

Energy News Monitor

SIGNS OF STRESS IN THE SOLAR SECTOR

Monthly Non-Fossil Fuels News Commentary: October - November 2018

India

Nearly half of the solar power generation capacity worth ₹ 280 billion currently under implementation in India is facing viability risk because of the continuous fall in the value of the Rupee. The currency depreciation has made imported solar modules costlier and has increased the cost of setting up solar power projects. The projects facing the risk have a combined capacity of 5,500 MW and were bid out in the past 9 months at a very low tariff of ₹ 2.75/kWh or less. These projects are in the early phase of implementation and are unlikely to have bought solar modules, orders for which are typically placed 9-12 months after the bids are won. Modules account for 55-60 percent of the total cost of setting up a solar project, which is typically ₹ 50 million/MW. Project developers do not generally hedge the exchange rate before placing orders for modules. Developers had anticipated low module prices while bidding at low tariffs. The module prices have fallen by around 17 percent for these projects from \$0.30/watt at the time of their bidding to around \$0.25/watt at present -- a benefit of ₹ 3.4 million/MW.

As uncertainties loom over the solar power sector, mainly on the policy front, the JSW Energy has put its ambitious expansions plans in the segment on the backburner. The company in May had announced plans to set up a 1,000 MW solar PV panel manufacturing facility at Vijayanagar in Karnataka and to install 200 MW of solar power systems in the current fiscal. However, it has so far

commissioned just about 12 MW of solar capacity. The firm had said that it would look at entering the PV cell/wafer manufacturing space. JSW Energy currently operates over 4,500 MW capacity, including a thermal capacity of 3,140 MW, hydro of 1,300 MW and solar of 12 MW.

India may miss the solar and wind energy auction target in the current fiscal, mainly due to rupee depreciation, safeguard duty and grid connectivity, Ind-Ra said. The MNRE has set a target of auctioning 34 GW of solar energy projects and 10 GW of wind energy projects. According to Ind-Ra, a sense of cautious optimism is spreading across renewable projects, with bidders and lenders going circumspect around low margin of error owing to the steep fall in tariffs since the start of auction regime. It said that recent scrapping of solar auctions around tariff concerns can derail the ministry's target to achieve 100 GW of solar capacity by FY22. On the positive side, solar projects in Ind-Ra's portfolio demonstrated stable generation levels with improving grid availability in FY18. Also, major state distribution utilities, including Solar Energy Corp of India, demonstrated a stable payment history in FY17 and FY18. Stable generation nature of solar power compared to other renewable sources remains a major advantage for solar power projects. On wind side, grid connectivity related concerns have forced bidders to skip auctions in the past, and the ministry target to conduct 10 GW of auctions in FY19 may be missed, it said.

In May this year, SoftBank Group had partnered with the now crippled infrastructure conglomerate IL&FS to develop over 20 GW solar capacity in the country by 2025. SB Energy has already won bids for setting up 1400 MW of projects in the country, including 300 MW in the Bhadla III Solar Park being developed by Saurya Urja Company of Rajasthan, a joint venture of IL&FS Energy and Rajasthan. The Japanese group had earlier this year tied-up with China's GCL System Integration Technology in a 60:40 joint venture for an Indian solar power venture worth \$930 million, that would work on loping photovoltaic technology used in solar panels. SoftBank had in 2015 made a commitment to invest up to \$20 billion along with Foxconn Technology and Bharti Enterprises in solar projects in the country.

India may achieve about 76 percent of the target of having 175 GW of renewable power generation capacity by the scheduled date of 2022 as it faces myriad challenges, Wood Mackenzie said. India is targeting 100 GW of solar capacity and 75 GW of wind power by 2022. India faces a myriad of challenges in the renewables industry. Wood Mackenzie said combined wind and solar capacity have almost doubled from 2014 levels to 61 GW this year. Wood Mackenzie expected non-hydro renewables to make up 13 for percent of power generation mix by 2023.

In a major green initiative, almost 25% of Chennai Central and Basin Bridge yard's electricity requirements will soon be met by solar panels installed on the platform shelters of the station, resulting in energy savings of ₹ 15 million per year. Southern Railway has started installing solar panels totalling 1.9 MWp at Central and 250 kilowatt peak at Egmore station. Together, the panels will generate close to 300,000 units every month. At Egmore, the power generated would be 365,000 units per annum which will result in carbon credit of 328 metric tonnes with a reduction of ₹ 1.6 million per annum in the energy bill. Until now, the division has only installed small solar panels on the rooftops of stations including the Moore Market Complex, the suburban terminal, Tambaram, Katpadi, Jolarpet, Arakonam and Chengalpet. The mega solar plant in Central will be able to generate 8,333 units per day. Railways has invested ₹ 65 million/MW for this project. Southern Railway is waiting for the Tamil Nadu

government's new solar energy policy for the net metering details which would give Railways a further benefit by evacuating excess solar energy generated to TANGEDCO's grid and reduce the energy bill.

Tata Power Renewable Energy, the wholly-owned subsidiary of Tata Power Company, plans to grow its rooftop business four-fold to around 1,000 MW from present 250 MW in next three to four years, even as the company plans awareness campaigns in 100 cities by end of FY19. The company is working with financial companies and at advocacy level to provide a holistic solution to the residential and commercial & industrials as the segment failed to grow to the level it should have due to inverted tariff structure. The current initiative is to make the residential sector aware of the savings benefits that are available from the project. In 2015, the MNRE announced 40,000 MW target for rooftop installations by 2022 which was backed by a 30% subsidy for residential buildings. Besides, the government also urged the state governments to announce policies to enable net-metering, a billing mechanism that enables power consumers to be paid for injecting renewable power into the grid. Commercial and industrial building owners have shown more enthusiasm as their large power bills justify the expense of solar power systems, even though they get no subsidy. As of 31 March 2018, India installed 2,538 MW of rooftop capacity, according to the consultancy Bridge to India. This gives rooftop solar a 10% share in India's overall solar capacity installation with large-scale and off-grid solar installations cumulatively nearing 22,000 MW during the same period. Tata Power Renewables Energy posted a net profit of ₹ 710 million in Q1FY19 as against ₹ 560 million in Q1FY18, while the Walwhan Renewable Energy, the business bought from Welspun Renewable Energy, recorded a profit of ₹ 1.01 billion in Q1FY19 against a profit of ₹ 600 million a year ago.

NTPC Ltd has won 160 MW of solar capacity in a reverse auction held the UP government. Out of the total 160 MW; 140 MW was won at a tariff of ₹ 3.17/kWh and 20 MW was won at a tariff of ₹ 3.21/kWh. This is the first time NTPC has participated in tariff based bidding of solar projects. NTPC participated in the tender floated by Uttar Pradesh New and Renewable Energy Development Agency for 500 MW grid connected solar projects.

Trichy Corp has managed to obtain both administrative and technical approvals for establishing a 2.5 MW solar park under smart cities mission to generate electricity from sunlight. In a list of more than 18 proposals made by Trichy Corp, the civic body had also envisaged a plan to establish a solar power park. Identifying Panchapur as apt location, the civic body earlier submitted a proposal with a high power committee comprising senior bureaucrats from the state government. The proposal estimated at ₹ 130 million will establish 2.5 MW solar power plant sprawling for 15 acres in Panchapur on Trichy-Madurai NH. The civic body has planned to join hands with TANGEDCO for supplying the electricity generated through the solar park to a public grid. In return, Trichy Corp will be equally compensated while paying their electricity bill charged by electricity board for operation and maintenance works.

The Hyderabad Metropolitan Water Supply and Sewerage Board has decided to use solar energy to power 56 of its reservoirs (10 ml and above) in the city. The board has entrusted Telangana State Renewable Energy Corp to conduct a feasibility study on solar energy utilization and aims to run reservoirs on solar energy by next June. The board wants to reduce power consumption. The board is incurring ₹ 80 to 100 billion bill every month from Telangana State Southern Power Distribution Company Ltd to distribute water from the Godavari and the Krishna to city and GHMC periphery. The board has open spaces on reservoir premises to set up solar units and will require 3 MW to run reservoirs. In Phase-1, solar energy will be used in 56 reservoirs and the remaining would be covered in phase-II.

The Nashik urban division of MSEDCL has proposed setting up of solar power plants generating 31.67 MW electricity in rural areas under the Chief Minister Solar Agriculture Feeder Scheme in which farmers will get power during the day for their agriculture needs. Currently, first two of the projects providing solar power needs have been raised in MSEDCL's space and they are generating and supplying power. The number of such solar-powered agriculture feeders is set to go up multi-fold.

India announced that it would extend a \$310 million loan to Zimbabwe to finance a rehabilitation project for a thermal power plant that would entail upgrading the station and extending its lifespan. Hwange is Zimbabwe's second biggest power plant with an installed capacity of 920 MW. India will also extend additional funds of \$23 million for the Bulawayo thermal power plant and \$19.5 million for the Deka pumping and water intake system in Zimbabwe. SB Energy, a domestic arm of the Japanese investment powerhouse Softbank Group, has signed up with the Essel group to jointly develop a 500 MW solar park in the country. The agreement will enable the Masayoshi Son-run Softbank Group to expand its portfolio further in country and is part of aggressive growth strategy adopted. Essel Infraprojects, which is part of the Essel group, is into developing large infrastructure projects across multiple sectors and has been focusing on development of solar assets and enabling infrastructure and has planned multiple similar solar assets across the country.

The Soura Jananidhi scheme in Odisha aims to increase use of solar energy for helping farmers in irrigating their land. 'Soura Jananidhi', is a dug well-based solar pump irrigation system in convergence mode. Under the scheme, 5,000 solar pumps will be given to Odisha farmers at a subsidy of 90 percent to irrigate 2,500 acres of land. In the first phase, the facility will be available for farmers where electricity is not available for operating pump sets. The solar pumps will be given to the beneficiary farmers at a subsidy of 90 percent. A total of ₹ 270 million will be spent for the programme. The new scheme is expected to lessen the cost burden of the farmers.

