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Energy News Monitor

REVIVAL IN DOMESTIC PRODUCTION OF NATURAL GAS

Monthly Gas News Commentary: April - May 2019

India

India's natural gas production grew for the second consecutive year in 2018-2019, primarily due to increase in production from fields operated by ONGC. India's cumulative natural gas production grew 0.69 percent to 32,873 mmscm last fiscal, as compared to 32,649 mmscm produced in financial year 2017-2018. Gas output had grown 2.35 percent in 2017-2018, reversing from a six-year declining trend. Natural gas in India is mainly used to generate power, cooking fuel as PNG production of petrochemicals and manufacturing products in the fertilizer and steel industries. ONGC's natural gas production in March this year increased 6 percent to 2,135 mmscm. Cumulatively, the company's natural gas production for the full financial year ended March 2019 increased 5.31 percent to 24,674 mmscm. OIL recorded a 1 percent drop in natural gas production at 235 mmscm in March. Cumulatively, the company's gas output last fiscal decreased 6 percent to 2,722 mmscm. The decline in OIL's gas production is primarily attributed to loss in Deohal area due to presence of carbon dioxide in production stream and loss due to bandh and miscreant activities in operational areas, according to the oil ministry. Natural gas production from fields operated by private players or joint ventures declined 16.22 percent to 446 mmscm in March 2019, as compared to 532 mmscm produced in the corresponding month (March 2018). The drop during the month is primarily attributed to decline in production from CBM blocks in Madhya Pradesh and West Bengal and decline in natural gas production from Eastern and Western offshore blocks. Cumulatively, production by private and joint venture firms declined 14 percent to 5,477 mmscm in 2018-2019. The oil ministry said the decline is attributed to drop in CBM production from Reliance Industries' Sohagpur West CBM block, closure of two wells in D1D3 field and loss from Cairn Oil and Gas' Mangala field due to delay in upgrade of Mangala Processing Terminal.

India by 2021 will witness hydrocarbon production from its eighth sedimentary basin, Kutch offshore, as national explorer ONGC has prepared an investment plan that will be submitted soon to the DGH. Kutch offshore is estimated to hold about 28 bcm of gas reserves. While work to put the basin on the oil and gas production map of India has been going on for two-three years, the recent changes in the policy framework has buoyed the state-run firm, according to the company. Apart from the Assam Shelf, ONGC is credited with putting on production six of the seven producing basins of the country — Assam-Arakan Fold Belt, Cambay, Cauvery, Krishna Godavari, Mumbai Offshore and Rajasthan. While India has a total of 26 sedimentary basins, Cauvery was the last one to begin production and was discovered in 1985. The government recently made changes to its Hydrocarbon Exploration and Licensing Policy wherein for the existing contracts, marketing and pricing freedom to sell on arm's length basis through competitive bidding has been permitted for those new gas discoveries whose FDP will be approved for the first time since issuance of the new policy. For nomination fields with the national oil companies, marketing and pricing freedom will be given if FDP for new gas discoveries is approved by the DGH. While the government has stipulated the price of gas from shallow fields at $3.69 per mmBtu, the company said under the new policy ONGC will be able to realise $7-8 per mmBtu, which is the price at which GSPC is selling gas in the region. ONGC has also found gas in the Vindhyan basin and appraisal is likely to commence shortly.

RIL has stated that it will start natural gas production from R-Cluster gas field in the flagging KG-D6 block in the Bay of Bengal from the second half of the 2020-21 fiscal. RIL and its partner BP Plc of UK had in June 2017 announced an investment of ₹400 bn in the three sets of discoveries to reverse the flagging production in KG-D6 block. These finds were expected to bring a total 30-35 mcm of gas a day onstream, phased over 2020-22. R-Cluster will be first to come on stream. Four of the planned six wells that would produce gas from the field have been completed and the fifth one is being drilled currently, it said adding first offshore installation campaign is underway and is expected to be completed in Q1 FY20. The second set is called the Satellite Cluster for which all major orders have been committed and engineering work is in progress. RIL has so far made 19 gas discoveries in the KG-D6 block. Of these, D-1 and D-3 -- the largest among the lot -- were brought into production from April 2009 and MA - the only oilfield in the block, was put to production in September 2008. The output from D-1 and D-3 has fallen sharply from 54 mmscmd in March 2010 to 1.8 mmscmd in the January-March quarter. The government had in 2012 approved a $1.529 bn plan to produce 10.36 mmscmd of gas from four satellite fields of block KG-D6 by 2016-17. The four fields have 17 bcm of reserves and can produce gas for eight years. After the government allowed a higher gas price for yet-to-be-developed gas finds in difficult areas like the deep sea, RIL and BP decided to take up their development. RIL-BP have kept the $3.18 bn investment plan for D-34 or R-Series gas field in the same block, which was approved in August 2013. About 12.9 mmscmd of gas for 13 years can be produced from D-34 discovery, which is estimated to hold recoverable reserves of 39 bcm. Other discoveries have either been surrendered or taken away by the government for not meeting timelines for beginning production.

