar. PSEG would focus on its $2.5 bn energy efficiency program and offshore wind and solar energy projects.

Royal Dutch Shell is considering to install solar panels to power its Bukom refining site in Singapore. The Bukom manufacturing site includes a 500,000 bpd refinery, which is Shell's largest wholly owned refinery. The oil and gas company has been exploring solar installations for its other sites in Singapore as part of its plans to improve energy efficiency and reduce carbon footprint. Globally, Shell is installing solar photovoltaic panels on the roofs of seven lubricant plants in China, India, Italy, Singapore and Switzerland. It has so far identified three manufacturing and logistics sites in Singapore's western regions of Tuas, Jurong Island and Pandan to install a solar PV power generation system, with a combined peak capacity of about 3 MW. The first and largest of the three Shell solar farms, which will go live next month, will have more than 6,500 panels placed above a lubricant plant in Tuas. The solar farm is expected to produce about 3,300 MW hours of renewable energy every year. Installations at Shell's sites in Pandan and Jurong Island are expected to start in late 2019 and early 2020 respectively, the company said. Shell said as part of its efforts to try low carbon solutions, the company has signed an MoU with the Energy Market Authority of Singapore to jointly work on energy storage systems.

Chinese smartphone maker Xiaomi may be working on launching a smartphone that can be charged using solar energy. According to the report by LetsGoDigital, this handset will have a solar panel integrated on the back — covering most of the rear side. Notably, if Xiaomi does decide to launch a smartphone that supports solar power charging, it won't be the first. Handset makers such as LG and Samsung have already launched devices featuring a solar chargeable batteries. Back in 2009, Samsung launched a feature phone called Guru E1107 for which Samsung claimed 1 hour under the sun offers 5 to 10 minutes of extra talk-time. As for LG, the South Korean manufacturer released the solar cell battery cover as an accessory for its LG Pop GD510 smartphone.

BP does not expect supply from additional biofuel capacity in Brazil - where it is combining its unit with US grain trader Bunge's - to replace diesel and gasoline demand, BP's head of Alternative Energy. Through the deal BP will increase its biofuel production to 22 mt from 10 mt a year, firmly focusing on Brazil as its biofuels production and consumption hub.

French utility EDF shut down electricity generation at its 2,600 MW Golfech nuclear power plant in the south of France because of high temperatures forecast on the Garonne river. The power utility uses water from the river to cool the two reactors at the plant. EDF operates France's 58 nuclear reactors, which account for more than 75 percent of the country's electricity needs.

MW: megawatt, GW: gigawatt, mn: million, bn: billion, mt: million tonnes, MNRE: Ministry of New and Renewable Energy, PM-KUSUM: Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan, CERC: Central Electricity Regulatory Commission, RE: Renewable Energy, IEA: International Energy Agency, WoodMac: Wood Mackenzie, LCOE: levelised cost of electricity, MWh: megawatt hour, kWh: kilowatt hour, UP: Uttar Pradesh, NABARD: National Bank for Agriculture and Rural Development, APDCL: Assam Power Distribution Company Ltd, PV: photovoltaic, UT: Union Territory, SPV: solar photovoltaic, CREST: Chandigarh Renewal Energy, Science and Technology Promotion Society, EPC: Engineering, Procurement and Construction, MWe: megawatt electrical, NCLT: National Company Law Tribunal, PSU: Public Sector Undertaking, US: United States, EU: European Union, EIB: European Investment Bank, UK: United Kingdom, TWh: terawatt hour, SEIA: Solar Energy Industries Association, PSEG: Public Service Enterprise Group, MoU: Memorandum of Understanding

NATIONAL: OIL

UP government increases VAT on petrol, diesel

20 August. Petrol and diesel prices in Uttar Pradesh (UP) will go up by ₹ 2.5 and ₹1 respectively as the government increased VAT. The VAT on petrol has been increased to 26.80 percent or ₹ 16.74 per litre (whichever is higher) and on diesel 17.48 percent or ₹ 9.41 per litre (whichever is higher), according to an official order. In Lucknow, the petrol will now cost ₹ 73.65 per litre, while diesel will cost ₹ 65.34 per litre. Earlier, the petrol was sold at ₹ 71.30 per litre and diesel at ₹ 64.36 per litre, the order said. The government said with this decision, the state exchequer will get additional ₹ 30 bn annually and the money will be used in developmental projects.

Source: ***Livemint***

India's fuel retailers planning to expand door-step delivery of petrol, diesel

19 August. India's fuel retailers have firmed up plans to expand door-step delivery of fuel beginning with diesel. Indian Oil Corp (IOC), the country's largest fuel retailer, initiated door-step delivery of diesel in Pune and Chennai in 2018 and now plans to expand this service to 300 more locations. IOC's close competitor Hindustan Petroleum Corp Ltd (HPCL) is not far behind. It is planning to expand door-step delivery of fuel to ten locations, Chairman and Managing Director M K Surana said. The company had started door-step delivery of diesel in Raigad, Maharashtra, last year. In the private sector, Reliance Industries Ltd (RIL) has already started delivering diesel in packaged containers at more than 260 sites. RIL has received the regulatory permits for launching diesel in High Density Polyethylene (HDPE) packs. Most of India's downstream companies have initially focused on delivering diesel to institutional customers as well as stationary installations as diesel is safer to handle as compared to petrol. Oil Minister Dharmendra Pradhan had in 2017 floated the idea of initiating door-step deliver of motor fuels. Later, IOC and HPCL initiated pilot projects to deliver diesel for stationary installations, telecom towers and diesel generator sets. The government has set-up a special task force on door-to-door delivery of fuel and the state-run Petroleum and Explosives Safety Organization (PESO) -- a body meant to ensure safety and security of public and property from fire and explosives -- held at least six meetings last year to formulate a frame-work for door-to-door delivery of fuel.

Source: ***The Economic Times***

Centre increases O&G bidding round to three times a year

18 August. Delays in bidding rounds notwithstanding, the government has increased the expression of interest (EoI) submission cycle for oil and gas (O&G) acreage to three times a year from two times earlier, the Directorate General of Hydrocarbons (DGH) said. India had in July 2017, allowed companies to carve out blocks of their choice with a view to bring about 2.8 mn square kilometre of unexplored area in the country under exploration. Under this policy, called Open Acreage Licensing Policy (OALP), companies are allowed to put in an EoI for prospecting of O&G in any area that is presently not under any production or exploration licence. The government has, under the first three rounds of OALP, awarded 87 oil and gas fields to private and public entities. Prime Minister Narendra Modi has set a target of cutting oil import bill by 10 percent to 67 percent by 2022 and to half by 2030. Import dependence has increased since 2015 when Modi had set the target. India currently imports 83 percent of its oil needs.