Delhi launched the second phase of BSES Solar City Initiative Solarise Shakur Basti which seeks to provide installations at a single point for an entire apartment complex. BSES Rajdhani Power Ltd said the distribution company was targeting to realise around 5 MWp of rooftop net metering from the area by the financial year 2019-2020. According to the company, apart from JJ Clusters, the Shakur Basti area is home to several colonies like Paschim Vihar and apartment complexes like IFCI, Saakshara, Matriyi, Navbharat, Pragati, Priyadarshani and

DDA Flats, and has a substantial rooftop solar potential of around 15 MWp. The solar city initiative was promising to be a "game-changer". The first phase of the BSES Solar City Initiative, Solarise Dwarka, was an "extraordinary success" with around 100 societies showing interest and signing up for installing solar capacities of approximately 6 MWp. Of these, around 25 societies which have installed solar capacity of approximately 1.5 MWp, have already been energised or are about to be energised. The work at the remaining societies is underway.

The UT administration has written a letter to different department heads to provide details of spaces available for installation of solar power plants to meet solar energy target set by the Union government. The Union government had selected Chandigarh to be developed as model solar city with a target of generating 69 MW of solar energy by 2022 through net and gross metering. CREST has only managed to install solar power plant with a capacity of 22 MW in last six years. CREST will have to ensure generation of 47 MW within four years to meet the goal. The Central government in 2008 had selected Chandigarh to be developed as a 'model solar city'. Solar rooftop plants have been installed in 260 government buildings and 255 private buildings. The existing solar rooftop plants are generating 28 million units per year. Of the 28 million units, bulk of power has been produced by plants on government buildings.

Russia's state atomic energy corporation Rosatom has manufactured and shipped out a set of equipment for Unit 4 of the KKNPP in Tamil Nadu. The equipment includes moisture separator reheaters (MSR-1000-1). The weight of the separator is 47 tonnes, height is around six metres and diameter is four metres. The life span of the product is 30 years. The KKNPP is jointly constructed by Rosatom and Nuclear Power Corp of India Ltd. Each unit of the plant has a capacity of 1,000 MW. The KKNPP Unit 1 was synchronised with the southern power grid in October 2013. The KKNPP Unit 2 was connected with the grid in August 2016. The agreement for establishment of units 3 and 4 was signed in April 2014. The work on units 5 and 6 has also begun at the site.

Rest of the World

China's newly added solar power capacity fell nearly 20 percent year on year for the January to September period. The NEA said that newly installed solar generation capacity amounted to 34.54 GW in the first three quarters of this year, down from 43 GW a year earlier. After adding a record 53 GW in new photovoltaic capacity over all of last year, China capped total new capacity eligible for subsidies at 40 GW this year as it struggled to pay off a payment backlog of around 120 billion yuan (\$17.2 billion). Renewable energy projects are entitled to a subsidy for each kilowatt-hour of power they sell to the grid, but China is trying to encourage developers to cut costs and achieve price parity with coal-fired power. NEA said that China constructed 17.4 GW of new solar power stations in the first three quarters of this year, down 37 percent compared to a year earlier. The decline in solar plant construction was partially offset by an increase in distributed solar projects built on rooftops or buildings, with added capacity in that subsector rising 12 percent to 17.14 GW over the nine months, NEA said. NEA said that additional renewable power capacity - including wind, hydro and biomass as well as solar - amounted to 55.96 GW in the first three quarters of the year, 69 percent of all power additions over the period. Total accumulated renewable power reached 706 GW by the end of September, up 12 percent from a year earlier. Total solar power hit 164.7 GW, up 37 percent on the year. China's renewable power amounted to 40 percent of its total generating capacity and was more than the entire power capacity of Japan and India combined.

Solar power projects in the northwest Chinese region of Ningxia are struggling to maintain operations and face "bankruptcy risks" because of long subsidy payment delays, according to an investigation by regulators. The warning follows rapid growth in China's solar sector, which has led to a subsidy backlog of 120 billion yuan (\$17.4 billion), with prices for solar power varying wildly from region to region. China wants to bring down renewable energy costs to allow wind and solar projects to compete subsidy-free with coal-fired power. It has already capped the number of new projects this year in a bid to ease its subsidy burden and help the sector focus on efficient supply. The NEA's bureau in charge of northwest China said the payment backlog had forced

many Ningxia projects to take high-interest loans to stay afloat, with some unable to afford basic maintenance. Government-approved solar projects are entitled to a subsidy for each kilowatt-hour they sell to the grid, but the surge in new capacity has left the finance ministry struggling to make the payments on time.

Germany will cut a green energy surcharge on consumers' electricity bills by 5.7 percent next year, but savings for households will be limited as other fees are expected to rise. Germans pay the highest electricity bills in Europe as state-induced taxes and fees account for over 50 percent of power bills. German power network operators said that revenues collected to support green electricity are high and wholesale market prices have risen, allowing renewables producers to rely less on subsidies. Energy regulator the Bundesnetzagentur said renewable producers will add 6 GW of capacity next year.

Vattenfall is considering converting its German coal-fired power stations to use fuels including gas or biomass as utility companies in the country brace for a government deadline for phasing out coal altogether. The end of coal is the latest major challenge power firms face in Germany, whose energy transformation, or "Energiewende", has already included a rushed exit from nuclear power and a costly expansion of solar and wind capacity. German rivals EnBW, RWE and Uniper, have also started to retrofit coal plants for biomass or gas, or are considering such steps to soften the hit to earnings a shutdown of the power stations would entail. In 2017, cheap nuclear power accounted for just 12 percent of Germany's power production, down from 22 percent a decade ago. Meanwhile, the share of renewables in the energy mix more than doubled to a third last year. Germany aims to raise that to 65 percent by 2030 to help cut carbon dioxide emissions and achieve its climate commitments.

Germany is on track to produce enough green power to cover nearly 38 percent of its electricity consumption this year, up from about 36 percent in 2017, energy industry group BDEW and research institute ZSW said. The share of green energy, which also includes biomass and hydropower, reached 36.1 percent of consumption last year, BDEW data shows. In terms of production, green power output in the first three quarters totalled 169 billion kilowatt hours, representing 35 percent of the total, up from 32 percent in the same period last year.

Renewable production as a single category has been nearing or overtaking the contribution of fossil fuels, but this is only possible if there are high wind speeds and enough sunshine. BDEW said that the renewables target of 65 percent by 2030, demanded by policymakers, requires further efforts on power links to transport green power and favourable conditions for storage facilities.

The European Union's competition watchdog approved €200 million worth of state aid to support electricity production from renewable sources for self-consumption in France until 2020. The European Commission said the French government's support program would contribute to add 490 MW of new capacity and was available for small installations. The selected installations would receive a premium on top of the market price over 10 years, it said. Hungary's Paks nuclear power plant powered down one of its four reactors for repairs to a malfunctioning mechanical unit, the plant operator said. It said the repairs would cut capacity at Hungary's only nuclear power generator by 504 MW. The plant began powering down reactor 2. It is due to return to full capacity on 31 October.

The Australian government said it would provide half the funding for the country's biggest trial to produce hydrogen using solar and wind energy, which could then be used as a back-up for gas supplies. The A\$15 million (\$11 million) project is being run by gas pipeline company Jemena, which plans to build a 500 kilowatt electrolyser in western Sydney that will use solar and wind power to split water into hydrogen and oxygen. Most of the hydrogen will then be injected into the local gas network, aiming to show that renewable hydrogen could be used for energy storage in Australia's gas networks, the Australian Renewable Energy Agency said.

South Korean state-utility Korea EWP has completed a 3.5 MW floating solar project at a coal-fired power plant. Modules were deployed on a water body near a coal ash deposit site at the Dangjin power station. The solar facility will produce enough power for the equivalent of 1,600 households. EWP has 434 MW of renewable energy capacity and has targeted 25% of renewables in its energy mix by 2030.

Norway's oil services firm Aker Solutions expects to win a lease off California to build a floating wind farm as part

of a wider consortium. In September, Redwood Coast Energy Authority and a consortium of private companies that includes Aker Solutions applied for a lease to build a 100-150 MW floating offshore wind farm off the coast of Humboldt County by 2024. The project is aimed to help the State of California to reach its ambition to become carbon neutral and use 100 percent clean electricity by 2045. The partners of the consortium bidding for the lease off California said their longer-term goal was to make Humboldt Bay a central hub for the United States west coast offshore wind industry.

Japan's Kyushu Electric Power Co said it restricted third-party solar power supplies over the weekend, marking the first time a Japanese utility has curbed the use of renewable energy to avoid a sudden blackout. The move underscores the need for the country to boost its transmission capacity between regions, to allow it take full advantage of the growth in renewable energy in the wake of the Fukushima nuclear disaster in 2011. The Fukushima disaster prompted a shift toward renewable energy, backed by mandatory preferential rates for solar, wind and other supplies. However, the government changed regulations in 2015, allowing the old utilities, which control the country's transmission grids, to restrict supplies of renewable energy from solar or wind farms if needed to maintain grid stability.

A consortium led by Portugal's EDP Renewables will invest €125 million (\$144 million) over three years in a 25 MW floating offshore wind farm, EDPR's principal shareholder Energias de Portugal said. The project, Europe's second floating wind farm, involves anchoring three turbines on semi-submersible platforms at water depths of up to 100 metres. The wind farm will be in the Atlantic about 20 km (13 miles) off the coast of Viana de Castelo in northern Portugal. The farm's total capacity of 25 MW will be enough to power 60,000 homes for a year. The turbines, each with 8.4 MW capacity, will be the most powerful turbines installed on a floating base at sea, the company said. Norway's Equinor, formerly known as Statoil, launched the world's first floating wind farm last year off the Scottish coast with capacity of 30 MW. It has said floating turbines could be used in areas where the sea was up to 800 metres deep.

KenGen's new 165.4 MW capacity plant powered by geothermal steam is three quarters complete and on

schedule for commissioning next July, Kenya's main electricity producer said. Geothermal steam, hot underground steam found in the Rift Valley which is used to drive turbines for electricity production, is the second biggest source of Kenya's annual power generation of 2,336 MW, accounting for 26.84 percent of the total. KenGen has an installed capacity of 1,631 MW and it plans to add an additional 720 MW by 2020 to cater for growing electricity demand, it said.