Petronet LNG Ltd plans to set up a floating LNG terminal in Andaman and Nicobar Islands which will be utilised to feed city gas distribution business of selling CNG to automobiles and piped cooking gas to households in the island. Petronet has made an application to sector regulator, PNGRB for a city gas licence. In its application it said, NTPC Vidyut Vyapar Nigam Ltd is looking at setting up a 50 MW gas-based power plant in Hope Town in South Andaman and plans to appoint a gas supplier for the same. Gas will be imported in its liquid LNG from international suppliers. It will be converted back into its gaseous state at a FSRU at the high-sea. The company currently operates a 15 mtpa LNG import terminal at Dahej in Gujarat and has another 5 mtpa unit at Kochi in Kerala. Petronet said Port Blair has a population of around 150,000 made up to some 39,000 households. Petronet assessed the city's gas demand by 2027 at 0.077 mmscmd more than half of which will come from the use of CNG in transport. Household demand was put at 0.015 mmscmd and an almost similar consumption from commercial establishments. The geographical area for its city gas network at Port Blair will span some 50 square kilometers, according to the application. PNGRB has sought comments on the application made by Petronet by 6 June. It may allot the city gas licence to the company if there is no competitive offer for setting up a CGD network on the Islands. According to Petronet, the FSRU will have the capacity to import 0.15 mtpa. The proposed LNG terminal will cost about ₹4.96 bn while the power plant may cost about ₹2.15 bn. ONGC has got clearance from the Union ministry of environment and forest and the state authorities to start drilling for gas in the eco-sensitive zone of Trishna Wildlife Sanctuary in Gomati district in south Tripura, best known for its Indian Gaur (bison). ONGC has also got clearance from the National Wildlife Board—a body that green signals projects in eco-sensitive areas. A Supreme Court judgement, however, has questioned mining in the sanctuary to which ONGC has replied that they would be undertaking drilling operations and not mining. The state government is yet to clear this issue. Initially, ONGC had sought permission for drilling nine wells but were given permission for six by the ministry. ONGC is targeting one-and-a-half years to complete the drilling task at a cost of ₹1.5 bn. Earlier, ONGC had spent ₹40 bn at the Khubal site in Panisagar in North Tripura but the level of gas found was not encouraging. ONGC had proposed a mega fertilizer plant worth ₹50 bn with a Madhya Pradesh based group but finally it did not materialise.

GSPC LNG, the trading arm of GSPC group is likely to face stiff competition from India's largest natural gas marketer GAIL (India) Ltd that is looking to enter Morbi for selling natural gas. The country's biggest ceramic manufacturing cluster at Morbi is regarded as a stronghold for Gujarat Gas that sells nearly half of its total natural gas. Gujarat Gas buys its entire LNG requirement from GSPC that is banking on gas supplies from the newly built LNG terminal at Mundra to meet the growing demand from Morbi. The terminal project by GSPC LNG is likely to receive its first cargo in the next two months. A large number of ceramic tile makers are switching over to natural gas following the order of NGT for closure of ceramic units running on coal-gasifiers. Gujarat Gas earlier supplied about 2.5 mmscmd to Morbi. However after the NGT order, its supply has almost doubled. Gujarat Gas' five-year long marketing exclusivity for city gas distribution in Morbi ended recently, but it still has network exclusivity for a 25-year period. GAIL has offered to supply gas at rates that are linked to Henry Hub natural gas prices. To start with GAIL is looking to sell 0.5 mmscmd for a period of two months at about $7.50 per mmBtu.

Iran is expected to offer the Farzad-B gas bloc to India on easier terms. But, with the US refusing to allow India an extension to a waiver allowing New Delhi to source crude oil from Iran, Iran may push India to take a tougher stance and shelve its plans of cutting down Iranian oil imports. In November last year, India — the third largest oil importer — had managed to squeeze out a six-month waiver from the US with regards to sourcing oil from Iran. But with the Trump administration remaining firm, New Delhi has been unable to buy more crude oil after the quota of 9 mn barrels was shipped. ONGC Videsh Ltd said it may reduce its investment outlay, and agreed to Iran taking delivery of all gas already produced in the field. Farzad-B's gas reserve is estimated at about 600 mcm.

In a major revolution in cooking fuel, Amritsar's first PNG connection was commissioned in village Fateghpur Rajputan which will be followed by another one hundred PNG connections in the village in near future. The development of similar kind of pipeline network was already in progress at Circular road, Majitha road, Ranjit Avenue and Cantonment Board of Amritsar where PNG connections would be provided in near future. However, sources informed that the PNG connections in the Beas city, Mehta village, Nava Pind and Baba Bakala would reach in one year.

Rest of the World

China said it would raise tariffs on LNG imports from the US amid a series of additional levies, a move that could further reduce US LNG shipments to the world's fastest growing importer of the fuel. So far this year, only two LNG vessels have gone from the US to China, versus 14 during the first four months of 2018 before the start of the 10-month trade war. China said it would boost the tariff on US LNG to 25 percent starting 1 June versus the current rate of 10 percent. The US, meanwhile, is the fastest-growing LNG exporter in the world, and is expected to rank third in exports in 2019 behind Qatar and Australia. China is the second biggest LNG importer in the world behind Japan. The US and China started imposing tariffs on each other's goods in July 2018. As the dispute heated up, China added LNG to its list of proposed tariffs in August and imposed a 10 percent tariff on LNG in September. US LNG sales had already been affected by a 60 percent collapse in Japan Korea Marker (JKM) LNG prices seen since September.

Exxon Mobil Corp said it has signed a 20-year agreement to supply LNG to China's Zhejiang Energy, as the US oil and gas giant steps up marketing of the fuel in China, the world's second-largest buyer. Under the sales and purchase agreement, Exxon Mobil will supply 1 mtpa of the super-chilled fuel to the provincial government-backed Zhejiang Energy, Exxon said. Exxon Mobil said it would deliver the LNG starting in the early 2020s, while LNG supplies to China would come from its global portfolio. The US firm has been expanding its portfolio of LNG, including from upcoming projects in Mozambique, Papua New Guinea, Qatar and Golden Pass in the US. Zhejiang Energy is building a 9 bn yuan ($1.34 bn) receiving terminal for the fuel in Wenzhou, in the eastern province of Zhejiang, with annual handling capacity of 3 mt. Chinese state oil and gas major Sinopec will be a partner in the terminal. The Exxon-Zhejiang deal was separate from US- China trade negotiations under which Chinese firms are expected to eventually boost purchases of US gas.