Source: ***The Economic Times***

Numaligarh Refinery to spend ₹1.5 bn on crude exploration foray in Assam

15 August. North East India's largest refiner Numaligarh Refinery Ltd said it has firmed up plans to diversify into exploration of crude oil within the next few months. The Mini Ratna PSU (Public Sector Undertaking)'s board has already given its nod for an initial investment of ₹1.5 bn for the diversification and the company has sought approvals for commencing exploration in two blocks in Assam along with other partners. The company will pump in more money if oil is found in the two blocks. The company has identified Namrup block in Dibrugarh and Mesaki in Tinsukia districts for foraying into exploration of crude.

Source: ***Business Standard***

Saudi Aramco defends hold on coveted Indian oil market with RIL tie-up

15 August. Saudi Aramco's proposed purchase of part of Reliance Industries Ltd (RIL) will allow it to regain its grip on the world's fastest-growing oil market where suppliers including the US (United States) and Russia are making inroads. Aramco's plan to buy 20 percent of the oil-to-chemicals business of RIL -- which includes the world's biggest refining complex at Jamnagar on India's west coast -- comes with an assurance to buy half a million barrels a day of the kingdom's crude on a long-term basis. That's around 25 million tonnes (mt) a year and will allow Saudi Arabia to easily reclaim the top supplier spot from Iraq. India imports about 85 percent of its crude requirements and the International Energy Agency forecasts it will be the world's fastest-growing oil consumer through 2040. The nation's oil consumption will grow from less than 5 mn barrels a day at present to 8.2 mn by 2035, according to Wood Mackenzie. The US, which allowed global oil exports from the first time in 2015, shipped 6.4 mt of oil to India in the financial year ending March 2019, making it the ninth-largest supplier.

Source: ***Business Standard***

NATIONAL: GAS

Shell exits city gas business in India, sells MGL stake in open market

20 August. Shell India, the local arm of the Netherlands-based Royal Dutch Shell Plc, exited the city gas business in the country after it sold its 10 percent stake in Mahanagar Gas Ltd (MGL) for ₹7.7 bn. MGL, where the majority stake is owned by state-owned GAIL (India) Ltd, sells compressed natural gas (CNG) to automobiles and piped-cooking gas to households in and around Mumbai. When MGL was listed in July 2016, Shell and GAIL held 32.5 percent stake each in the company. The government of Maharashtra has 10 percent shareholding in MGL, while the remaining is with the public. Shell sold its stake in the open market after GAIL waived off its first right of refusal. Shell operates a 5 million tonnes (mt) a year liquefied natural gas (LNG) import terminal at Hazira in Gujarat.

Source: ***Business Standard***

Assam CM launches state's first CNG fuelling station in Dibrugarh

18 August. Assam Chief Minister (CM) Sarbananda Sonowal inaugurated the first-ever CNG (compressed natural gas) fuelling station of the state in Dibrugarh. He said that to make Assam free from air pollution and to promote the use of clean and green fuel, State government is preparing a roadmap for setting up CNG fuelling station in all districts of the state. He said that since vehicular emissions take a toll on the health of the people, State government is working sincerely to promote the use of compressed natural gas in the state.

Source: ***The Economic Times***

Shortage of CNG keeps 40 percent taxis, autos off roads in Mumbai

18 August. The CNG (compressed natural gas) shortage crisis continued to affect pumps in Mumbai, with nearly

40 percent autos, kaali-peeli taxis and some app-based cabs staying off roads in the morning. Public transport too took a hit although BEST buses had been refilled with CNG late night to avoid inconvenience. The problem was brought under control by afternoon, with just a couple of pumps continuing to remain shut. The "technical" problem at the ONGC (Oil and Natural Gas Corp) gas processing facility in Uran was resolved in the morning. Nearly seven lakh vehicles in the region depend on CNG for fuel and this mainly comprises three lakh private cars and over three lakh autos, besides buses, private cabs and taxis. Some state-run buses also depended on CNG for daily run.

Source: ***The Economic Times***

India to test using LNG to power fishing boats

14 August. India is set to test using liquefied natural gas (LNG) to power fishing boats ahead of stricter international rules on marine fuel emissions next year, in a move that could help an under-used LNG terminal in the south of the country. The South Asian country's Kerala Development and Innovation Strategic Council (K-DISC), which is a think-tank and advisory body set up by the government of Kerala, issued an expression of interest (EOI) for a pilot project to use LNG to fuel a fishing boat. It is looking to retrofit an existing marine diesel engine system in a fishing boat currently in the city of Kochi to enable it to operate on both LNG and diesel in what is known as a dual fuel system. Fishing boats are typically fuelled by diesel, but a new regulation by the International Maritime Organisation (IMO) that limits the sulphur content of fuel used in ships by 2020 could push governments to explore the use of cleaner fuels. The project will also involve the installation of an LNG fuel storage tank and other associated equipment and pipelines by modifying the boat hull, according to the EOI. K-DISC has asked for the work to be done in 18 weeks and is requesting proposals by 7 September, with commercial bids to be submitted by late October.

Source: ***Reuters***

NATIONAL: COAL

Government cancels coal block jointly allocated to NTPC, JKSPDC

20 August. The central government has cancelled the joint allocation of a coal block in Odisha to NTPC Ltd and Jammu & Kashmir State Power Development Corp (JKSPDC). NTPC and Power Development Department, Jammu & Kashmir, had earlier requested the coal ministry for cancellation of the coal block. The coal block, in the Talcher Coalfield of Odisha, has a reserve of 396.10 million tonnes (mt). The coal ministry said there is no provision under the Mines and Minerals (Development and Regulation) Act, 1957, and the rules made thereunder to allocate fresh coal block in lieu of a cancelled coal block.

Source: ***The Economic Times***

Coal ministry panel approves fuel supply to Tamil Nadu power plants

20 August. The coal ministry's standing committee on linkage has approved fresh fuel supply to upcoming power generation units in Tamil Nadu having capacity of 2,400 MW. The two under-construction power plants — North Chennai Thermal Power Station Stage-III (800 MW) and Uppur Super Critical Thermal Power Project (1,600 MW) — had sought domestic coal linkages under the Centre's Shakti scheme. The panel has recommended 2 million tonnes (mt) of domestic coal supply from the Singareni Collieries, and the rest would be procured from Coal India Ltd (CIL). The two power plants would blend imported and domestic coal on a 50:50 ratio. The Shakti scheme was designed to save power plants who were without adequate fuel supply agreements. Although the North Chennai unit was originally scheduled to be commissioned in December 2019, it is now expected to be ready only by March 2020. Similarly, the expected commissioning of the Uppur project has been delayed to March 2022 from the initial timeline of April 2020. The coal ministry's committee has recommended the

extension of existing bridge linkages to NTPC Ltd's 500 MW Barauni Stage-2 plant (Bihar) and DVC's units in Mejia (West Bengal) and Chandrapura (Jharkhand). Bridge linkages are temporary supply contracts for state-owned generation units that have been allotted coal blocks, but mines are yet to start production. NTPC Barauni will receive coal under the bridge linkage only for a year from the formal allotment of the Badam coal block. The power plants of DVC are scheduled to get coal from the Khagra Joydev coal block. The Khagra mine was expected to produce coal from June 2015 but it is yet to receive environmental and forest clearances and sort out land acquisition issues. The panel recommended coal linkages from CIL to Gujarat, Uttar Pradesh and Madhya Pradesh under the Shakti scheme. It directed CIL to earmark 10 mt per year of coal for three years for power plants which would sell electricity through the central government's so-called Pilot scheme-2 to salvage private generating stations without power purchase agreement. However, coal allocation to plants under the Shakti scheme is contingent on approvals of other authorities.