The HSBC UK Pension Scheme will invest 250 million pounds (\$328 million) in renewable energy infrastructure in Britain, namely solar plants and wind farms, the firm said. HSBC UK Pension Scheme is one of Britain's largest, with 190,000 members. It made the announcement during the government's "Green GB Week", which aims to raise awareness of the benefits of low-carbon growth. The scheme will acquire operational solar plants and wind farms from developers in Britain. It has not yet selected those acquisitions but aims to have a portfolio of renewable energy generation that could power homes in an area equivalent to the size of Oxford. Renewable energy provides around 30 percent of Britain's electricity.

Israeli construction firm Shikun & Binui said it inaugurated six photovoltaic solar power plants in southern Israel that together would produce 60 MW of electricity. Shikun Southeast Asia is a potential hotspot for renewable energy, yet the region has not met expectations because it lacks policy frameworks that would encourage investment, the IRENA said. In Southeast Asia, though, barring some exceptions such as in Thailand, support for renewables has been smaller, and the region lags far behind others in renewable output despite its potential, especially for solar, geothermal and wind power. One of the factors holding back renewables is the region's abundance of thermal coal, of which Indonesia is the world's biggest exporter. Global renewable capacity, excluding hydro, has soared from under 100,000 MW in 2000 to more than 1 million MW in 2017, according to IRENA data.

Indonesia has enforced mandatory use of diesel containing 20 percent locally produced biofuel amid steps to rein in its fuel bill and cushion the impact on its economy of a currency crisis and higher oil prices. Indonesia made use of the fuel, known as B20,

mandatory in all diesel machinery in the country in a move to curb gasoil imports. Indonesia's use of B20 fuel in the farming sector is likely to increase to 6 million kilolitres next year, from the current nearly 4 million kilolitres.

Hyundai Motor Company and its affiliate Kia Motors Corp are planning to launch a solar charging technology for some Hyundai vehicles to meet global emission regulation targets, the South Korean automakers said. Solar panels will be mounted on the roof or hood of the vehicles, the companies said. The companies are launching three solar charging systems for several types of vehicles, including hybrid and battery electric. Several countries have in recent years set ambitious goals to cut carbon dioxide and nitrogen oxide emissions, bringing carmakers and truck makers under greater scrutiny. Hyundai is set to launch the first generation of the technology for its vehicles after 2019.

Iberdrola's Scottish Power will use offshore wind power to replace the capacity of the gas and hydro power projects it is selling, with wind becoming its sole source of electricity production. Scottish Power, the British arm of the Spanish energy giant, earlier this month announced plans to sell a group of gas, hydro and pumped storage power plants for 702 million pounds (\$900 million) to British power generator Drax. The sale makes Scottish Power the first of Britain's big six energy suppliers to shift to 100 percent renewable electricity generation but it will more than halve its UK capacity. Scottish Power already owns around 2,000 MW of operational on and offshore wind projects in the UK and plans to more than double this, with new East Anglia wind projects off the east coast of England set to replace the lost generation. The 2.5 billion pound East Anglia One project will, at 714 MW of capacity, produce enough electricity to power around 600,000 homes in 2020. The company is also developing the East Anglia Three windfarm, which at 1,200 MW could power around 890,000 homes. At the East Anglia One site Iberdrola has installed 37 of 102 jacket foundations which will provide the base to house the near 200 meter high turbine towers for the project.

The French government will decide on whether or not to build a new generation of EPR reactors between 2021 and 2025. France's nuclear industry could be asked to draw an "industrial plan" by mid-2021 that would

guarantee future EPR reactors are able to produce energy at a reasonable price, estimated between 60 and €70 per megawatt. The long-awaited plan (PPE) will outline how and by when France will reduce the share of nuclear energy in electricity generation, currently at about 75 percent, and is a crucial factor in the investment planning of state-owned utility EDF, which operates France's 58 nuclear reactors.

Russia and Uzbekistan started preliminary work on the Central Asian nation's first nuclear power plant project which Moscow estimates will cost \$11 billion.

China's State Power Investment Corp is in talks to acquire two additional hydroelectric dams and thermal plants in Brazil. One of the hydroelectric dams is Usina Três Irmãos, 800 MW dam in Sao Paulo state, controlled by Brazil's infrastructure group TPI- Triunfo Participações e Investimentos SA. The Chinese power company is also expected to present a binding offer by the end of the month for the control of the Santo Antonio hydropower dam, in the northern state of Rondonia. Talks to acquire the dam have been ongoing for almost two years. State Power is also considering a bid for two coal thermal plants that France's Engie SA owns in the southern Brazilian states of Santa Catarina and Rio Grande do Sul. Engie put the plants for sale six months ago.

Congo signed a joint deal with a consortium led by China Three Gorges Corp and another Spanish-led consortium to develop its \$14 billion Inga 3 hydroelectric project. Inga 3 is part of a \$50 billion-\$80 billion project to expand hydroelectric dams along the Congo River, but it has repeatedly been delayed by red tape and disagreements between Congo and its partners.

MW: megawatt, GW: gigawatt, kWh: kilowatt hour, PV: photovoltaic, Ind-Ra: India Ratings and Research, MNRE: Ministry of New and Renewable Energy, FY: Financial Year, MWp: megawatt peak, TANGEDCO: Tamil Nadu Generation and Distribution Corp, UP: Uttar Pradesh, MSEDCL: Maharashtra State Electricity Distribution Company Ltd, UT: Union Territory, CREST: Chandigarh Renewal Energy, Science and Technology Promotion Society, KKNPP: Kudankulam Nuclear Power Plant, NEA: National Energy Administration, EWP: East-West Power Company, km: kilometre, UK: United Kingdom, IRENA: International Renewable Energy Agency

NATIONAL: OIL

India signs initial pact to lease half of Padur storage to ADNOC

12 November. Abu Dhabi National Oil Company (ADNOC) has signed a preliminary agreement to use half of the Padur strategic reserve facility in Southern India, which can store about 2.5 million tonnes or 18 million barrels of crude, the United Arab Emirates (UAE) firm said. Indian Strategic Petroleum Reserves Ltd (ISPRL) and ADNOC signed the Memorandum of Understanding in the presence of Indian Oil Minister Dharmendra Pradhan and ADNOC Chief Executive Officer Sultan al-Jaber. India, the world's third biggest oil importer, is scouting for partners to fill the reserves and to build new storage to hold oil reserves and to cut costs. India, which relies on oil imports for about 80 percent of its needs, has built underground emergency storage in three places to protect itself from any disruption. The reserves can hold 36.87 million barrels or about 9.5 days of average demand. ADNOC, the only foreign company with a deal to store oil in India's strategic reserves, has a similar storage deal already at the Mangalore strategic storage in Karnataka. The agreement allows ADNOC to sell oil to local refiners but would give the government of India the first right to the oil held in the reserve in case of an emergency. Pradhan said that India was also in talks with Saudi Arabia to store oil in Padur, after India's cabinet approved a plan last week allowing foreign firms to store oil in the facility.

Source: Reuters

Government mulls selling 149 fields of ONGC to private companies

11 November. The government is mulling selling as many as 149 small and marginal oil and gas fields of ONGC (Oil and Natural Gas Corp) to private and foreign companies and allow the state-owned firm to focus only on big fields. On the anvil is some kind of

extension of the Discovered Small Field (DSF) bid round where discovered and producing fields of ONGC are auctioned to firms offering the maximum share of output to the government. This is the second attempt by the oil ministry to take away some of the fields of ONGC for private and foreign companies. In October last year, the Directorate General of Hydrocarbons (DGH) had identified 15 producing fields with collective reserve of 791.2 million tonnes of crude oil and 333.46 billion cubic meters of gas of national oil companies for handing over to private firms in the hope that they would improve upon the baseline estimate and its extraction. The plan, however, could not go through as ONGC strongly countered the DGH proposal with its own suggestion that it be allowed to outsource operations on same terms as the government plan. The current plan started as a follow up of the 12 October meeting called by Prime Minister Narendra Modi to review domestic production profile of oil and gas and the roadmap for cutting import dependence by 10 percent by 2022. At a meeting, the ministry made a presentation showing that while 95 percent of ONGC's production was from 60 large fields, 149 smaller fields contributed to a mere five percent. It was suggested at the meeting that these smaller fields could be given out to private and foreign firms and ONGC could concentrate on the big ones where it could rope in technology partners through production enhancement contracts (PEC) or technical service arrangements. ONGC, however, is opposed to the plan as it feels it should be allowed the same terms that the government extends to private and foreign firms in DSF. The government gave out 34 fields to private firms by offering them pricing and marketing freedom for oil and gas they produced from the fields in the first round of DSF. A second round of DSF with 25 fields on offer is currently under bidding.

Source: Business Standard

LPG prices hiked by over ₹ 2 after government raised dealers' commission

9 November. Domestic cooking gas LPG (liquefied petroleum gas) prices have been hiked by over ₹ 2 per cylinder after the government increased the commission paid to LPG dealers. A 14.2 kilogram (kg) subsidised LPG cylinder in Delhi will now cost ₹ 507.42 as against ₹ 505.34 previously, according to a price notification of state-owned fuel retailers. This followed an order of the oil ministry that raised the dealer's commission. In that order, the ministry said the domestic LPG distributors' commission for 14.2 kg cylinder and 5 kg cylinder was last fixed at ₹ 48.89 and ₹ 24.20 respectively in September 2017. This is the second increase in rates this month, the earlier one being on 1 November, when prices went up by ₹ 2.94 per cylinder because of tax component on the base price. Since June rates have gone up every month because of the GST paid on higher base price and cumulatively prices have risen by ₹ 16.21. In Mumbai, a 14.2 kg LPG cylinder now costs ₹ 505.05 while in Kolkata it is priced at ₹ 510.70. Chennai has a price of ₹ 495.39. The new dealer's commission will be made up of ₹ 30.08 establishment charges and ₹ 20.50 delivery charges for a 14.2 kg cylinder. For 5 kg cylinder, the establishment charges have been fixed at ₹ 15.04 and the rest ₹ 10.25 are delivery charges, the ministry order said. Customers who collect their refills directly from distributor's premises will continue not to be charged for delivery, it said. Before the hike, the dealer's commission was made up of ₹ 29.39 establishment charges and ₹ 19.50 delivery charges for a 14.2 kg cylinder. For 5 kg bottle, the establishment charges were ₹ 14.70 and delivery charges ₹ 9.50. All LPG consumers have to buy the fuel at market price. The government, however, subsidises 12 cylinders of 14.2 kg each per households in a year by providing the subsidy amount directly in bank accounts of users. This subsidy amount varies from month to month depending on the changes in the average international benchmark LPG rate and foreign exchange rate. When international rates move up, the government provides a higher subsidy. But as per tax rules, GST on LPG has to be calculated at

the market rate of the fuel. The government may choose to subsidise a part of the price but tax will have to be paid at market rates. On 1 November, the non-subsidised or market price LPG rates went up by ₹ 60 per cylinder to ₹ 939. Because of the rise in dealer's commission, the price is now ₹ 942.50 per 14.2 kg cylinder.