The US FERC approved construction of two proposed LNG export terminals, Tellurian Inc's Driftwood in Louisiana and Sempra Energy's Port Arthur in Texas. Demand for LNG around the world has exploded, rising by 9.8 percent to a record high for a fifth consecutive year in 2018, as countries, like China and India, seek cleaner alternatives to burning coal to meet their growing energy needs, according to data from the International Gas Union. Driftwood and Port Arthur are just two of dozens of LNG export terminals under development in the US, Canada and Mexico. With so many plants under development, analysts have said that most will likely not be built over the next decade. Tellurian said it planned to make a final investment decision on its $30 bn Driftwood project, which includes pipelines and production fields in addition to the liquefaction plant, in 2019 with first LNG production expected in 2023. Sempra has said it planned to make a final investment decision on Port Arthur around the first quarter of 2020. Driftwood is designed to produce 27.6 mtpa of LNG or about 113 mcm/day of natural gas. The first phase of the project will likely comprise 16.6 mtpa, Tellurian has said. 28 mcm of gas is enough to fuel about 5 mn US homes for a day. Port Arthur is designed to produce 13.5 mtpa of LNG or about 150.9 mcm/d of gas. The US, a net importer of LNG before Cheniere Energy Inc shipped its first cargo from Sabine Pass in Louisiana in February 2016, became the third-biggest exporter of the supercooled fuel by capacity in 2018, behind Australia and Qatar. Looking at only the plants currently under construction, US LNG export capacity is expected to rise to 240 mcm/d by the end of 2019 and 283 mcm/d in 2020, from 147 mcm/d now.

US dry natural gas production will rise to an all-time high of 2.5 bcm/day in 2019 from a record high of 2.3 mcm/d last year, the EIA's STEO said. The latest May output projection for 2019 was down from EIA's 2.5 bcm/d forecast in April. EIA also projected US gas consumption would rise to an all-time high of 2.4 bcm/d in 2019 from a record high 2.3 bcm/d a year ago. The 2019 demand projection in the May STEO report was down from EIA's 2.39 bcm/d forecast for the year in April. In 2020, EIA projected output would rise to 2.6 bcm/d and demand would rise to 2.4 bcm/d. The US became a net exporter of gas for the first time in 60 years in 2017.

Russian gas producer Gazprom doubled its annual net profit last year, led by record sales to Europe despite pressure on EU states to diversify away from Russian energy imports. Gazprom is also working on contingency plans in case the undersea Nord Stream-2 gas pipeline to Germany is delayed and talks on a new gas transit deal with Ukraine fall through. The Kremlin-controlled gas producer's exports to European countries and Turkey reached almost 202 bcm last year, even though the European Commission has called for EU states to reduce their reliance on Russian energy amid wider political tensions. However, Gazprom has said that its exports to Europe have declined so far this year, partly due to warmer weather. Gas sales to Europe account for almost 70 percent of Gazprom's gas revenue. Gazprom still aims to export over 200 bcm of gas this year. Gazprom's share of the European gas market rose to a record high 36.7 percent last year from 34.7 percent in 2017. Gazprom's gas transit deal with Ukraine is effective only until 1 January 2020, while its plans to double the 55 bcm capacity of the current Nord Stream gas pipeline by the end of this year have been under threat due to Europe's concerns over its dependency on energy flows from Moscow.

Novatek, Russia's largest private gas producer, has started to export LNG from its newly built small-scale LNG plant in Russia's Baltic Sea port of Vysotsk, Refinitiv Eikon shipping data showed. Russia, one of the world's top gas producers, aims to be a major player in LNG and to export as much as one of the global leaders in the market, Qatar. So far, Russia has two LNG plants in operation: Gazprom-led Sakhalin-2 on the Far East and Novatek's Yamal LNG, on the Arctic Yamal peninsula. Novatek, along with Gazprombank, has built but not yet officially launched its Vysotsk plant, which has a capacity of 660,000 tonnes of frozen gas per year. Novatek's Yamal facility exports both to Europe and Asia and has a capacity of 16.5 mtpa with the possibility of expansion. The increase in Moscow's LNG supplies comes at a time when Russia's top gas producer Gazprom is facing tougher competition in Europe for its gas and opposition from a number of nations for its new gas pipeline projects. Novatek's shipment to Klaipeda also marks an important shift as the Baltic states, led by Lithuania, try to reduce their dependence on gas from Gazprom, their sole source for decades. Japan's Toshiba Corp said it has decided to scrap a plan to sell its US LNG business to China's ENN Ecological Holdings and to resume a process to dispose of the business with an aim to complete the transfer by March 2020. Toshiba said that China's ENN had scrapped an agreement to take over the LNG business due to a failure to get approvals from shareholders and a US panel that monitors foreign investments.

Two Chinese companies signed agreements with Russia's Novatek to buy a combined 20 percent stake in its new LNG project, Arctic LNG 2. Russia, one of the world's top gas producers, aims to be a major player in LNG and to export as much as Qatar, one of the global leaders in the market. So far, Russia has two LNG plants in operation: Gazprom-led Sakhalin-2 in its fareast region and Novatek's Yamal LNG, on the Arctic Yamal peninsula. Novatek officially launched its second LNG plant in the Baltic Sea port of Vysotsk but of a much smaller scale than Yamal LNG, Sakhalin 2 or planned Arctic LNG 2. Earlier this year, France's Total, already a shareholder in Novatek itself and its Yamal LNG project, bought a 10 percent stake in Arctic LNG 2 project. Novatek plans to start producing LNG at Arctic LNG 2 in 2022-2023. The plant, which is expected to cost around $25.5 bn, will have an annual production capacity of 19.8 mt. Novatek said that its first quarter net profit, excluding a gain from the sale of the stake in Arctic LNG 2 to Total and other factors, was up 40 percent to 65.7 bn rubles ($1 bn) from the same period a year earlier.

Saudi Aramco was in discussions with many partners around the world regarding potential joint ventures in gas, and that it has sold its first LNG cargo. The state oil giant, the world's top oil producer, wants to become a major player in gas and is eyeing projects around the world to help it gain a firm foothold in international gas business. Aramco will also be looking at potentially exporting gas through both pipelines and as LNG. Aramco's trading arm has sold its first LNG from Singapore. Aramco is pushing ahead with its conventional and unconventional gas exploration and production program to feed its fast growing industries, as the company plans to increase its gas output and become an exporter. The state oil giant plans to boost its gas production to 651 mcm/d from about 396 mcm/d now. Aramco has been looking at gas assets in Russia, Australia and Africa. Aramco last year postponed until 2021 an initial public offering aimed at raising money for a government looking to cut its budget deficit and diversify its economy beyond oil.

CPECC will build and operate facilities to process natural gas extracted alongside crude oil at Iraq's giant Halfaya oilfield. CPECC will process around 8.4 mcm/d of natural gas extracted alongside crude oil at the field. Iraq continues to flare some of the gas extracted alongside crude oil at its fields because it lacks the facilities to process it into fuel for local consumption or exports.