Source: ***The Financial Express***

Telangana power utility gets Centre's nod for coal transportation by road

17 August. The Telangana State Power Generation Corp Ltd (TSGenco) got the go-ahead from the Centre to transport coal by road to Bhadradri thermal power plant.

QUICK COMMENT
Road transport of coal is road will increase pollution!
Ugly!

As a result, Telangana will have an additional 1,080 MW of power at its disposal soon. The Bhadradri power plant requires over 13,000 tonnes of coal daily and plans are in place to transport coal by 55 trucks every hour to the plant. As per the original plan, the coal was supposed to be supplied by rail from Singareni Collieries from Manuguru station to the thermal power plant, a 12 kilometre (km) stretch. But, there is no railway line so far. Following the delay in preparation of a detailed project report and other formalities for laying of the railway line, the Telangana government sounded the Union energy ministry on the urgent need to grant permission so that coal could be transported via road and the thermal power plant would not run out of coal.

Source: ***The Economic Times***

SC verdict on coal mining people's victory: Meghalaya CM

16 August. Meghalaya Chief Minister (CM) Conrad K Sangma hailed as "people's victory" the Supreme Court directive to lift the NGT (National Green Tribunal) ban on coal mining and said the verdict has upheld the rights of indigenous people on land and mineral deposits. Sangma said the judgment will have a positive impact on the economy of the state. The Supreme Court (SC) on 3 July set aside the ban on coal mining in Meghalaya imposed by the NGT since April 2014, and allowed mining operations on privately and community-owned land, subject to permissions from authorities concerned. It also directed the Meghalaya government to deposit the ₹1 bn fine imposed on it by the NGT for failing to curb illegal coal mining. Sangma said the state has about 576 million tonnes (mt) of coal and nearly 9,300 mt of limestone deposits.

Source: ***The Economic Times***

Coal India's 54 mining projects facing delays

16 August. Coal India Ltd (CIL)'s 54 coal mining projects are facing delay due to various reasons such as contractual issues and delay in green clearances among others. The major reasons for delay in implementation of these projects are delays in obtaining environment

QUICK COMMENT
Delay in coal projects will mean an increase in import of coal!
Bad!

clearance (EC), forest clearance (FC), possessions of land and issues related to resettlement and rehabilitation, contractual issues and evacuation facilities among others. The company said that five coal mining projects with a sanctioned capital of ₹ 9.89 bn were completed during 2018-19, while two coal projects with a sanctioned capital of ₹15.02 bn were started during the year. CIL accounts for over 80 percent of domestic coal output. Based on the demand projection in 'Vision 2030' for coal sector in the country and subsequent demand projection on CIL, a perspective plan has been prepared to project production plan in medium and long-term basis up to 2030-31 wherein the company is envisaged to grow at the rate of about 7.6 percent till 2024-25 to meet the coal demand of the country. To achieve projected growth in production, CIL has identified major projects and assessed their related issues, it said.

Source: ***The Economic Times***

High coking coal prices could weaken the prospects for Indian steel sector

16 August. High raw material prices including coking coal and iron ore, coupled with weak demand and softening of prices, are set to weaken the prospects for the growth of the steel sector in India in the current financial year. Experts expect the supply of coking coal to be tight in the coming months, with large Australian miners reducing their output.

Source: ***The Economic Times***

Government pushes for open coal market

14 August. The Union power ministry wants the coal ministry to ramp up commercial mining. Power Minister R K Singh has written to his coal counterpart Pralhad Joshi emphasising the need to create open coal market which, in turn, will facilitate an open power market. The power ministry feels that power producers should be able to buy coal from open markets at competitive prices and power purchase agreements (PPAs) should not be a precondition for getting access to coal. A high-level Niti Aayog committee had suggested the coal ministry to conduct auctions only for commercial mining and put an end to captive coal block allocation. Experts have attributed sub-optimal use of captive coal mines to lower requirement at power plants to which they are tied up to, and have argued that such dynamics limit competition and reduce efficiency. Singh has stressed the need to shift from the PPA mechanism to open power market which will lead to competition and lower power prices.

QUICK COMMENT
Open coal market is the need of the hour!
Good!

Source: ***The Financial Express***

NATIONAL: POWER

IndiGrid eyes power transmission assets worth ₹80 bn

20 August. India Grid Trust (IndiGrid), an infrastructure investment trust is looking to buy power transmission assets worth around ₹80 bn in 10 states. This, the trust plans to buy in the next 2 years which, would include framework agreement assets, CEO (Chief Executive Officer) Harsh Shah said. IndiGrid is backed by Sterlite Power Grid Ventures and was established in 2016 to own inter-state power transmission assets in India. The IndiGrid InvIT currently manages a portfolio of six electricity transmission assets with a total network of power transmission lines that span more than 3,361 circuit kilometres across nine Indian states. With an electricity demand surge expected in the coming decade, India's transmission system requires expansion. From Q1 (first quarter) of FY 18 till date, Shah pointed out that the trust has returned ₹7.85 bn or ₹24.56 per unit to investors. In Q1 of this fiscal, IndiGrid distributed ₹1.75 bn as dividends. Overall, electricity demand is on the rise, due to government's electrification push and higher adoption of electric vehicles.

Source: ***The Hindu Business Line***

Odisha to launch pre-paid electricity meters

20 August. Odisha government has decided to introduce pre-paid smart electricity meters in the state in order to stop power theft and meter tampering, Energy Minister D S Mishra said. The consumers will get a pre-paid card to re-charge their electricity meter as they do in mobile phone service after completion of their paid amount, he said. The main purpose of installing such meters is to put a check on meter tampering and power theft. Smart meters will be launched on a pilot basis in Sambalpur and Rourkela and the government will decide on extending this facility to the rest of the state after getting feedback from the two towns, he said. States such as Maharashtra, Andhra Pradesh, Karnataka, New Delhi and Puducherry have already implemented such meters, he said.