Source: *Business Standard*

Hit by crude prices, rupee, India's oil demand to recover in 2019: Fitch

8 November. Indian oil demand, which faced substantial pressures in 2018 because of rising rates and a weakened rupee, is set for recovery next year, Fitch Solutions Macro Research said. It put fuel consumption growth at 6 percent in 2019, up from 5.5 percent this year. The world's third largest oil consumer will, however, not be able to replicate the strength of China's demand, with growth becoming increasingly diversified across emerging markets. While the combination of rising international oil prices and weakened rupee dampened if not derailed growth in 2018, Fitch Solutions was "more bullish" on demand for 2019, given supportive economic policies, currency stabilisation and a slower rise in the price of crude. Fitch Solutions said it was more bullish on demand for 2019, given supportive economic conditions, currency stabilisation and a slower rise in the price of crude.

Source: *Business Standard*

Petrol, diesel prices cut once again after Diwali

8 November. Petrol and diesel prices in New Delhi witnessed a drop and will be sold at ₹ 78.21 per litre (decrease by 21 paise) and ₹ 72.89 per litre (decrease by 18 paise) respectively. In Mumbai, a litre of petrol is being retailed at ₹ 83.72 (decrease by ₹ 0.20), while diesel is being sold at ₹ 76.38 per litre (decrease by ₹ 0.19). Fuel prices had earlier witnessed a relentless hike in the country, burning a hole in the commuter's pocket. In this regard, Union Finance Minister Arun Jaitley had announced a reduction of ₹ 2.50 per litre on both petrol

and diesel prices after curbing excise duty on the commodity by ₹ 1.50 per litre and urged respective state governments to slash the same amount at their end.

Source: *Business Standard*

Chandigarh sees 78 percent hike in sale of diesel, 19 percent in petrol

7 November. The Petrol Pump Dealers' Association of Punjab (PPDAP) has alleged that with just 42 retail outlets in the city, Chandigarh has shown a phenomenal growth of 78.1% in sale of diesel and 19% in sale of petrol during the first half of this financial year. Chandigarh sees 78 percent hike in sale of diesel, 19 percent in petrol. This was pointed out by members of the PPDAP while showing resentment against the Punjab government decision on not lowering VAT on petrol and diesel after the Centre reduced the rate by 2.5%. Interestingly, till September-end this year, Punjab had a maximum of 3,451 retail outlets. Haryana, J&K, New Delhi, Himachal and Chandigarh had 2,918, 506, 438, 395 and 42 outlets, respectively. PPDAP said the disparity in petrol and diesel prices had hit the businesses of petrol pump owners in the border districts of Sangrur, Patiala, Bathinda, Gurdaspur, Mohali, Fatehgarh Sahib, Ropar, Hoshiarpur, Gurdaspur and Mansa.

Source: *The Economic Times*

IOC's scaled up pipeline capacity matches its 15 mt Paradip refinery

7 November. Indian Oil Corp (IOC) has ramped up its pipeline capacity to match the rated capacity of its 15 million tonne per annum (mtpa) crude oil refinery at Paradip. The scaling up of pipeline capacity will help the oil major in evacuation of products from the refinery. The IOC board had, in October, accorded final approval to the 344 kilometre (km) pipeline project from Paradip to Haldia via Somnathpur for evacuating products from the refinery. The new pipeline will see an investment of ₹ 13.32 billion for transfer of products like HSD (high speed diesel), Kerosene (SKO) and MS (motor spirit). The approved pipeline is slated to be commissioned within the next 36 months and has a capacity of 4.6 mtpa.

IOC (Pipeline Division) under the aegis of South Eastern Region Pipelines (SERPL), Bhubaneswar has already started work for laying of 1,212 km dedicated product pipeline along with optical fibre cable for evacuation of white oil products -- MS, high speed diesel (HSD), SKO (kerosene) and aviation turbine fuel (ATF) from Paradip refinery to depots in Odisha, Andhra Pradesh and Telangana. The proposed pipeline is off 4.5 mtpa capacity. It will provide connectivity to a new grass root depot at Berhampur in Odisha, and also to IOC's existing depots at Vizag, Rajahmundry and Vijayawada in Andhra Pradesh and Hyderabad in Telangana, along with associated facilities at Paradip refinery and at Rajahmundry and Vijayawada depots. IOC has already commissioned its Paradip-Raipur-Ranchi pipeline (PPRPL) for evacuation of products from its Paradip refinery. The 1070 km pipeline ensures uninterrupted supply of products of Paradip refinery to major parts of Odisha, Chhattisgarh and Jharkhand and has five mtpa capacity. IOC's 15 mtpa capacity refinery at Paradip is spread over an area of 3,345 acres, built with an estimated cost of ₹ 345.55 billion. The refinery can process 100 percent high-sulphur and heavy crude oil to produce various petroleum products, including petrol and diesel of BS-IV quality, kerosene, aviation turbine fuel, propylene, sulphur, and petroleum coke.

Source: *Business Standard*

NATIONAL: GAS

GAIL struggles to find gas buyers in West Bengal

13 November. With GAIL (India) Ltd putting its gas pipeline projects on the fast track, the company has gone on an overdrive to get customers, even though the

QUICK COMMENT
Struggle to find buyers for clean natural gas in India highlights the lack of policy push!
Bad!

response has been poor in states such as West Bengal. A pipeline that can carry 9 million metric cubic metres a day

of gas is going through West Bengal, but there are not enough takers for this gas yet, which is posing a hurdle for GAIL. GAIL said that West Bengal Power Development Corp (WBPDC) could have been a potential buyer and a big beneficiary of the gas pipeline, but they have relented — only signing a city gas distribution supply agreement. While GAIL has approached WBPDC to put up a gas-based thermal power plant, especially at the Bandel Thermal Power Station, where four units of 60 MW each are being scrapped, the state's power department has not yet taken any in-principle decision on it. GAIL's pipeline runs within a kilometre or two from the Bandel

Source: *The Financial Express*

PNGRB puts up 50 cities on offer in 10th city gas licensing round

8 November. Oil regulator PNGRB (Petroleum and Natural Gas Regulatory Board) put up for bidding 50 cities including Gwalior in Madhya Pradesh, Mysore in Karnataka, Ajmer in Rajasthan and Howrah in West Bengal for grant of licence to retail CNG (compressed natural gas) and piped natural gas. PNGRB offered 50 geographical areas (GA), carved out by clubbing adjoining districts in 12 states, in the 10th round of bidding for city gas licences. Bids are due by 5 February, according to PNGRB. Bidders have been asked to quote the number of CNG stations to be set up and the number of domestic cooking gas connections to be given in the first eight years of operation. Also, they have to quote the length of pipeline to be laid in the GA and the tariff proposed for city gas and compressed natural gas (CNG), according to PNGRB. The bid round comes within months of the close of the 9th round, which was the biggest ever city gas distribution licensing round where 86 permits for selling CNG and piped cooking in 174 districts in 22 states and union territories were offered. The government is targeting raising share of natural gas in the primary energy basket to 15 percent from current 6.2 percent, in the next few years and the bid rounds are aimed at fulfilling that objective. PNGRB said any entity

with security CGD (city gas distribution) licence would have to enter into a firm natural gas supply agreement with a natural gas producer or marketer in a transparent manner on the principle of 'at an arm's length' within 180 days of winning a licence. The authorised entity has to achieve financial closure within 270 days from the date of grant of licence. The winning company would have 8 years of marketing exclusivity in the given city. Licences given prior to 9th round provide for 5 years of exclusivity. In the 9th round, which closed in July, billionaire Gautam Adani's group, Indian Oil Corp (IOC), Bharat Petroleum Corp Ltd (BPCL) and Torrent Gas were the big winners. Adani Gas won rights to retail CNG to automobiles and piped cooking gas to households and industries in 13 cities on its own and another nine in a joint venture with IOC. IOC on its own won rights to seven cities while Bharat Gas Resources Ltd, a unit of state-owned BPCL, won a licence for 11 cities. Torrent Gas made 10 winning bids. GAIL (India) Ltd's retailing arm, GAIL Gas, managed rights for five cities. Prior to the 9th round, 91 GAs were awarded to firms like Indraprastha Gas and GAIL Gas, which are serving 240 million population, 42 lakh domestic consumers and 3.1 million CNG vehicles. Of these, 56 GAs were awarded through bidding rounds and the rest on government nomination.

Source: *Business Standard*

GAIL purchases steel pipes worth ₹ 11 bn for Barauni-Guwahati gas pipeline

8 November. GAIL (India) Ltd said it has purchased steel pipes worth ₹ 11 billion for laying the Barauni-Guwahati gas pipeline, putting on fast track the implementation of the project that will connect the north-east with the national gas grid. Work on the 729 kilometre (km) pipeline, which will act as a branch line from the prestigious Pradhan Mantri Urja Ganga pipeline project, will commence from December, the company said. Work across India's single largest pipeline spanning 3,400 km under Jagadishpur-Haldia-Bokaro-Dhamra project - also known as Pradhan Mantri Urja Ganga, is in

full swing and progressing as per schedule, it said. GAIL Chairman and Managing Director B C Tripathi said the award of the tenders supports 'Make in India' efforts of steel pipe manufacturers and suppliers in the country and marks the completion of mainline ordering for the entire 729 km section. The Barauni-Guwahati pipeline will connect to the 'Indradhanush' gas grid network, which is being developed by GAIL along with joint venture partners Indian Oil Corp, Oil India Ltd, Numaligarh Refineries Ltd and Oil and Natural Gas Corp to provide uninterrupted supply of natural gas across all the North Eastern states. GAIL said work on the pipeline originating from Jagdishpur in Uttar Pradesh to Haldia in West Bengal and branch lines to Bokaro in Jharkhand and Dhamra in Odisha is in full swing.