Israel will resume gas production from offshore Tamar field after a ceasefire brought an end to a surge in violence in the Gaza Strip. Tamar's production platform is off Israel's southern shore and in range of rockets from the Gaza Strip.

Cyprus expects initial natural gas production from the Aphrodite field will begin between 2024 and 2025. Eastern Mediterranean countries including Cyprus, Israel, Egypt and Italy have formed a partnership to deliver more natural gas to Europe and transform the region into a major energy hub. He will meet with Aphrodite's stakeholders to discuss the revenue sharing mechanisms between the government and the companies, infrastructure plans and the price at which companies will sell the gas. Gas from the Aphrodite field will transported via pipeline to Egypt, where it will be liquefied and exported. The field is estimated to produce about 22 mcm/d in the first production phase, according to Delek. Tensions have risen in the region in recent months as Northern Cyprus, the Turkish Cypriot side of the island, and Greek Cypriots are in a dispute over natural gas drilling revenues. Egypt, Cyprus, Greece, Israel, Italy, Jordan and the Palestinians recently formed the Eastern Mediterranean Gas Forum in an effort to create a regional gas market, cut infrastructure costs and offer competitive prices. In February, ExxonMobil Corp discovered a gas reservoir off the Cyprus coast with an estimated 5 trillion to 226 bcm in gas resources, similar in size to the Aphrodite and Calypso gas finds also in Cypriot waters.

The steady decline of British wholesale gas prices shows no sign of reversing this summer, which should provide some relief to households when it is reflected in a lower price cap on energy tariffs this autumn. A cap on default electricity and gas bills - a flagship policy of British Prime Minister Theresa May to end what she called "rip-off" prices - came into force in January to set a maximum price suppliers can charge consumers on certain tariffs. Since January, wholesale gas prices have fallen by around 40 percent and power by around 15 percent. At around 34-35 pence per therm, gas prices are trading at around their lowest since June 2017. Record high supply from LNG strong pipeline flows and a relatively mild winter have led to European gas stores filling to seasonal highs. Price spikes in the wholesale gas market, if prolonged, can have a knock-on effect on retail gas prices for households. In its next review of the level of the retail price cap in August, Energy market regulator Ofgem will assess the period from February to the end of July. Any changes will then come into force from 1 October. Ofgem data shows the average dual fuel bill - electricity and gas - was around 1,117 pounds a year, similar to 2010 levels, but the wholesale cost proportion of that has fallen.

Barclays said it is exiting the British gas fracking industry after gas developer Third Energy, in which the bank owns a significant stake, agreed to sell its onshore gas activities to a division of US based Alpha Energy. Fracking, or hydraulically fracturing, involves extracting gas from rocks by breaking them up with water and chemicals at high pressure. Cuadrilla, the only company to have fracked for gas in Britain, had to halt operations several times last year at its Preston New Road site in northwest England due to seismic events.

Royal Dutch Shell is in talks to buy BP's stake in the Shearwater oil and gas field in the British North Sea for around \$250 mn. Shell, the field's operator, announced plans last year to expand a gas hub around Shearwater, including the construction of a new pipeline. For BP, a sale would mark a step toward its target of selling \$5 to \$6 bn of assets following its \$10.5 bn purchase of BHP's shale oil and gas portfolio in the United States last year. At peak production, the gas export capacity of the Shearwater hub is expected to be around 11 mcm/day or roughly 70,000 barrels of oil equivalent per day, according to Shell.

The TAP has crossed the rocky mountains of Albania, putting it on track to start delivering gas to Europe next year. Stretching for 878 km (546 miles) from Turkey's border across Greece, Albania's mountains, and the Adriatic Sea to Italy, TAP is a cornerstone of the European Union's energy security policy to wean the bloc off Russian gas. The pipeline will transport up to 10 bcm of natural gas per year from the Shah Deniz II field in Azerbaijan to Italy from next year. Out of TAP's total cost of €4.5 bn (\$5.04 bn), the section across Albania has cost a third of that due to the challenging terrain.

Poland's dominant gas firm PGNiG has expressed interest in gas from Israel as the company seeks to diversify from Russian gas. More than half of the gas sold by PGNiG comes from Russia's Gazprom based on a long-term deal which expires in 2022. PGNiG has taken steps to reduce that reliance as it does not plan to extend the agreement. It has secured purchases of LNG supplies via a Baltic Sea terminal, mostly from Qatar, the United States and Norway. It also plans to import gas from

Norway, including its own deposits in Norway via a planned Baltic Pipe pipeline. A number of large gas discoveries offshore Israel and in nearby eastern Mediterranean waters in the last decade have made Israel a potentially lucrative prospect for big energy firms. The region is emerging as a new hot spot for gas exploration and production.

Ukraine called on the government and state energy company Naftogaz to hold talks with the IMF on lowering household gas prices from 1 May. The government raised gas prices by nearly a quarter in October, allowing it to secure a $3.9 bn stand-by aid agreement with the IMF. According to a previously adopted government resolution, gas prices were due to rise 15 percent from 1 May. But, the government and Naftogaz agreed a slight decrease in tariffs. Naftogaz said prices would fall by around 3.5 percent to 8,247 hryvnias ($310.56) per 1,000 cubic meters from 1 May.