Source: ***The Economic Times***

Centre set to launch integrated power scheme in 53 J&K towns

20 August. The Centre has decided to launch IT-enabled Integrated Power Development Scheme (IPDS) in 53 small towns of J&K (Jammu and Kashmir) to improve electricity supply to the people. These towns, including Uri, Gulmarg, Pahalgam, Pampore and Chrar-i-Sharief, have a population of close to 4 lakh, with about 88,000 electricity consumer families. The J&K Power Development department will be executing the project after having implemented such a system in bigger towns of the state. The initiative will help the authorities calculate the correct transmission losses and ensure development of system for automated daily calculation of reliability indices. The Centre's IPDS for urban areas involves strengthening of subtransmission and distribution network in urban areas, provisioning of solar panels on government buildings and the metering of feeders, distribution transformers and consumers.

Source: ***The Economic Times***

NIPEF opposes privatisation of power distribution

19 August. The Northern India Power Engineers Federation (NIPEF) has opposed the union government's initiatives to 'privatise' the power distribution across the country. The federal council of the federation in its meeting held criticised the mandatory letter of credit (LC) policy mechanism for distribution companies (discoms) issued by the union ministry of power to facilitate the payment of private power producers without similar benefit to state generating companies. All India Power Engineers Federation said the mandatory system of letter of credit (LC) opening would cause an upheaval in the power sector as they will face cash crunch even to pay the salaries to its employees in some of the states. In case of power supply stoppage by a private generator, discoms will have to pay fixed charges and they would not be able to purchase power in the open market and the consumers will be the worst sufferers. The federation supported the move of Andhra Pradesh Chief Minister (CM) for negotiating power purchase agreements made at exorbitant rates. When the government has altered its terms of payments to advance payments why the state governments cannot renegotiate the power purchase agreements for consumer benefits.

Source: ***The Economic Times***

Telangana CM Rao favours comprehensive national power policy

19 August. Telangana Chief Minister (CM) K Chandrasekhar Rao favoured bringing in a comprehensive national power policy to provide quality, uninterrupted electricity to all the sectors. Of the total captive power generation in the country, not even half of it is being utilised, but yet several parts in the country are living without power, he said. The financial help extended by the Power Finance Corp (PFC) had helped the state a lot for setting of power plants and revamping the electricity related institutions, Rao said.

Source: ***The Economic Times***

NATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

IOC to invest ₹250 bn in green energy

20 August. Indian Oil Corp (IOC), the nation's largest refiner and fossil fuel retailer, plans to invest ₹250 bn in green energy projects, including solar and wind power plants, bio-fuels plants, and solar panels at filling stations. IOC plans to scale up its solar and wind power portfolio to 260 MW by 2020 from 216 MW, which includes 167 MW of wind and 49 MW of solar. An interesting transition is visible at more than half the company's filling stations where solar panels are helping cut dependence on grid power. Pumps have experienced increased sales after solar installation in areas that suffered from unreliable grid supply. Of the total 27,800 fuel stations, 14,173 are solar-operated with a combined installed capacity of 77 MW. In 2018-19, 5,000 stations were converted to operate on solar.

Source: ***The Economic Times***

IIT-Mandi developing technology to convert heat into electricity

20 August. Researchers at the Indian Institute of Technology (IIT) Mandi are developing novel thermoelectric materials that can efficiently convert heat into electricity. While solar power has received a lot of attention, other alternative sources are equally promising, even if less known, researchers said. Generating power from heat, for example, is attractive as there is a lot of heat that is created through human activities in industry, power plants, home appliances and automobiles where most of this heat is lost, they said. There has been considerable interest in recent years in the development of technologies that can dynamically harvest energy from the environment and convert it to electricity. Such futuristic technologies consider Sun, heat and mechanical energy as sustainable sources of energy. About 70 percent of energy in the world is wasted as heat and this heat is released into the environment, becoming one of the key players of global warming, they said.

Source: ***The Economic Times***

Adani's ₹700 bn plan to build solar-powered data centre parks in AP in limbo

20 August. The proposed ₹700 bn plan of the Adani Group for building up to 5 GW solar-powered data centre parks in Visakhapatnam is in limbo. The Andhra Pradesh (AP) government has asked for a revised proposal from the company, including new locations and the investment to be made at different phases. The Adani Group had signed an MoU (Memorandum of Understanding) with the AP government in January with a committed investment of ₹700 bn for the next 20 years. Under this MoU, the company had planned to set up three green data centres and a 5 GW solar park. The data centre parks of up to 5 GW capacities in and around Visakhapatnam over the next 20 years are claimed to be a first-of-its-kind 100 percent renewable energy powered project in the world.

Source: ***The Economic Times***

Gujarat textile units want cap on solar machinery be raised

20 August. Even as the much-publicised PowerTex India scheme aimed at development of power loom sector completes its stipulated three years by March 2020 and the central government is indicating its intent to continue it with some modifications, Gujarat-based textile units have demanded to enhance cap on the solar machinery under the scheme. Under the Solar Energy Credit initiative, an integral part of the scheme, the central government is providing a subsidy of 50 percent to power loom units having maximum eight looms for adopting solar energy for captive use either in grid or off grid system. According to Gujarat-based power-loom operators, the cap of eight power-looms under the scheme was too low and it should be increased to at least sixty to encourage the use of solar energy.

Source: ***The Financial Express***

KKNPP 3rd unit moves towards operationalisation ahead of PM's Russia trip

19 August. The Unit-3 of Kudankulam Nuclear Power Plant (KKNPP) has taken a key step towards operationalisation with supply of main equipment for the plant ahead of Prime Minister (PM) Narendra Modi's visit to Russia in September first week. Andrey Lebedev, Vice-President for projects in India of ASE, Russia's Rosatom State Atomic Energy Corp Engineering Division, said that all main equipment have been supplied. Rosatom State Corp is main equipment suppliers and technical consultants for the Kudankulam Nuclear Power Plant project. KKNPP is being constructed in Tamil Nadu within the scope of Russian-Indian agreement of 1988 and its attachments dated 1998 and the Agreement as of December 08, 2008. In October 2013 Unit-1 of the KKNPP was connected to the southern power grid. In August 2016 Unit-2 of the KKNPP was connected to the power grid. Unit-3 and Unit-4 of the KKNPP are under construction. The contracts for construction of Unit-5 and Unit-6 have been signed and the preparatory works are in progress.