Source: *Business Standard*

NATIONAL: COAL

India to overtake Australia, US as world's second-largest coal producer: IEA

13 November. India is projected to overtake Australia and the United States (US) in early 2020s to become the world's second-largest coal producer in energy terms behind China, International Energy Agency (IEA) has said in its latest World Energy Outlook 2018 report. India is estimated to produce 955 Megatonne of coal equivalent (Mtce) in 2040 as compared to 395 Mtce produced in 2017, growing at an annual rate of 3.9 percent, the report said. Also, the report projects that India will become the largest coal importer, overtaking China through 2020s. The country's coal imports are expected to reach 285 Mtce in 2040 from 172 Mtce in 2017. It said India has set ambitious targets for domestic coal production but imports nonetheless rise, especially for coking coal as domestic resources are insufficient to meet growing demand from the iron and steel industries. Under the IEA's New Policies Scenario, cumulative capital spending in the coal supply chain is estimated to amount to \$1

trillion up to 2040, with an annual average capital spending of \$43 billion per year. Coal's share in India's electricity generation is expected to go down to 48 percent in 2040 from 74 percent in 2017. In the meantime, share of renewable energy in the country's electricity generation is expected to go up to 38 percent in 2040 from 16 percent in 2017. According to IEA's analysis, there are a number of potential bottlenecks in India which could affect the pace of coal production capacity expansion and the delivery of adequate quantities to various users. The report states that despite an overhaul of the coal allocation system, as of April 2018, more than 50 million tonne of coal is stockpiled at mines awaiting transportation, leading to imports.

Source: *The Economic Times*

India's coal imports rise 8 percent to 134 mt in the April-October

12 November. India's coal imports rose by 7.9 percent to 134.46 million tonnes (mt) in the first seven months of the current fiscal, according to mjunction services. The country imported 124.57 mt of coal in the corresponding period of previous fiscal. However, there was a 6.8 percent drop in coal and coke imports in October as compared to 19.77 mt imported during the same month last financial year. Coal and coke imports during October through 31 major and non-major ports are estimated to have increased by 3.55 percent over September in the ongoing financial year. The government had earlier said that during 2017-18, coal imports increased to 208.27 mt due to increase in demand by consuming sectors.

Source: *The Economic Times*

CIL aims 60k tonnes a day output from Rajmahal mine

10 November. Coal India Ltd (CIL) aims to raise output from its troubled Rajmahal mine in Jharkhand to 60,000 tonnes a day by March 2019, having resolved land-

acquisition related problems which had crimped production to 20,000 tonnes per day. Coal from the Rajmahal mine helps NTPC Ltd run close to 4,200 MW of power generation plants in eastern India, which supply power to Bihar, Jharkhand and West Bengal, and also to northern India including Delhi and Uttar Pradesh. NTPC's generation capacities were faced with depleting coal stocks and lower power generation as supplies from Rajmahal dwindled. Reserves at Rajmahal within the land acquired by CIL were almost exhausted and required expansion to keep production levels intact. However, land acquisition at two villages – Bansbiha and Taljhari—spanning 160 hectares, adjacent to the existing project turned out to be a lengthy process, as sorting out ownership issues resulted in inordinate delay. It led to drastic fall in supplies and stocks at the coalfield, as well as at two critical power plants in the region—at Farakka and Kahalgaon. At present, CIL is using 15 goods trains to transport coal from the Rajmahal mine to power stations in the region. One goods train can load up to 3,500 tonnes of coal. CIL is sending five loaded goods trains from West Bengal's Raniganj coalfields to augment supplies at power stations.

Source: *The Economic Times*

NTPC under-recovery flags coal supply crisis

9 November. That a large part of NTPC Ltd's reported under-recoveries of ₹ 210 crore in Q2FY19 was due to unavailability of coal exacerbated the coal supply crisis in

QUICK COMMENT

Under-recovery on account of coal availability exposes persistence of governance challenges in the coal sector!

Ugly!

the country. The company had reported ₹ 1,400 crore of under-recovery in FY18, of which ₹ 800 crore was due to coal shortage. The company's net profit slipped 1.1% year-on-year (y-o-y) to ₹ 2,417.6 crore in the quarter. Fuel

stock at NTPC's power plants remains low with current coal stock of 3.7 million tonnes (mt) from a high of 6.9 mt. In the first half of FY19, NTPC's under-recovery due to coal shortage at 2,320 MW Mouda plant, 2,000 MW Simhadri station and 2,400 MW Kudgi unit was ₹ 156 crore, ₹ 78 crore and ₹ 25 crore, respectively. NTPC had received 168.5 mt coal in FY18, which includes 0.32 mt of imports. Requirement for FY19 is estimated to be 196.3 mt. NTPC has already extracted 2.5 mt coal from Pakri Barwadih mine in the first six months of FY19, against the annual production target of 6.3 mt. Additionally, 4,000 tonne have been produced from the Dulanga mine, which expects to produce 1.7 mt in FY19. NTPC has also floated a tender to import 2.5 mt of coal, but the state-owned company risks being seen as an import driver as the country desperately tries to cut import bills amid the rupee devaluation. India's coal import went up from 171 mt in FY14 to 208 mt in FY18.

Source: *The Financial Express*

GIDC to apply for coal block allocation

9 November. Goa Industrial Development Corporation (GIDC) proposes to make a fresh attempt for coal blocks and is in the process of applying to the Union ministry of coal seeking allocation of a coal block, outside Goa, under the government route or captive route. The coal from these blocks shall be utilized for generation of power for industries in the state, GIDC said. According to GIDC, the Union ministry wrote to the state government a few months ago informing that new coal blocks were in the process of being allocated to states and state government corporations. This July, the coal ministry issued directions to allocate 27 more coal mines including two coal mines for state governments or state-run corporations. An earlier attempt to source coal and then supply it to a private power company failed miserably in 2014 when the Supreme Court quashed the allocation of the Gare Pelma sector-III coal block in Chattishgarh, along with many others on the grounds that

the allocations were done in an arbitrary, non-transparent manner and were against public interest. The block, which was allotted on 12 November 2008, was supposed to take care of the state's power needs – both domestic and industrial – for five to 10 years. The Supreme Court's decision to cancel the allocation poured cold water on GIDC's dreams which had to relinquish the Gare Pelma sector-III coal block. In January this year, the NDA-led government at the Centre allotted 11 large coal blocks to three Coal India Ltd (CIL) subsidiaries, including five blocks which were de-allocated by the Supreme Court in 2014.

Source: *The Economic Times*

NATIONAL: POWER

Government mulls round 2 of 2.5 GW medium-term PPA auction

13 November. Buoyed by a good response for the first tender of mid-term (3 years) power purchase agreement (PPA) auction, the power ministry will bring its second round for 2,500 MW capacities to give relief to stressed power assets, Power Secretary A K Bhalla said. A PPA is a prerequisite for getting coal supplies for power plants. Power sector is facing stress due to coal shortage and other issues. Many power projects are starving for coal in the absence of PPAs. The government's scheme to auction 2,500 MW medium-term PPAs evoked good response and PPAs for 1,900 MW capacities were signed under the scheme last month. The power ministry in April 2018 had issued guidelines for a pilot scheme to facilitate aggregation of procurement of power (2,500 MW for 3 years) from commissioned coal-based power plants through competitive bidding. The power procuring distribution companies were Telangana and Tamil Nadu for 550 MW each, West Bengal and Bihar for 200 MW each. Haryana consented to sign for 400 MW.

Source: *Business Standard*

Vedanta's commercial power sales up 19 percent on electricity demand revival

7 November. Led by revival in electricity demand, Vedanta recorded a 19 percent rise in its commercial power sales during July-September quarter. Total power sales from all generating units during the period stood at 3,514 million units (MUs) as against 2,950 MUs in the comparable period of last fiscal year. Vedanta's coal-fired generating unit at Jharsuguda of 600 MW and Hindustan Zinc Ltd's (HZL) unit were the key drivers of power sales. The Jharsuguda power station logged 35 percent year-on-year growth in power sales in Q2FY19 after a tepid performance in the last fiscal year. HZL's power sales were up 29 percent in the period under review, according to an investor presentation by Vedanta. Total power generation capacity by Vedanta-owned units stands at 9,000 MW. Of this, 5,100 MW is meant for captive consumption and the rest for commercial sales.

Source: *Business Standard*

On Diwali eve, Ranchi becomes Jharkhand's 4th district to get 100 percent power connectivity

7 November. All households in Ranchi district now have access to power supply, Chief Minister (CM) Raghubar Das announced. And by 2019, the CM promised, these households will have 24-hour power supply. With this, the district became the fourth - after Ramgarh, Bokaro and Dhanbad - to achieve 100% electrification of its households. One such project in the pipeline is a 4,000 MW power plant at Patratu in Ramgarh, work on which the Centre has begun. The government plans on promoting sustainable power generation. By the end of the year, the government hopes to extend power connectivity to all rural households in the state. Only 38 lakh rural households had power supply access till 2014. About 30 lakh did not. In the last three years, JBVNL (Jharkhand Bijli Vitaran Nigam Ltd) statistics show, 10 lakh new connections were given.

Source: *The Economic Times*

NATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

India's solar power capacity addition down 44 percent in first half of current fiscal

13 November. India's solar power capacity addition is slowing down as the country added only 1,900 MW in the first six months of the current financial year (April-September 2018-19), down 44 percent as compared to the solar capacity added in the same period last year, according to consultancy firm Bridge to India. The generation capacity of 1,200 MW added in the quarter ended September, too, was 43 percent less than the capacity addition achieved in the corresponding quarter last fiscal. Bridge to India Managing Director Vinay Rustagi said the sector is witnessing increasing volatility in tender issuance, auctions and capacity addition because of poor coordination between different government agencies and constraints in transmission capacity and land acquisition. Some of the large companies which added fresh solar power generation capacity in the September quarter included Softbank (400 MW) and ACME (300 MW). Among the states, 55 percent of the total capacity came up in Rajasthan alone. The country's total solar capacity reached 27,400 MW at the end of September 2018, including 223,200 MW of utility scale and 3,400 MW of rooftop solar projects apart from 800 MW off-grid solar. According to Rustagi, the best case estimate for solar capacity by March 2022 stands at 67,000 MW – well short of the 100,000 MW target set by the government unless “decisive remedial steps” are taken immediately. However, rooftop solar has come up as a bright spot -- which is growing at 70 percent annually -- within the solar power market.