ONGC: Oil and Natural Gas Corp, mn: million, bn: billion, mmscm: million metric standard cubic meter, OIL: Oil India Ltd, PNG: piped natural gas, CBM: coal-bed methane, DGH: Directorate General of Hydrocarbons, FDP: field development plan, mmBtu: million metric British thermal units, RIL: Reliance Industries Ltd, KG: Krishna-Godavari, Q1: first quarter, FY: Financial Year, mmscmd: million metric standard cubic meter per day, LNG: liquefied natural gas, CNG: compressed natural gas, PNGRB: Petroleum and Natural Gas Regulatory Board, MW: megawatt, FSRU: floating storage and regasification unit, mtpa: million tonnes per annum, CGD: city gas distribution, GSPC: Gujarat State Petroleum Corp, NGT: National Green Tribunal, US: United States, UK: United Kingdom, FERC: Federal Energy Regulatory Commission, mcm/d: million cubic meters per day, bcm/d: billion cubic meters per day, EIA: Energy Information Administration, STEO: Short Term Energy Outlook, EU: European Union, CPECC: China Petroleum Engineering & Construction Corp, TAP: Trans-Adriatic Pipeline, km: kilometre, IMF: International Monetary Fund

ONGC to spend ₹657.7 bn on ramping up production from 13 projects

21 May. Oil and Natural Gas Corp (ONGC) is likely to spend around ₹657.73 bn to ramp up production from 13 field development projects and three Enhanced Oil Recovery/Improved Oil Recovery (EOR/IOR) projects. The ongoing field development and EOR/IOR projects are expected to produce a cumulative 54.6 million tonnes (mt) of crude oil and 114 billion cubic meter (bcm) of natural gas in the next 3-4 years, brokerage Motilal Oswal said in a report. Close to 50 percent of 54.6 mt of crude oil is expected to be produced from the field development of New Exploration Licensing Policy (NELP) block -- KG-DWN98/2. The development of the above mentioned field is expected to be completed by August 2021 at a cost of ₹340.12 bn and is expected to produce 25.9 mt crude oil and 45.5 bcm natural gas.

Source: ***The Economic Times***

India may witness longer slowdown as oil imports, consumption decline

19 May. In a sign that slowdown in the Indian economy may be long drawn, a government report has projected a modest 3.5 percent growth in oil imports this year. Considering that India imports more than 80 percent of its oil requirements, slow growth in imports signals tepid demand and consumption. According to oil ministry's Petroleum Planning and Analysis Cell (PPAC), country's oil imports is projected to rise to 233 million tonnes (mt) in FY 20 against 227 mt in FY19, a growth of mere 6 mt. While slower growth in oil imports is good news for exchequer in terms of keeping the high oil bill under check, it also signals that less crude will be processed by Indian refineries as there would be less consumption of products such as petrol, diesel and ATF (aviation turbine fuel), indicating pressure points in the economy. Against projected crude oil import of 233 mt, the country's import bill is expected to settle just around $113 bn in FY20. This is growth of a mere $ 1 bn over oil import bill of $ 112 bn in FY19. But the projection by PPAC is based on average price of Indian basket crude oil at $66 per barrel and average exchange rate for ₹71 per dollar. Crude has remained above this level for most parts of current fiscal and is expected to settle well over average of $ 70 a barrel in FY20. This could disturb the initial calculations done by PPAC. Apart from crude, petroleum product imports (largely comprising petrol and diesel) have also remained tepid. Product import has, in fact, fallen to 32.5 mt in FY19 as against 35.5 mt in FY18. Also, worrisome is petroleum product exports, which have fallen to 61.1 mt in FY19 from a high of 66.8 mt reached in FY18. With a surplus refining capacity, India is a net exporter of petroleum products. But with international markets also witnessing a slowdown, product exports have been hit. Crude production in India has stagnated around 35 mt for past decade. In FY19, domestic crude production has dropped to 34.2 mt from 35.7 mt in the previous year. Despite best efforts of the government, domestic oil production has not increased.

Source: ***Business Standard***

Saudi to supply an extra 2 mn barrels of crude a month to IOC from July

17 May. Saudi Aramco will supply Indian Oil Corp Ltd (IOC) an extra 2 million barrels of crude a month from July to December, IOC said, as New Delhi seeks to make up for a loss in supplies from Iran. Saudi Arabia approached Indian buyers last month offering them additional supplies to compensate for lost Iranian oil after US (United States) sanctions kicked in. The US, which imposed new sanctions on Iran in November, initially gave Indian and seven other buyers a six-month waiver to allow them to continue importing Iranian oil. Those waivers have not been renewed. IOC has a term deal to buy 5.6 million tonnes (mt) from Saudi Aramco in the financial year 2019/20 that started on 1 April and an option to buy additional 2 mt. India had bought about 300,000 barrels per day (bpd) of Iranian oil under the six-month US sanctions waiver. Only state refiners, accounting for about 60 percent of India's 5 million bpd refining capacity, purchased oil from Iran since November. India imported about 304,500 bpd Iranian oil between January and April 2019. IOC, which was the biggest Indian buyer of Iranian oil in 2018/19, has not signed an annual contract to buy oil from Iran this fiscal year. IOC has been diversifying its suppliers. IOC has signed separate annual contracts with Norway's Equinor and Algeria's Sonatrach to buy 4.6 mt of U.S. oil in 2019.

Source: ***Reuters***

RIL-BP makes 1st oil block bid in a decade

16 May. The RIL-BP combine made its first bid for an oil and gas exploration block in more than a decade, vying for one of the 32 blocks up for auction in the OALP-II and III bid rounds, which saw mining major Vedanta put in as many as 30 bids and ONGC (Oil and Natural Gas Corp), for 20 areas. Bidding for 14 blocks on offer in the Open Acreage Licensing Policy (OALP) round-II and another 18 oil and gas blocks and 5 coal-bed methane (CBM) blocks on offer in OALP-III closed. Vedanta, which had walked away with 41 out of the 55 blocks offered in OALP-I last year, bid for 30 areas. ONGC bid for 20 blocks while Oil India Ltd (OIL) bid for 15. Indian Oil Corp (IOC), GAIL (India) Ltd and SunPetro bid for two blocks each. RIL-BP made an offer for one block off the east coast. Prime Minister Narendra Modi has set a target of cutting oil import bill by 10 percent to 67 percent by 2022 and to half by 2030. Import dependence has increased since 2015 when Modi had set the target. India imports nearly 84 percent of its oil needs.

Source: ***Business Standard***

Engineers India Ltd signs pact for 1.5 mt refinery in Mongolia

15 May. Engineers India Ltd said it has signed an agreement to provide project management consultancy for a new 1.5 million tonnes (mt) refinery being set up in Mongolia. The pact was signed with Mongol Refinery State Owned LLC, the company said. India had extended a $1 bn (₹70 bn) line of credit to Mongolia during the visit of Prime Minister Narendra Modi in 2015. The Mongolian government is in the process to set up 1.5 mt per annum greenfield crude oil refinery in Sainshand province, under the line of credit extended by India.