Source: ***The Economic Times***

NTPC plans to spend ₹200 bn on 5 GW ultra-mega solar park in Kutch

19 August. NTPC Ltd plans to set up an ultra-mega solar park in Gujarat for a phased capacity of 5000 MW at an estimated investment of ₹200 bn. NTPC is exploring Rajasthan as a location for another solar park. NTPC is considering spot market options to sell some part of its solar power, without signing long-term power purchase agreements. As part of its ultra-mega solar park plans, NTPC will also look to invite other solar power developers to invest in these solar parks. NTPC is betting big on solar as well waste-to-energy plants. In the waste-to-energy segment, NTPC is collaborating with city municipal corporations for waste-supply. The company will develop a waste-to-energy plant with two city municipal corporations- East Delhi and Surat. The construction time for these plants is 30 months from the date of contract award. The larger company strategy also includes blending solar with coal-sourced power off-take. The company will explore the battery technology as a transit option for its existing thermal and solar power capacities. In addition to solar parks, NTPC is also working on options in the floating solar segment. NTPC said 125 MW Floating Solar projects are under implementation for Merchant Sale.

Source: ***Business Standard***

PM Modi inaugurates Mangdechhu hydroelectric power plant in Bhutan

18 August. Prime Minister (PM) Narendra Modi inaugurated the Mangdechhu hydroelectric power plant, one of the major projects under Bhutan's initiative to generate 10,000 MW hydropower by 2020 with the Indian government's support. The ₹45 bn hydroelectric plant, touted as a Bhutan-India friendship project, is a 720 MW run-of-river power plant built on the Mangdechhu River in Trongsa Dzongkhag district of central Bhutan. It was developed by the Mangdechhu Hydroelectric Project Authority (MHPA), which was jointly constituted by the Indian and the Bhutanese governments. The Mangdechhu project is funded by India through a 70 percent loan and a 30 percent grant. It is estimated to generate 2,923 gigawatt hour (GWh) of electricity. Most of the electricity generated by the Mangdechhu hydropower project will meet the energy requirements of Bhutan and the surplus electricity will be exported to India. Modi launched stamps to commemorate five decades of India-Bhutan Hydropower cooperation.

Source: ***The Economic Times***

US challenges WTO panel's ruling on solar case in favour of India

17 August. A ruling given by the WTO (World Trade Organisation)'s dispute settlement panel on renewable energy or the solar sector in favour of India has been challenged by the US (United States) in the upper body of the WTO. In June, a WTO dispute resolution panel ruled in favour of India in a case against the US saying that America's domestic content requirements and subsidies provided by eight of its states in the renewable energy or the solar sector are violative of global trade norms. The panel in its ruling had concluded that the

measures of the US are inconsistent with certain provisions of the General Agreement on Tariffs and Trade (GATT). The GATT aims to promote trade by reducing or eliminating trade barriers such as customs duties. In September 2016, India had dragged the US to the WTO's dispute settlement mechanism over the issue. Washington, California, Montana, Massachusetts, Connecticut, Michigan, Delaware and Minnesota were the eight states providing subsidies. The Geneva-based body can uphold, modify or reverse legal findings and conclusions of WTO's dispute panel and its reports. If the body's ruling goes against India, the country will have to comply with the order in six-seven months. The ruling in favour of India came at a time when there are trade tensions between the two countries.

Source: ***Business Standard***

₹450 bn Ladakh solar power plant plan facing location issue

16 August. The government's plan to set up a 7,500 MW solar photovoltaic (PV) power plant at an estimated cost of ₹450 bn in Ladakh, currently the largest investment proposal for the newlycarved Union Territory, may be shifted to a new location over wildlife concerns. The project's blueprint prepared by SECI (Solar Energy Corp of India) envisages a 5,000 MW plant in Hanle-Khaldo village in Nyoma block, a strategically important area 254 kilometre (km) from district HQ Leh. Another 2,500 MW unit is to be built at Suru in Zanskar, 254 km from the Kargil district HQ. The Nyoma site plan has now fallen foul of the wildlife department, which has asked SECI to move the project to the Morey plains near Pang, some 185 km southeast of Leh.

Source: ***The Economic Times***

India requires $700 bn renewable energy investment over the next decade

16 August. India will require investment between $500 bn and $700 bn in renewable energy sector and the supporting grid network over the next decade in order to meet its energy targets even as the country needs to resolve a few sovereign risk issues quickly. A latest report by Australia-based Institute for Energy Economics and Financial Analysis (IEEFA) said the country is set to reach 144 GW of renewable energy generation capacity by the end of 2021-22 and it has a clear ambition to transition to a cheaper lower emission electricity system and that ambition is attracting healthy global investment. The IEEFA report said as a result of these obstacles, during FY 2018-19, India failed to capitalise on the momentum built over the previous two years through record low solar and wind tariffs. Only 10.3 GW of renewable generation capacity was added last financial year, it said. According to the report, the proposed tariff policy revision and the payment security mechanism enhancements are both significant regulatory reforms, while removing the priority lending limit for the renewable energy sector will accelerate private bank lending to renewable energy infrastructure projects.

Source: ***The Economic Times***

Sembcorp commissions 200 MW wind power project in Bhuj in Gujarat

16 August. The Indian arm of Singapore-based Sembcorp Industries said it has commissioned 200 MW of wind power project at Bhuj in Gujarat, taking its total generating capacity to 450 MW to become the largest producer of electricity from wind energy in the country. Sembcorp Energy India Ltd reported an 8 percent rise in second-quarter net profit to 42 mn Singapore dollar. The phased commissioning of a combined capacity of 200 MW of wind project at Bhuj in Gujarat is part of the 250 MW and 300 MW capacity, respectively, that Sembcorp won in the SECI 2 and SECI 3 wind bids conducted by the Solar Energy Corp of India (SECI). It had previously commissioned 250 MW of wind project in Tamil Nadu under SECI 1. In all, the company had won 800 MW of wind power bids, of which it has completed 450 MW. It also has 2,640 MW of thermal power generation capacity. Besides, the company also has a self-operating capacity of 600 MW, the largest with any independent power producer. Sembcorp holds the distinction of being the first to complete a SECI auction wind power project ahead of schedule, and as on date has the largest generating capacity commissioned from SECI wind auctions.

Source: ***Business Standard***

INTERNATIONAL: OIL

US removed almost 2.7 mn barrels daily of Iranian oil from market: Pompeo

20 August. The United States (US) has removed nearly 2.7 mn barrels of Iranian oil from global markets daily as a result of Washington's decision to reimpose sanctions on all purchases of Iran's crude, US Secretary of State Mike Pompeo said. In May, Washington ended sanction waivers given to importers of Iranian oil, aiming to cut Tehran's exports to zero. Iran exported about 100,000 barrels per day (bpd) of crude in July. If condensate, a light oil, is included, shipments were about 120,000 bpd a day. The Organization of the Petroleum Exporting Countries (OPEC), Russia and other producers have been cutting 1.2 mn bpd since 1 January to reduce global supply. OPEC in July renewed the pact until March 2020 to avoid a build-up of inventories as worldwide demand is seen weakening. Despite OPEC's actions along with US sanctions on Iran and Venezuela, Brent crude international oil prices LCOc1 have been relatively weak, falling to $59 a barrel from a 2019 high of $75, pressured by concerns about slowing demand.