Source: *The Economic Times*

MNRE seeks stakeholders' feedback on IWTCS

13 November. The Ministry of New and Renewable Energy (MNRE) said it has circulated the draft Indian Wind Turbine Certification Scheme (IWTCS) for ensuring the quality of the wind energy projects in the country. The MNRE in consultation with the National Institute of Wind Energy Chennai has prepared a draft of

new scheme called Indian Wind Turbine Certification Scheme (IWTCS) incorporating various guidelines. The IWTCS is a consolidation of relevant National and International Standards, technical regulations and requirements issued by the Central Electricity Authority, guidelines issued by the MNRE and other international guidelines. It has strived to incorporate various best practices from other countries to ensure the quality of the wind energy projects. The ministry has uploaded the draft scheme on its website and has invited comments from all stakeholders/public latest by 5 December 2018, for finalising the new scheme.

Source: *Business Standard*

India to develop technology to reduce climate impact of cooling by five times

12 November. The government is working on developing a new technology for residential Air Conditioning (AC) units that will help reduce climate

QUICK COMMENT
Cooling technologies are a big part of climate change adaptation in India!
Good!

impact of cooling by five times. The Ministry of Science & Technology announced the launch of Global Cooling Prize, an international competition to incentivize the development of the technology. Over \$3 million will be awarded in prize money over the course of the two-year competition. Up to 10 short-listed competing technologies will be awarded up to \$200,000 each in intermediate prizes to support the design and prototype development of their innovative residential cooling technology designs. The winning technology will be awarded at least \$1 million to support its incubation and early-stage commercialisation. The announcement was made by Harsh Vardhan, Union Minister of Science, Technology & Earth Sciences and Environment, Forests and Climate Change at an event. The energy

consumption associated with comfort cooling represents one of the largest end-use risks to the climate. There are currently 1.2 billion room AC units in service around the world. The number of units is expected to increase to 4.5 billion by 2050. Over 1 billion units are expected to be deployed in India by 2050.

Source: *The Economic Times*

Solar energy to add power to NMRC's metro stations

12 November. Solar energy would add power to all stations of Noida-Greater Noida Metro Rail corridor's Aqua Line that would be operational soon, the Noida Metro Rail Corp (NMRC) said. The NMRC entered into an agreement with a private firm for the solar energy project of the Aqua Line which would run between Sector 71 station in Noida and the Depot Station in Greater Noida, covering 29.7 km through 21 stations, it said. A total 10 MW power would be generated by the solar panels which would be use at the metro stations, the depot and in the parking areas, it said. The NMRC would be charged at ₹ 3.25 per unit for the power, which, it claimed, is the "lowest tariff" for any metro rail service using solar power.

Source: *Business Standard*

BHEL commissions 120 MW Pulichintala hydro power plant in Telangana

12 November. BHEL (Bharat Heavy Electricals Ltd) said that with the completion of fourth and final 30 MW unit, it has completely commissioned 120 MW Pulichintala Hydro-Electric Project (HEP) in Telangana. The other three units of the 4x30 MW Pulichintala HEP, commissioned earlier by the BHEL have been operating successfully, BHEL said. According to the BHEL, located in Suryapet district of Telangana, the greenfield project was set up for Telangana State Power Generation Corp Ltd on river Krishna. Power generation from Pulichintala HEP will contribute significantly in reduction of greenhouse gas emissions towards achieving a low carbon development path for the nation.

Source: *Business Standard*

Government serious on renewable energy: JERC

12 November. Chairperson of the Joint Electricity Regulatory Commission (JERC) M K Goel said the government is serious about promoting renewable energy. It is wrong to assume that JERC has vested interests in promoting thermal energy alone, he said. He said the department cannot refuse connections citing the excuse that its transformers are overloaded.

Source: *The Economic Times*

Researchers develop device to store solar power in water

9 November. The renewable energy school under NB Institute for Rural Technology (NBIRT), headed by solar power expert S P Gon Chaudhuri, has come up with a prototype of an integrated machine that will store solar power in water for 24 hours. The ministry of science and technology has allocated ₹ 2.7 crore to initiate a pilot project to develop this integrated machine for a mass solar-hydel project in Assam. NBIRT scientists and Viswa Bharati researchers will work on it. The scientist said the integrated machine has five parts: a solar panel, a micro-solar pump, a micro-hydel equipment, a water tank and a water reservoir.

Source: *The Economic Times*

Telangana State-run MCR HRD Institute saves big with solar energy

8 November. The Telangana State-run MCR HRD Institute has opted for renewable energy to meet a part of its power needs. The Institute has completed Phase I of its solar power system, under which it installed a 500 kilowatt peak (kWp) on the roof of the building. The total cost of the project was ₹ 219 lakh. The Central subsidy, which the Institute will get is approximately ₹ 50 lakh. The electricity generated from the installation will contribute to a saving of ₹ 6 lakh a month in power bills. Phase II of the rooftop solar power system with a capacity of 500 kWp will be taken up soon. After completion, the savings on electricity bills will be ₹ 12 lakh a month.

Source: *The Hindu Business Line*

INTERNATIONAL: OIL

Nigeria will raise oil production to 1.8 mn bpd in 2019: NNPC

13 November. Nigeria will increase its oil production to 1.8 million barrels per day (bpd) in 2019 and raise condensate production to 0.5 million bpd, Nigerian state oil firm NNPC said. Nigeria currently produces 1.6 million bpd of oil and 0.4 million bpd of condensate, NNPC said. NNPC is in the final stages of talks with consortiums including top traders, energy majors and oil services companies to revamp its long-neglected oil refineries in an effort to reduce its reliance on imported fuel. NNPC imports about 70 percent of Nigeria's fuel needs, mainly gasoline, via swap contracts. It has contracts, known as direct sale direct purchase agreements, with 10 consortiums that include trading houses Vitol, Trafigura, Mercuria and Total.

Source: Reuters

Digitalization can save oil upstream business \$73 bn a year: Woodmac

12 November. Energy firms could save an annual \$73 billion within five years in oil and gas exploration and production by making better use of existing computing technology, energy consultancy Wood Mackenzie said. The consultancy saw big savings from using technology that would make drilling faster, more accurate and less likely to end up with a dry well, and by using applications to predict when maintenance would be needed. Woodmac estimated the industry could save up to \$12 billion a year on drilling, mostly in onshore and shallow waters. The US shale industry, which uses a cocktail of high-pressure water and chemicals to coax crude from rock deep underground, known as hydraulic fracturing or fracking, could also offer insights to conventional drillers. In offshore drilling, where rig rates tend to drive costs, the industry overall might be able to use rigs for 2,000 fewer days through more digitalization and automation, Woodmac said.

Source: Reuters

Venezuela hoping to steeply raise oil output next year

11 November. Venezuela is hoping to steeply raise oil output next year but will respect any new deal if OPEC (Organization of the Petroleum Exporting Countries) agrees to reduce output from December, Oil Minister Manuel Quevedo said. The south American OPEC nation's current oil output is 1.5 million barrels per day and it aims to increase that by 1 million bpd "soon", he said. A majority of OPEC and allied oil exporters support a cut in the global supply of crude, Oman Oil Minister Mohammed bin Hamad al-Rumhi said earlier in the Emirati capital. Saudi Arabia is discussing a proposal to cut oil output by up to 1 million barrels per day by OPEC and its allies.

Source: Reuters

Iran sells more oil to private exporters to bypass US curbs

11 November. Iran sold 700,000 barrels of crude oil to private companies for export in a second round of sales aimed at countering US (United States) sanctions on the country's exports, the oil ministry said. Three unnamed companies paid \$64.97 per barrel for two crude shipments of 245,000 barrels each and one shipment of 210,000 barrels, which were traded on Iran's energy bourse. Iran began selling crude oil to private companies for export in late October, just ahead of US sanctions on sectors including oil which came into effect on 5 November. Crude oil trade is state-controlled in Iran. Earlier, private refining companies could only buy crude oil for exports of oil products. Iran said in July it would start oil sales to private firms as part of its efforts to keep exporting oil and would take other measures to counter sanctions after the United States told allies to cut all imports of Iranian oil from November.

Source: Reuters

Total plans new offshore Angola well to boost oil output

10 November. French oil company Total said it plans to drill 13 wells on block 17, offshore Angola, in order to maintain production of 400,000 barrels per day of crude until 2023 in Africa's second largest crude producer. The company said the wells, which will connect marginal fields to existing floating platforms, would be divided between two projects. CLOV 2 will involve drilling seven additional wells to produce 40,000 barrels of oil per day. First oil is expected in 2020. Dalia 3 will see six new wells drilled, producing 30,000 barrels per day, with oil coming onstream from 2021. The projects, along with the previously announced Zinia 2, will enable Total to maintain production from block 17 of more than 400,000 barrels per day, the company said.

Source: Reuters

Iraq and Saudi Arabia agree to work together to stabilise oil markets

10 November. Iraq and Saudi Arabia agreed to work together to stabilise oil markets, Iraq's oil ministry said. Iraq currently pumps around 4.6 million barrels per day (bpd) of oil, second only to Saudi Arabia in the Organization of the Petroleum Exporting Countries. The bulk of Iraq's oil is exported via its southern terminals, which account for more than 95 percent of state revenue. Iraq's Oil Minister Thamer Ghadhban said the country plans to increase its oil output and export capacity in 2019, with a focus on the southern oilfields, and is close to reaching a deal with international companies. The country is targeting production capacity of 5 million bpd in 2019, with average exports expected to reach around 3.8 million bpd.