Source: ***Business Standard***

NATIONAL: GAS

High gas prices led ONGC to start integrated development of KG basin blocks at a cost of ₹39.1 bn

20 May. High natural gas prices prompted Oil and Natural Gas Corp (ONGC) to start integrated development of offshore New Exploration Licensing Policy (NELP) block KG-OSN2004/1 and adjacent Petroleum Mining Lease (PML) block GS-49 at a cost of ₹39.17 bn. Field development (for the two blocks) was not commenced immediately as it was unviable due low gas price prevailing at that point of time (2017), the company said in an application to the environment ministry. The development of KG-OSN-2004/1 block along with GS-49 has a total production potential of 5.55 million cubic meter per day of gas with eleven producer wells to deliver a cumulative gas production of around 13.16 billion cubic meters (bcm) over 12 years, it said. The government had increased the prices of locally produced gas by 10 percent to $3.69 million metric British thermal units (mmBtu) for the six-month period between April-September 2019. Similarly, ceiling price for gas to be produced from difficult fields was increased by approximately 21.5 percent to $9.32 mmBtu for the six-month period ending September 2019. According to the application, ONGC expects its KG (Krishna-Godavari) shallow water block to produce 4.55 million metric standard cubic meter per day (mmscmd) of natural gas at its peak and expects GS-49 block to produce 1 mmscmd of natural gas at its peak. ONGC last financial year applied to the environment ministry to drill 145 development wells across 30 mining leases in Cambay basin, 28 wells in Dayalpur and Kasomarigaon fields in Assam and 406 wells in Mehsana asset.

Source: ***The Economic Times***

PNGRB officials to discuss issues of natural gas supply at Morbi in Gujarat

19 May. A team of officials from the Petroleum and Natural Gas Regulatory Board (PNGRB) is set to visit Gujarat this month to review various issues regarding supply of natural gas at the ceramics hub of Morbi — the country's biggest gas consuming centre at a single location. While the demand for gas has gone up almost three-fold in the last two months following the National Green Tribunal (NGT) order regarding closure of coal-based gasifiers, companies like GAIL (India) Ltd and a few others have been looking to break into the biggest customer base of Gujarat Gas. The meeting is crucial for Gujarat Gas as it sells nearly half of its total natural gas in Morbi. However the company's exclusive marketing rights ended in September last year. The PNGRB team will visit the state on 27 May and hold a joint meeting with Gujarat Gas officials and members of Morbi Ceramics Association — the umbrella organization for all ceramics associations in Morbi, PNGRB said. PNGRB said that though Gujarat Gas' marketing exclusivity for Morbi has ended, the oil and gas regulator is yet to pass any order regarding this. A decision on this is also likely to be made during the visit, PNGRB said. The meeting will focus on problems like shortage in gas supply and complaints regarding gas pressure. Large number of ceramic tile makers have switched over to gas following NGT's order for closure of ceramic units running on coal-gasifiers. The move has created a spurt in the demand for natural gas. Gujarat Gas earlier supplied about 2.5 million metric standard cubic meter per day (mmscmd). However after the NGT order, the supply from the Gujarat government company has gone up to 4.5 mmscmd. Further demand of 2-2.5 mmscmd is expected in the near future, said an official of Morbi Ceramics Association. Once PNGRB passes an order regarding Gujarat Gas' marketing exclusivity, the Morbi network will be open to other companies after fixing network tariff.

Source: ***The Economic Times***

Madras HC stay on notice for acquiring agricultural lands to lay gas pipelines

16 May. The Madurai bench of the Madras High Court (HC) granted a stay on the notification issued for acquiring agricultural lands for laying of gas pipelines in Tuticorin district. The petitioner K Chellam, a resident of South Veerapandiapuram village in Tuticorin district, stated that already several acres of agricultural lands had been acquired for government projects. He said that currently a notification has been issued by the Union ministry of petroleum and natural gas for the purpose of acquiring the 'Right of User' of agricultural lands. Chellam said the project to be executed by IOC (Indian Oil Corp) was proposed to lay underground pipelines from the ONGC (Oil and Natural Gas Corp) field in Ramanathapuram district to Tuticorin, for the purpose of delivering natural gas to industries such as SPIC and Sterlite at a cost of ₹7 bn.

Source: ***The Economic Times***

GAIL Gas to set up 100 CNG stations, expand PNG network in Mangaluru

16 May. GAIL Gas Ltd will set up 100 CNG (compressed natural gas) stations and connect approximately 3.5 lakh households with PNG (piped natural gas). GAIL had recently rolled out opportunities to partner in building the CNG infrastructure in the Mangaluru city and urged people to join hands with them for a greener Dakshina Kannada. The company is motivating land owners and individuals to collaborate for developing Green Mangaluru by setting up CNG station on Dealer Owned Dealer Operated (DODO) Model. GAIL Gas said people in Mangaluru will have a better quality of life by creating infrastructure to promote cheaper and cleaner fuel CNG.

Source: ***The Economic Times***

NATIONAL: COAL

India's thermal coal output seen growing 4.3 percent annually till 2028

21 May. Fitch Solutions said India's thermal coal output is projected to grow at an average annual rate of 4.3 percent by 2028. It further said the surge in Chinese imports that occurred over 2015-2017 as a result of dramatic domestic production curbs was a temporary phenomenon. It further estimates that production by Coal India Ltd (CIL) -- which accounts for around 90 percent of domestic output -- will underwhelm the government expectations. Along with weaker Chinese and Indian demand, South Korea and Japan will also see coal consumption slowing down in 2019 due to heightening environmental concerns, it said.

Source: ***Business Standard***

CERC allows compensation to power plants for coal imports in times of domestic coal shortage

17 May. Central Electricity Regulatory Commission (CERC) has allowed compensation to GMR Group for running its power plant on imported coal in the event of coal shortage. The order issued late will have significant impact on the power generation industry that is grappling with stressed assets. Power plants will now be able to run their plants on imported coal if Coal India Ltd (CIL) is not able to meet its commitments and claim the extra costs in electricity tariffs. The dispensation was available to power companies till March 2017. This order of CERC sets the precedence for all generators who were unable to recover the full costs of coal to be compensated, Association of Power Producers director general Ashok Khurana said. Law firm J Sagar Associates, which represented GMR Warora Energy Ltd before CERC said this is first such order where compensation for shortfall in coal from CIL has been allowed for a period beyond March 2017 recognising that shortfall in supply of coal is a continuous cause of action.