Source: *Reuters*

Poland's Lotos to settle payout over dirty oil by year-end

20 August. Poland's second largest oil refiner Grupa Lotos should know how much compensation it will receive from Russia over contaminated oil by the end of the year, the company's deputy CEO (Chief Executive Officer) Jaroslaw Kawula said. Russia halted oil flows along the Druzhba pipeline to Eastern Europe and Germany in April because of contaminated crude, leaving refiners in Europe scrambling to find supplies.

Source: *Reuters*

Oil production at Libya's Sharara field at 295k bpd

19 August. Oil production at Libya's Sharara oilfield, the OPEC (Organization of the Petroleum Exporting Countries) member's largest, has reached around 295,000 barrels per day (bpd). The oilfield resumed production earlier this month having faced two unplanned shutdowns.

Source: *Reuters*

Nigeria awards crude-for-product swap deals to 15 firms

19 August. Nigerian National Petroleum Corp (NNPC) said that 15 companies had won the right to swap the nation's crude oil for fuels following a tender for the deals. About 132 companies bid for the deals, Nigerian National Petroleum Corp (NNPC) said in May. The tender for the one-year contracts effective 1 October, dubbed direct sale, direct-purchase, was issued in March. Nigeria is almost entirely reliant on imported fuel because of years of neglect at its own refineries. It has leaned heavily on the swap arrangements to get fuel, particularly gasoline, as other would-be importers struggle to make money due to price caps. NNPC said the companies that won the bids were made up of consortia of 15 companies including Vitol, Trafigura, oil major BP and local downstream companies.

Source: *Reuters*

CNPC suspends Venezuelan oil loading, worried about US sanctions

19 August. China National Petroleum Corp (CNPC), a leading buyer of Venezuelan oil, has halted August loadings following the latest US sanctions on the South American exporter. The Trump administration in early August froze all Venezuelan government assets in the United States and US officials ratcheted up threats against companies that do business with Venezuela's state-run oil company, Petróleos de Venezuela, SA (PDVSA). China oil is the trading vehicle of CNPC that buys most Venezuelan crude under term contracts and is one of Caracas' top clients. Most deliveries of Venezuelan oil and refined products to CNPC's units are intended to monetize billions of dollars lent by China to Venezuela through oil-for-loan pacts. PDVSA has never failed to deliver crude to China to pay off debts, although refinancing and grace periods have been agreed upon over the last decade to ease the debt burden. CNPC will

wait for more guidelines from the US Treasury before further moves in dealing with Venezuelan oil. For the first six months of this year, China imported 8.67 million tonnes (mt) of crude oil from Venezuela, or roughly 350,000 barrels per day (bpd), about 3.5 percent of its total imports, according to Chinese customs data.

Source: *Reuters*

INTERNATIONAL: GAS

Equinor, Gazprom lose European gas market share as LNG surges

19 August. Europe's two biggest suppliers of pipeline gas, Norway's Equinor and Russia's Gazprom, have lost market share for the first time in at least four years amid a tripling in liquefied natural gas (LNG) imports into the region over the past 10 months. LNG imports into Europe have jumped amid lower than expected spot demand from Asia, which has helped to send European gas prices to 10-year lows and filled European storages to multi-year highs. Data compiled by Refinitiv showing changes in the market share of gas from Norway, Russia and LNG sources is the latest example of how LNG is transforming Europe's gas market. The share of LNG in gas supplied to western and central Europe increased to 14 percent between October 2018 and August 2019 from 5 percent in the same period of 2017-18. The share of Norwegian gas dropped to 33 percent from 38 percent, a multi-year low, calculations by Refinitiv show. Gazprom's share was around the average of the past three years, edging down by 1 percent from the previous year to 32 percent. But it was the first year-on-year drop since 2014-2015, when it was hit by low gas demand in Europe. Despite its market share loss, Gazprom's total gas exports to Europe rose as the region imported 9 percent more gas from October to August, compared with the same period in 2017-2018.

Source: *Reuters*

BP publishes LNG contract templates to push industry standardization

15 August. Global oil and gas major BP has published its master sales and purchase contract templates for its liquefied natural gas (LNG) trading business and says it is the first of its peers to do so. BP, which has a global LNG portfolio made up of volumes it has produced or bought, said it expects that publishing its LNG master sales and purchase agreement (MSPA) templates will "contribute to the broader discussion around standardization and liquidity for LNG transactions." The LNG industry has been pushing to streamline and standardize the contracts that govern its market to cut down on red tape and lengthy negotiations to speed up the commodity's transition to an oil-like trading model. An MSPA is a complex framework agreement between two counterparties spelling out the general terms for their LNG deals. Unlike in oil markets, where standardized GT&Cs like BP's provide a framework for traders to refer to, in LNG markets, companies typically draft separate contracts for every deal.

Source: *Reuters*

Ukraine prepares gas facilities for possible transit supply cut

14 August. Ukraine's gas transport company Ukrtransgaz has upgraded several gas pumping stations so it can provide gas to eastern and southern regions of the country if there is a disruption in supply from Russia, the company said. More than a third of Russia's gas exports to the European Union cross Ukraine, providing Kiev with valuable transit income. Ukraine traditionally uses some of the gas pumped by Russia to European consumers for its own needs in eastern and central regions and then compensates for this by deliveries from gas storage located in the west of the country. But the Russia-Ukraine gas transit agreement is due to expire in January and Ukrainian energy authorities are worried that Moscow could stop gas supplies through Ukraine, leaving some Ukrainian regions without gas in winter. It said Ukraine had already reversed gas flows in 2009 when Russian gas giant Gazprom halted gas supplies to Ukrainian consumers because of a price dispute. Ukraine consumed 32.3 billion cubic meters (bcm) of gas in 2018, 10.6 bcm of which was imported from European markets outside Russia.

Source: *Reuters*

Brazil's Petrobras expects high growth in natural gas business

14 August. Brazil's natural gas sector will rapidly expand in the coming years, especially between 2023 and 2025, as new players will enter this market, Petrobras downstream head Anelise Lara said. Lara said Petrobras has been working to provide infrastructure to new players, aiming to increase competition and investments in the natural gas sector.