Source: Reuters

CNPC to take oil from Iranian fields it owns as normal

9 November. China National Petroleum Corp (CNPC) is continuing to take oil from Iranian oilfields where it has

ownership stakes, even after the United States re-imposed sanctions on the country's oil sector. The state-owned oil giant entered Iran in 2004 when it acquired the MIS oilfield, in which it now holds a 75 percent stake. It has also spent billions of dollars on developing the North Azadegan oilfield, which began production in 2016 of about 80,000 barrels per day of crude along with natural gas, according to the company. The United States re-imposed sanctions targeting Iran's oil, banking and transport sectors, but offered waivers to some countries to still buy Iranian crude. Under the waiver, China is allowed to buy 360,000 barrels per day (bpd) of oil from the Islamic Republic for 180 days. China, Iran's top oil customer, has purchased an average of 655,000 barrels a day of crude oil from Tehran during the January-September period, according to customs data.

Source: Reuters

BHP secures exploration license for two oil blocks off eastern Canada

8 November. The world's biggest miner BHP said it secured a full participating interest in and operatorship of two exploration licences for oil assets in offshore Eastern Canada. BHP said the bid price of \$625 million covers the drilling and seismic work required by the project over a six year term. It said that its initial planned capital expenditure on the exploration work programs for the oil blocks is \$140 million up to fiscal 2021.

Source: Reuters

Uganda expects first oil production in 2021, refinery by 2023

8 November. Uganda expects to start producing oil in 2021, a year later than initially planned, and its refinery should be up and running by 2023, its Oil Minister Irene Muloni said. France's Total is an investor in Uganda's oilfields, with China's CNOOC and Britain's Tullow Oil. In April Uganda signed a deal with a consortium, including a subsidiary of General Electric, to build and operate a 60,000 barrel per day refinery that will cost \$3

billion-\$4 billion. Muloni said the refinery should be operational by 2023. Uganda discovered crude reserves more than 10 years ago but the start of production has been repeatedly delayed by disagreements with field operators over taxes and development strategy. Uganda initially said it would not produce oil until the refinery was complete but its timetable is now being driven by a planned export pipeline that will snake across neighbouring Tanzania. Government geologists estimate Uganda has crude reserves of 6.5 billion barrels in the Albertine rift basin along its border with the Democratic Republic of Congo.

Source: Reuters

Return to oil production cuts in 2019 cannot be ruled out: OPEC

7 November. A return to oil production cuts by OPEC (Organization of the Petroleum Exporting Countries) and its allies next year cannot be ruled out, OPEC said, to avert a possible supply glut that could weigh on prices. Saudi-led OPEC and its allies including Russia decided in June to relax output curbs in place since 2017, after pressure from US President Donald Trump to reduce oil prices and make up for supply losses from Iran. Oil prices have come under downward pressure from rising supplies, even though Iranian exports are expected to fall because of new US sanctions. Forecasts of a 2019 supply surplus and slowing demand have also dented the market.

Source: Reuters

Ghana approves state oil company as partner in Exxon deepwater field

7 November. Ghana has approved state-owned company GOIL as minority local partner for Exxon Mobil's deepwater offshore oilfield, Energy Minister Peter Amewu said. The West African nation is receiving "huge interest" from international and local oil companies after the government launched its first bidding rounds for offshore blocks last month, Amewu

said. Exxon Mobil signed a deal with Ghana in January for exploration at the oilfield after direct negotiations without an open tender because of the nature of the field, where the depth ranges from 2,000 to 4,000 meters, the government said. The United States oil major is lead operator with 80 percent interest in the field, while state-run Ghana National Petroleum Corp holds 15 percent. The deal required a local partner to own the remaining 5 percent. Exxon named GOIL as the partner about two weeks ago and the government has given the consent it needed at the ministerial level, Amewu said. Ghana, which also exports cocoa and gold, produces around 200,000 barrels of oil per day from three fields.

Source: Reuters

Imperial Oil to build new Canada oil sand project

7 November. Imperial Oil Ltd said that it would go ahead with the construction of its C\$2.6 billion (\$2 billion) Aspen project in northern Alberta, the first new oil sand development to be greenlighted since 2013. The Calgary, Alberta-based company, which is majority owned by Exxon Mobil, said it would start construction on the 75,000 barrel per day project in the fourth quarter of 2018 with first output expected in 2022.

Source: Reuters

INTERNATIONAL: GAS

Jordan aims to import a third of its gas from Egypt

13 November. Jordan aims to increase natural gas imports from Egypt to cover a third of its demand eventually, the Jordanian Energy Minister Hala Zawati said. Jordan began importing natural gas from Egypt two months ago but increasing imports significantly would depend on construction of a pipeline between Jordan and Iraq which has yet to be built. Zawati estimated Jordan's gas demands in 2019 at around 350 million cubic feet per day.

Source: Reuters

**Pakistan risks foreign investment with threat to
reopen LNG deals: Former PM Abbasi**

13 November. Pakistan risks scaring off investment from global energy giants eyeing one of Asia's fastest-growing energy markets if it pursues renegotiation of contracts for two liquefied natural gas (LNG) terminals, an architect of its energy policy said. Former Prime Minister (PM) Shahid Khaqan Abbasi championed a vast LNG infrastructure to ease energy shortages that throttled economic growth and brought hours of darkness every day for nearly a decade. He was referring to a terminal built by private conglomerate Engro Corp, which the new government of Prime Minister Imran Khan has said was too costly, and vowed to renegotiate the deals for Pakistan's two LNG terminals. The second terminal was built by Pakistan's Associated Group and energy trading firm Trafigura. But such a move will endanger Pakistan's position as a hot LNG investment destination and deter producers such as Exxon Mobil and traders like Trafigura and Vitol, all hunting for partners to build more terminals, Abbasi said. Abbasi masterminded the country's embrace of LNG during his four years as petroleum minister, before becoming prime minister in August 2017. New Petroleum Minister Ghulam Sarwar Khan has said Engro's LNG terminal built in 2015, Pakistan's first such facility, rewards the company with returns that are too high. Exxon Mobil returned to Pakistan in May with an investment in an offshore drilling project. It has expressed interest in building an LNG terminal in the country.

Source: Reuters

**Toshiba to pay ENN more than \$800 mn to exit US
LNG business**

8 November. Japan's Toshiba Corp will exit its US (United States) liquefied natural gas (LNG) business by paying China's ENN Ecological Holdings Co more than \$800 million to take over the unit as part of a plan to shed money-losing assets. The sale is the disappointing

culmination of a venture that puzzled analysts when it was announced in 2013. Asian LNG prices have plunged 42 percent in the past five years and the potential for future losses spurred Toshiba's exit. Under the deal, Toshiba will sell its Toshiba America LNG Corp unit to ENN Ecological, a unit of ENN Group, for \$15 million, the Japanese company said. However, once that sale is complete, Toshiba will then make a one-off payment of \$821 million to ENN to pass on its roughly \$7 billion commitment, starting in 2020, to purchase 2.2 million tonnes per year of LNG over 20 years from Freeport LNG in Texas.

Source: Reuters

**Tellurian on track to start building Louisiana LNG
export plant in 2019**

7 November. US (United States) liquefied natural gas (LNG) company Tellurian Inc said it expects to start construction on its Driftwood LNG export terminal in Louisiana in the first half of 2019 and begin operations in 2023. Chief Executive Meg Gentle said in the company's third-quarter earnings that Tellurian will announce partners in the \$27.5 billion project by the end of 2018. Driftwood is one of dozens LNG export projects under development in the US seeking customers so they can start construction and enter service over the next decade to meet growing global demand for the fuel. US LNG exports have almost quadrupled from 183.9 billion cubic feet (bcf) of natural gas in 2016 to 706.4 bcf in 2017, worth about \$3.3 billion, and are on track to top 1,000 bcf in 2018, making the country one of the world's biggest exporters of the super-cooled form of natural gas. One billion cubic feet of gas is enough to fuel about 5 million US homes for a day. Including plants under construction, US LNG export capacity is expected to jump from 3.8 billion cubic feet per day (bcfd) now to 5.2 bcfd by the end of the year, 8.9 bcfd by the end of 2019 and 10.3 bcfd by the end of 2020. Tellurian said about 35 customers were interested in partnering with and buying gas from the project. Driftwood will have capacity to

produce 27.6 million tonnes per year of LNG or about 4 bcf/d of gas.

Source: Reuters

Three companies agree to buy LNG from Sempra's Costa Azul in Mexico

7 November. California energy company Sempra Energy said it signed three non-binding agreements to sell all of the liquefied natural gas (LNG) to be produced at its proposed Costa Azul LNG export terminal in Baja California in Mexico. Sempra said it will now work to negotiate final 20-year LNG sales agreements with units of the three companies - Total SA of France and Mitsui & Co and Tokyo Gas Co Ltd of Japan - and has targeted making a final investment decision to build the first phase of the export terminal in late 2019. The first phase of Costa Azul is designed to be a single-train liquefaction facility capable of producing about 2.4 million tonnes per year (mtpa) of LNG, equal to about 0.32 billion cubic feet per day (bcfd) of natural gas. The facility will be located at Sempra's existing LNG import terminal, which can process about 1 bcf/d of gas. The import facility has been operating since 2008. Sempra said the three companies seeking to buy the LNG from Costa Azul each will potentially buy about 0.8 million tonnes per annum (mtpa).

Source: Reuters

Poland's PGNiG to sign another deal for LNG supplies from US: CEO

7 November. Poland's gas firm PGNiG will sign another agreement for liquefied natural gas (LNG) supplies from the United States (US), its Chief Executive Officer Piotr Wozniak said, as the country seeks to reduce dependence on Russian fuel. Poland consumes around 17 billion cubic meters (bcm) of gas annually, more than half of which comes from Russia's Gazprom under a long-term deal that expires in 2022. PGNiG does not intend to extend the agreement, it has previously said, and has

taken steps to secure supplies elsewhere after that date. In October it finalised the terms of a deal to buy LNG from US company Venture Global LNG and a year ago it signed a mid-term deal with UK (United Kingdom) firm Centrica LNG Co Ltd on nine LNG shipments in 2018-2022.