QUICK COMMENT
Compensation to power plants for coal imports will incentivise domestic coal production!
Good!

Source: ***The Economic Times***

NATIONAL: POWER

Why give free power to rich Haryana and Punjab farmers: HC

21 May. The Punjab and Haryana High Court (HC) questioned the practice of providing free or subsidised electricity to rich farmers in Punjab and Haryana for agricultural pump sets. Faced with the observations of the bench, the law officers of both Haryana and Punjab sought adjournment to reconsider the entire issue of electricity subsidy to rich farmers and to file an appropriate affidavit in the matter. The issue would now come up for hearing on 6 August. The matter is pending before the Punjab and Haryana HC in the wake of a petition filed by advocate H C Arora on a plea seeking exclusion of affluent farmers of the states of Punjab and Haryana from the benefits of subsidized electricity for agricultural pump sets in the state.

QUICK COMMENT
Free power to rich farmers has undermined discom reform and depleted groundwater tables!
Bad!

Source: ***The Economic Times***

Joint Electricity Regulatory Commission issues tariff orders for Union Territories

21 May. Joint Electricity Regulatory Commission (JERC) - the power regulator for Union Territories has issued nine tariff orders for 2019-20, which were held up due to imposition of model code of conduct for the Lok Sabha polls. Tariff orders are prescribed rates of electricity for various categories of consumers including domestic ones. The tariff orders including multi-year annual revenue requirement for control period 2019-20 to 2021-22, for Goa, Chandigarh, Daman and Diu, Dadra and Nagar Haveli, Puducherry, Andman and Nicobar Islands and Lakshdweep were issued, JERC secretary Rakesh Kumar said. The Commission was all set to issue the order by 31 March, but due to imposition of model code of conduct it was held back, he said. The new tariff will be applicable from 1 June, he said.

Source: ***Business Standard***

Goa government to spend ₹10 bn to upgrade power network

20 May. The Goa government has decided to upgrade the electricity transmission and distribution network across the coastal state at a cost of ₹10 bn. An administrative approval has been already granted for the works and the tendering process will start once the model code of conduct enforced for the Lok Sabha elections is withdrawn, the power department said. The aim is to bring down the power transmission and distribution losses from the current 18 percent to about five to seven percent. Some of the power lines in the state were installed nearly 30 years ago and require urgent repairs. The state, which does not have its own power generating plant, depends on the western and southern grids for the supply, which reaches around 550 to 575 MW during peak hours. The power department has prepared a detail project for upgrading the infrastructure and the administrative approval for it has been received.

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

MAHAGENCO reports record generation of 10 GW

20 May. Maharashtra State Power Generation Company (MAHAGENCO) reported a record generation of 10000 MW. While 7577 MW was generated from its thermal capacities, wind energy contributed 270 MW, hydro 2100 MW and solar 119 MW, it said. Currently, the demand for electricity in the state has peaked at 22300 MW due to the rising temperatures. This is met with generation of 17336 MW, which also includes power from private players. Also, the state gets nearly 5357 MW from the central grid.

Source: ***Business Standard***

New consumers need not pay for power infrastructure

20 May. Taking cognizance of Maharashtra Electricity Regulatory Commission (MERC) order after around thirteen years, MSEDCL (Maharashtra State Electricity Distribution Company Ltd) has finally issued a circular ordering its field officers to not take money from consumers seeking new power connections. In case a consumer needs the connection urgently then he will have to pay for the infrastructure but it will be reimbursed to him in five instalments. Power consumer activist Pratap Hogade has however, flayed the circular. The activist also slammed MSEDCL for charging farmers for new pump connection. As per the MSEDCL circular if a consumer opts for development of infrastructure on account of urgency, through licensed electrical contractor (LEC) under MSEDCL supervision, then he can claim refund when supply is started. The estimate for infrastructure will however, have to be sanctioned under the new service connection (NSC) scheme of MSEDCL.

Source: ***The Economic Times***

Power sector's outstanding regulatory assets at ₹769.6 bn

20 May. The combined outstanding regulatory assets for the thermal power sector stands at ₹769.63 bn, India Ratings and Research said in a report, which sees a potential to securitize these receivables through bonds. Of these, the report suggested, 97 percent of the outstanding regulatory assets are due to state distribution companies, while the remaining are due to private and independent power producers like Reliance Infrastructure, Tata Power and Tata Steel. Recoverable costs arising due to a significant variance in the generated tariff based on actual cost of power consumption and the estimated tariff for the annual revenue requirements initially approved by the SERC (State Electricity Regulatory Commission) are recoverable through a regulatory asset component in future tariff orders. State-wise, the report suggested, Uttar Pradesh, Maharashtra and Jharkhand - account for approximately 87 percent of the current regulatory assets market. India Ratings expects a two percent growth for the Indian corporate bond market if distribution companies chose to securitise these pending regulatory assets.

QUICK COMMENT

Staggering growth in regulatory assets of discoms negatively impacts their performance!

Ugly!

Source: ***Business Standard***

NTPC asked to defer phase-II of Telangana power plant

19 May. Transmission Corp of Telangana Ltd (TS-Transco) has asked the NTPC Ltd to defer the second phase of Telangana Super Thermal Power Project at NTPC's existing power plant at Ramagundam. NTPC is establishing the first phase 1,600 MW (2×800 MW), which Chief Minister K Chandrasekhar Rao inspected, at its 2,600 MW Ramagundam plant. The second phase for 2,400 MW (3 x 800 MW) has now been asked to be kept on hold.