Source: ***Reuters***

INTERNATIONAL: COAL

Myanmar continues coal-plant plans

20 August. Coal-fired plants will continue to be in use despite objections by different groups on grounds of health and environmental pollution, Myanmar's Ministry of Electricity and Energy deputy minister U Tun Naing said. He said the Amyotha Hluttaw, the upper house of Myanmar's national bicameral legislature, that the government intended to go ahead with the construction of coal-fired plants to address the energy shortage in the country. He said that in its latest power mix plan, Myanmar will draw 33 percent of its energy needs from coal. Despite the need for more energy to generate power, coal plants have faced difficulties operating due to objections by villagers worried about its health implications. Last year, the government scrapped a $2.8 bn coal-fired plant to be built near the Karen State capital of Hpa-An by Toyo-Thai Co Ltd, a joint venture involving Thai and Japanese engineering and construction firms.

Source: ***Myanmar Times***

Indonesia to review coal DMO rules to support gasification

16 August. Indonesia plans to review its regulations on domestic market obligation (DMO) for coal to support gasification of coal, Industry Minister Airlangga Hartarto said. Current DMO rules include requiring coal miners to sell 25 percent of their output to domestic buyers, such as state power company PT Perusahaan Listrik Negara (PLN). Indonesian President Joko Widodo said that the government aims to expand its downstream industry for natural resources, including processing coal into dimethyl ether to substitute for imported liquefied petroleum gas (LPG).

Source: ***Reuters***

China coal output falls in July

14 August. China's coal output fell in July from June's record production, despite strong demand from electricity utilities to power air conditioners during the hot summer months. Chinese miners produced 322.23 million tonnes (mt) of coal, down 3.3 percent from 333.35 mt in June but well above 281.5 mt in July last year, data from the National Bureau of Statistics showed. Weaker production at domestic mines came as coal imports rose 21 percent in July from the previous month to 32.9 mt. Imports rose even as China's customs tightened coal imports at several ports by delaying or even halting customs clearance.

Source: ***Reuters***

China to launch new round of coal mine safety checks

14 August. China will launch a new round of safety inspections on coal mines across the country from late August until end-September, the National Coal Mine Safety Administration said. The checks follow a spate of fatal coal mine accidents that stirred concerns over poor safety conditions, particularly at small mines. Inspectors would crack down on illegal production and urge miners to improve their ability to deal with major disasters such

as gas explosions and floods, the National Coal Mine Safety Administration said.

Source: *Reuters*

INTERNATIONAL: POWER

Tanzania targets 10 GW of power by 2025

19 August. Tanzania is targeting to generate 10 GW of power by 2025, which will be sufficient for industrialization, Energy Minister Medard Kalemani said. The country has made significant strides towards implementation of various Southern Africa Development Community (SADC) energy policies and targets, including the protocol on energy. The increased investment in electrical energy infrastructure in the SAPP (Southern African Power Pool) region was needed to enable increased electricity access and economic growth. He said Tanzania was also implementing two major projects of power transmission which were vital in the SADC energy networks, namely the 400 kilovolts (kV) Zambia-Tanzania-Kenya interconnector as well as the line linking Iringa to Zambia. He said 60 percent of the villages had been connected to reliable and affordable electricity through the Rural Energy Agency (REA) with a target of connecting all households in the country by 2025.

Source: *The Southern Times*

Finland signs contracts for first parts of north-south power line

16 August. Finland has signed contracts to construct the initial two sections of a 310 kilometre (192.6 miles) power line that will primarily help transport electricity from its north to its south, state-owned Fingrid said. The planned €100 mn ($110.82 mn) line, called Forest Line, will cross through Finland's vast forested centre, replacing ageing grids and enabling transport of power from wind farms in the country's north. Finland has a power deficit and imports more than a quarter of the electricity it needs from neighbours Sweden and Russia, so maximising the use of its own resources is key to the country's energy-hungry industries. The 400 kilovolt (kV) transmission link will consists of six sections and a contract was awarded to Finnish infrastructure firm Destia Oy to construct two of them. The work to build the Forest Line will take place between 2019 and 2023, Fingrid said.

Source: *Reuters*

China's July power consumption up 2.7 percent on year: NDRC

16 August. China's July power consumption rose 2.7 percent year-on-year (y-o-y), according to the National Development and Reform Commission (NDRC). China's January-July power consumption up 4.6 percent y-o-y to 4.1 tn kWh (kilowatt hour), the NDRC said.

Source: *Reuters*

Azerbaijan, Iran & Russia agree to connect energy grids

16 August. Russia, Iran and Azerbaijan have signed an agreement on a joint feasibility study to connect power systems of the three Caspian littoral states. The feasibility study is expected to encompass the technical and economic aspects of the conditions for connecting the power systems and explore the possibilities for electric power transmission. The idea of linking to each other's grids has been in the works for years. Iran's capacity to export electricity to neighbouring countries is almost 2,000 MW with the bulk going to Afghanistan, Pakistan and Iraq.

Source: *Caspian News*

INTERNATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

Russia, China and South Korea vie for Bulgarian nuclear project

20 August. State run energy companies from Russia, China and South Korea are among seven groups interested in becoming strategic investors in Bulgaria's Belene nuclear power project, the Balkan nation's Energy Minister Temenuzhka Petkova said. Neighbouring North Macedonia has also expressed an interest in a minority stake and long-term contracts to buy electricity from the 2,000 MW project on the river Danube, estimated to cost €10 bn ($11 bn), Petkova said. Sofia revived the Belene project last year after the parliament said it should seek investors to make use of the two reactors it paid over €620 mn to Russia's Rosatom for in compensation for scrapping the original project in 2012. Bulgaria will shortlist candidates in three months and ask them to file binding bids. It will not hire a consultant to advise it on the process, which it hopes to wrap up in May 2020. The project is hoped to be completed around ten years later. The preferred bidders will be asked to consider the declared interests for minority stakes and power purchase contracts.

Source: ***Reuters***

EDF gets OK to restart Scottish nuclear plant where cracks found

20 August. EDF Energy will be allowed to restart a reactor at its Hunterston plant in Scotland where cracks were found last year, for an initial four month period, Britain's nuclear regulator said. The Hunterston B nuclear plant on the west coast of Scotland is more than 40 years old and when operating can provide enough electricity to power more than 1.7 mn homes. It has two reactors, so called reactors 3 and 4, which were both taken offline last year after cracks were found on the graphite core during routine inspections at the facility. Before either reactor could restart EDF Energy had to provide safety cases to the Office for Nuclear Regulation (ONR) to show they would be safe to operate even in the unlikely event of an earthquake. The reactor will be allowed to operate for 16.025 terawatt hour (TWh), or approximately 4 months. EDF Energy, British arm of France's EDF, said it had invested more than 125 mn pounds ($151 mn) in research into the operations of the graphite cores used in most of its UK (United Kingdom) reactors.

Source: ***Reuters***

South Africa will look into modular nuclear technology: Mantashe

20 August. South Africa will not adopt a "big bang" approach to building new nuclear power capacity, but it will look into adding modular nuclear technology at a pace it can afford, Energy and Mineral Resources Minister Gwede Mantashe said.