Source: Reuters

INTERNATIONAL: COAL

Uniper urges caution in Germany's exit from coal

13 November. Germany should take care in closing coal-fired power plants to avoid disruption and spread risks evenly, power utility Uniper said. Chief Finance Officer Christopher Delbrueck said that Uniper had proposed including hard coal plants in a security reserve of 2.7 GW of brown-coal fired capacity. A commission is working on a roadmap for phasing out coal as an energy source, similar to Germany's plan to exit nuclear power. The commission by year-end is due to present its first proposals on enforcing further cuts to carbon emissions from the coal sector. Delbrueck said policymakers should also give legal certainty up to 2030 for the operations of gas-fired plants to support investment in that sector and allow voluntary coal plant closure tenders.

Source: Reuters

South Africa's Eskom warns of power cuts due to low coal stockpiles

12 November. South Africa's cash-strapped power utility Eskom said the risk of nation-wide electricity outages had increased significantly due to a sharp fall in coal stockpiles at five of its power stations. Eskom said the power firm was using diesel generators to keep the power grid stable. In 2015 Eskom, whose total output of 45,000 MW accounts for 90 percent of electricity supply in the country, carried out controlled outages — known as load-shedding — as low cash flows and administrative issues affected operations. The power firm was also

forced to cut power supplies for a few days in July due to a strike by some of its workers. Eskom said the main problem behind the latest threat to power supply were the coal power stations in Mpumalanga province, east of Johannesburg, supplied by commodities firm Tegeta Exploration and Resources, which has halted operations. Heavy rain forecast for coming months would affect coal supplies and quality, Eskom said.

Source: Reuters

Indonesia to revise rules on coal contract extensions

12 November. Indonesia's Energy and Mineral Resources Ministry plans to revise rules on mining rights held by miners under Coal Contract of Work. Under proposed changes, miners can apply for extensions to mining rights between five years and one year before contracts expire. Existing rules only allow miners to apply for extensions between two years and six months before contracts expire

Source: The Economic Times

Mongolia plans coal rail link to China by 2021

8 November. Mongolia aims to complete a railway from its Tavan Tolgoi coal project to the Chinese border by 2021. The rail link from Tavan Tolgoi would have the capacity to deliver 30 million tonnes of coal a year to China, Samdandovj Ashidmunkh, chief investment officer of the state firm running the project, said. Mongolia expects demand for high quality coking coal from China's steel sector to increase, but many analysts in China believe steel production is nearing its peak and could start to fall. Tavan Tolgoi is the world's largest undeveloped coking coal mine with 7.4 billion tons of estimated reserves. Mongolian coal would only be competitive in southern China, where more imports were required, he said.

Source: Reuters

INTERNATIONAL: POWER

Nigeria, foreign Investors to sign \$956 mn deal for 3 power transmission projects

13 November. With drive to boost power generation, Nigerian government and key international donor agencies are finalising arrangements to sign a \$956 million (N347.362 billion) deal for three key transmission projects for the Transmission Company of Nigeria (TCN) within the last 18 days of November. A report obtained on the proceeding of a meeting held by TCN and officials of the donor agencies indicates that the European Union (EU), Japanese International Cooperation Agency (JICA) and the AFD – French Development Agency are expected to endorse the projects. The Federal Executive Council (FEC) on its part this month will give approval for the execution of the World Bank funded projects. A breakdown of the report mentioned the project to be the Nigeria Electricity Transmission Access Project. It is valued at \$486 mn and is being financed by the World Bank. The \$200 mn Lagos/Ogun Transmission Project is the second on the list and is being financed by JICA while the Northern Corridor Transmission Project has funding of \$245 mn and €25 million by AFD and the EU.

Source: Naija247news

Strike cuts French electricity output by 5.5 GW: RTE

13 November. A nationwide strike reduced French electricity production by 5.5 GW, mostly at state-controlled utility EDF's nuclear, coal and hydro power plants, power grid operator RTE said. The energy branch of France's CGT union had called the strike in protest over stalled wage negotiations and a possible government-led restructuring of EDF. The RTE said electricity generation was reduced at EDF-operated Paluel 1, Chinon 1 and St. Electricity generation was reduced by around 1,950 MW at EDF's hydro power stations across France, the RTE said.

Source: Reuters

INTERNATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

Renco to build 250 MW thermal power plant in Armenia

13 November. The Italian Renco Company will build a 250 MW combined-cycle thermal power plant in Yerevan, Armenia. A relevant agreement was signed by Armenia's acting Minister of Energy Infrastructures and Natural Resources Garegin Baghramyan, Renco CEO (Chief Executive Officer) Giovanni Rubini and ArmPower CEO Christian Cucurachi. The power plant will be constructed in 26 months and will offer cheaper electricity as compared to other plants.

Source: *Public Radio of Armenia*

Solar PV power generation capacity to grow to 600 GW by 2023: IEA

13 November. The world's total solar photovoltaic (PV) power generation capacity is set to expand to almost 600 GW through 2023 from the 2017 level of 391 GW, making solar PV capacity to be more than all other renewable energy technologies combined, or as much as twice Japan's total capacity International Energy Agency (IEA) said in a report. The report provides global trends and developments for renewable energy in the electricity, heat and transport sectors. According to IEA, modern bioenergy will have the biggest growth in renewable resources between 2018 and 2023 and renewables will continue their expansion over the next five years, covering 40 percent of global energy consumption growth.

Source: *The Economic Times*

Houston Oil Company to invest in zero emissions power plant technology

12 November. Houston's Occidental Petroleum (Oxy) plans to invest in another company that's developing technology for clean-burning power plants. NET Power has been testing a small plant in La Porte, near Houston, that captures its emissions. It's expected to start actually producing electricity by the end of this year, and the company hopes to eventually build commercial-scale plants. Companies like Oxy like this technology because they can use the captured carbon to pull more oil out of old, dying fields. Experts said carbon capture plants can help fight climate change.

Source: *Houston Public Media*

French Environment Minister sees 'fewer' nuclear reactors by 2028

9 November. New French Environment Minister Francois de Rugy said he expected there would be fewer nuclear reactors in ten years, but gave no indication on how and when France would reduce its reliance on nuclear energy. Unlike his predecessor Nicolas Hulot - who before he resigned late August repeatedly said state-owned EDF should shut down up to a third of its 58 nuclear reactors - de Rugy has shied away from specifying how France will reduce its reliance on nuclear for electricity from the current 75 percent share. He said that the government may have to "marginally change" the previous socialist government's energy law but would keep the targets to lower greenhouse gas emissions, fight

climate change, lower energy consumption and develop renewables. He said nothing more about nuclear and gave no indication about when the government would release its long-awaited long-term energy strategy, which is expected this month but has been delayed several times.

Source: Reuters

US to review antidumping duties on Argentine biodiesel

8 November. The US (United States) Commerce Department said it would begin a review of antidumping duties it placed last year on biodiesel imported from Argentina, the Argentine foreign ministry said. President Donald Trump's administration has made enforcement of trade laws a top priority. US producers of biodiesel petitioned the government shortly after Trump took office, saying below-market foreign imports from both Argentina and Indonesia were harming domestic makers. Argentina remains one of the world's top providers of biodiesel fuel, exporting 1.65 million tonnes in 2017. But the retaliatory tariffs from the US rattled the industry, causing major exporters in Argentina, including global grain producers Cargill and Bunge, to redirect their cargoes to other countries

Source: Reuters

China likely to more than triple nuclear power capacity by 2030

8 November. China's total nuclear capacity is expected to reach 120-150 GW in total by 2030, more than triple the current rate but still lower than previous forecasts after a slowdown in new approvals. The prediction was made by, the China National Nuclear Corp (CNNC)

Chairman Yu Jianfeng. Yu said CNNC was still planning to spend \$12 billion on overseas procurement over the next five years and he urged global partners to participate in the future development of China's nuclear industry. As China embarked on massive economic expansion around three decades ago, nuclear was seen as a crucial part of efforts to reduce reliance on use of polluting, climate-warming fossil fuels. The world's second-biggest economy launched an ambitious reactor building programme using technology from France, the United States, Russia and Canada. But though some predicted capacity could reach at least 200 GW by 2030, Japan's Fukushima disaster in 2011 forced policymakers to rethink. Repeated delays to key projects have also slowed the pace of construction.

Source: Reuters

Lightsource BP expands US portfolio with two new solar projects

7 November. Lightsource BP, Europe's biggest solar energy developer, will expand its US (United States) portfolio after signing a deal to build two solar projects, the United Kingdom-based company said. The 16 MW Wildflower Solar project will be built in California and has secured a 20 year plus power purchase agreement (PPA) with California's Sacramento Municipal Utility District. Lightsource BP will also develop a 9 MW solar project in New Mexico which has a PPA with New Mexico's Continental Divide Electric Cooperative. Earlier this year Lightsource BP bought a 135 MW portfolio of six solar assets in Pennsylvania and Maryland from Orion Renewable Energy Group LLC.

Source: Reuters

DATA INSIGHT

Scenario of Subsidised Kerosene Allocation in Different States

Kilo Liters

State/UT	2016-17	2017-18
A & N Islands	5160	4128
Arunachal Pradesh	9288	7920
Assam	289248	245856
Bihar	710736	495432
Chhattisgarh	135384	115056
Goa	4620	2259
Gujarat	493008	344520
Himachal Pradesh	18120	14496
Jammu & Kashmir	73056	58476
Jharkhand	219696	186768
Karnataka	287532	156000
Kerala	88344	58728
Lakshadweep	936	768
Madhya Pradesh	442368	345048
Maharashtra	563640	384696
Manipur	21060	17904
Meghalaya	22884	19440
Mizoram	6012	4800
Nagaland	15084	12177
Odisha	292296	248448
Rajasthan	371400	259968
Sikkim	4296	3456
Tamil Nadu	307560	204528
Telangana	155436	103368
Tripura	34560	29376
Uttar Pradesh	1168212	911208
Uttarakhand	31692	25344
West Bengal	788868	704016

Kilo Liters

State/UT with no Kerosene Allocation	2016-17	2017-18
Chandigarh	0	0
Delhi	0	0
Haryana	66252	0
Punjab	74334	0
State/UT which cut Kerosene Allocation more than 75%	2016-17	2017-18
Andhra Pradesh	225696	56424
Dadra & Nagar Haveli	1656	288
Daman & Diu	756	132
Puducherry	3840	800

Source: Parliament Questions (Lok Sabha)

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