Source: ***Reuters***

Denmark sees resolution soon to EU rift on 2050 climate goal

16 August. The new energy and climate minister of Denmark, Dan Jorgensen, a frontrunner in fighting climate change, said he was confident fellow EU (European Union) countries would soon agree to go carbon-neutral by 2050 despite resistance in the east of the bloc. A push by most EU nations for the world's biggest economic bloc to go carbon-neutral by 2050 was dropped to a footnote in June after fierce resistance from Poland, the Czech Republic and Hungary who fear it would hurt economies like theirs dependent on nuclear

power and coal. With greenhouse gas emissions currently on course to push average global temperatures more than three degrees higher by the end of this century, United Nations (UN) Secretary-General Antonio Guterres is working to wrest bigger pledges from governments at a UN climate summit in New York in September. Denmark's new Social Democratic government recently set one of the most ambitious climate targets in the world when it vowed to deliver a 70 percent reduction in greenhouse gas emissions by 2030 compared to 1990 levels. Jorgensen said that while the technology needed to reach reductions of 60-65 percent exists, the remaining leap to carbon-neutral levels would be extremely challenging.

Source: *Reuters*

Global warming will hit solar panel performance

16 August. A study by scientists at Massachussetts Institute of Technology has considered the potential negative effect of rising global temperatures on solar panel performance. The researchers calculated that for each degree of global temperature rise, solar modules could lose around 0.45 percent of output, although they stressed the figure was a representative number. The calculations were made using the 'representative concentration pathway 4.5' warming scenario published by the UN (United Nations)'s Intergovernmental Panel on Climate Change, which envisages CO_2 (carbon dioxide) emissions peaking in 2040 for a global average temperature rise of 1.8 degrees Kelvin by 2100. Although the performance of solar modules would fall everywhere, the worst affected areas would be in the southern United States, southern Africa and central Asia, according to the study.

Source: *PV Magazine*

WTO to rule on China's complaint on US duties on solar cells

15 August. The World Trade Organization (WTO) set up a dispute panel requested by China to rule on US (United States) safeguard duties imposed on imports of solar cells. The decision, automatic upon its second request at a meeting of the WTO's Dispute Settlement Body, came as the two countries seek a major trade deal to calm simmering tensions. China charges that the US measure, in the form of a tariff-rate quota on imports of solar cells and an increase in duties on imports of modules, violates WTO rules.

Source: *Reuters*

EU imposes duties of up to 18 percent on Indonesian biodiesel

14 August. The European Commission imposed countervailing duties of 8 percent to 18 percent on imports of subsidized biodiesel from Indonesia, saying the move aimed to restore a level playing field for European Union (EU) producers. The EU duties are another blow to Indonesian biodiesel producers after the bloc said in March that palm oil should be phased out of renewable transportation fuels due to palm plantations' contribution to deforestation. The European Commission, which coordinates trade policy for the EU, launched an anti-subsidy investigation in December following a complaint by the European Biodiesel Board. The EU biodiesel market is worth an estimated €9 bn a year, with imports from Indonesia worth about €400 mn, it said. Indonesia Biofuels Producers Association said that companies impacted by the anti-subsidy duties will likely be forced to renegotiate their contracts with buyers in the EU and it may reduce 2019's biodiesel exports.

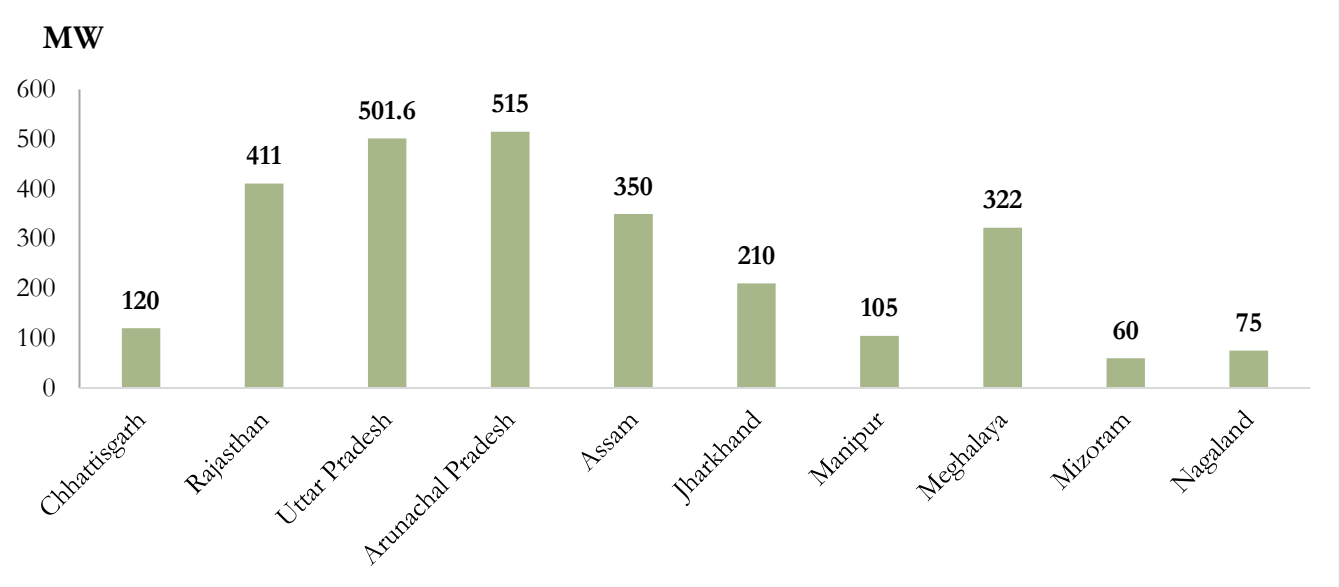
Source: *Reuters*

DATA INSIGHT

Scenario of Hydro Electricity Generation Capacity in India

State/UT	Installed Capacity (>1000 MW)
Andhra Pradesh	1610
Gujarat	1990
Karnataka	3644.2
Kerala	1856.5
Madhya Pradesh	2235
Maharashtra	3047
Odisha	2142.25
Punjab	1096.3
Tamil Nadu	2178.2
Telangana	2405.6
Uttarakhand	3756.35
Himachal Pradesh	9809.02
Jammu & Kashmir	3449
Sikkim	2169
West Bengal	1341.2
All India	**42729.62**

States with > 25 MW & <= 1000 MW Hydro Generation Capacity



Source: Parliament Questions (for Ministry of Power)

This is a weekly publication of the Observer Research Foundation (ORF). It covers current national and international information on energy categorised systematically to add value. The year 2019 is the sixteenth continuous year of publication of the newsletter. The newsletter is registered with the Registrar of News Paper for India under No. DELENG / 2004 / 13485.

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