Source: ***The Hindu***

NATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

Amplus bags 150 MW solar projects in Haryana

20 May. Amplus Solar said that it has secured approval from the Haryana government for two power projects of 150 MW for supplying clean energy to industries. Amplus Solar expects to make a capital investment of ₹7.5 bn for these open access projects, the company said. Under the open access route, industrial and commercial users can source electricity from the open market. They can purchase power from a number of suppliers and can also meet their Renewable Purchase Obligations. The company had signed an MoU (Memorandum of Understanding) with the Department of Renewable Energy, Government of Haryana, in 2016 to invest ₹10 bn in the solar sector in line with the Haryana Solar Policy that has a target of 3,200 MW of solar projects. Gurgaon-headquartered Amplus will set up these projects under group captive model in Sirsa and Bhiwani districts where it has already acquired 575 acres of land under a long-term lease. Construction of the plants is expected to begin soon and will be operational this year. The company has developed several marquee rooftop projects of over 15 MW under RESCO (Renewable Energy Service Company) model in Haryana and is already supplying solar energy to customers like Mahindra Defense, Rapid Metro, Motherson Group, Fortis hospital, Yamaha and several others. Amplus is a 100 percent subsidiary of Petronas Holdings, Malaysia and has regional offices in Bengaluru, Bangkok, Dubai, Kuala Lumpur, Mumbai and Pune.

Source: ***Business Standard***

Oriano completes 9 projects for Cleantech Solar across multiple states

20 May. Solar EPC player, Oriano Solar, said it has completed nine projects for Cleantech Solar totaling 13.75 megawatt peak (MWp) across seven states and union territories in the past six months. The states included Madhya Pradesh, Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka, and Rajasthan, along with Puducherry. These plants will generate clean energy that will offset annual carbon dioxide emission of 29,300 metric tons and have already created more than 310 jobs. Currently, Oriano is executing 134.5 MWp of solar projects to be commissioned by September 2019 and will surpass cumulative installation of 350+ MWp by the end of this financial year.

Source: ***The Economic Times***

India falls behind Pakistan in top 10 countries by new hydropower capacity

20 May. India fell far behind Pakistan in new hydropower installed capacity with only 535 MW addition in 2018, as compared to Pakistan's 2,487 MW, according to a recent report titled '2019 Hydropower Status Report'. Out of the top 20 countries, China topped the list with the highest installation of 8,540 MW, followed by Brazil at second position with 3,866 MW. Pakistan was ranked third, followed by Turkey with 1,085 MW new capacity addition and Angola with 668 MW, the report showed. The bottom five comprised Tajikistan at 605 MW, Ecuador at 556 MW, India with 535 MW, Norway with 419 MW and Canada with 401 MW, according to the report by the International Hydropower Association.

Source: ***The Economic Times***

Subsidy on rooftop solar panels may go up for domestic sector

20 May. In a good news to people wants to opt for clean energy, the government is mulling to increase the subsidy on rooftop solar panels from the present 30 percent, the New and Renewable Energy Development Corp of Andhra Pradesh (NREDCAP) said. The solar power is catching up especially among the commercial and service sectors with many schools, colleges, hospitals and other business establishments saving big on power tariff by installing rooftop solar panels on their premises. More than 60 percent of the commercial and service organisations have installed on-grid rooftop solar power system and are utilising the power for water heating and cooking. However, the installation of rooftop panels has been dismal in the domestic sector. Under the new policy, however, they say the subsidy component for the commercial establishments might be slashed. Soft loan is also available under the priority sector lending scheme for individuals for installation of the solar power system which costs around ₹ 60,000 per 1 kilovolt (kV).

Source: ***The Hindu***

Kakrapar nuclear power reactor to be synchronised with grid

20 May. The first 220 MW nuclear power plant at Kakrapar Atomic Power Station (KAPS-1) will be synchronised with the grid and power generation will be increased after that, Nuclear Power Corp of India Ltd (NPCIL) said. The KAPS-1 unit/reactor attained criticality, or initiation of controlled self sustaining nuclear fission chain reaction, following the replacement of the entire coolant channel, feeder replacement and safety upgrades. India's atomic power plant operator NPCIL has two 220 MW units pressurised heavy water reactor at KAPS. Following the heavy water leak, unit 1 was under cold shut down. Similarly, the renovation and modernisation of KAPS-2 was completed in 2018 and is operating at full capacity.

Source: ***Business Standard***

Tamil Nadu distribution company to halt wind and solar auctions

20 May. One of India's biggest renewable energy producing states, Tamil Nadu, will stop conducting auctions for wind and solar energy projects following poor response to its tenders which set limits on tariffs. Instead, it will buy clean power from the Solar Energy Corp of India (SECI) to fulfil Renewable Purchase Obligation. SECI is the renewable energy ministry's nodal agency through which it holds wind and solar auctions. Tamil Nadu has been one of the leading states in the country so far in setting up renewable energy assets. It has the highest wind energy capacity in the country with 8,631 MW (as of end-2018), with another 2,055 MW of solar capacity. However, the response to the last two auctions conducted by its agency, Tamil Nadu Generation and Distribution Corp Ltd (TANGEDCO), has been disastrous. Earlier this year it issued a 500 mw solar tender, setting a ceiling tariff of ₹3 per unit, for which no bids were received. It also called for techno commercial submissions for a 500 MW wind tender at a tariff cap of ₹2.80 per unit which again saw no participation. Hence it has decided to procure renewable power from SECI in future. SECI will soon call for bids for the same 500 MW solar tender once the poll results are out and the election code of conduct is removed.

Source: ***The Economic Times***

Kudankulam reactor synchronised with grid

19 May. After being idle for six months owing to prolonged maintenance and an overhaul of the turbine generator, the first 1,000 MW VVER reactor of the Kudankulam Nuclear Power Project (KKNPP), built with Russian assistance, got synchronised with the Southern Grid. The reactor was shut down on 19 November 2018. KKNPP said that inspection and maintenance of turbine bearings and journals and a overhaul of the turbine generator (TG) were planned during the shutdown. The tasks were to be carried out indigenously by NPCIL (Nuclear Power Corp of India Ltd) through Indian contractors. Unit-2 is presently operating at around 580-600 MW.

Source: ***The Hindu***

Nuclear power can reduce greenhouse gases: Vice President

16 May. Vice President of India M Venkaiah Naidu said that nuclear electricity as a reliable and safe energy option can significantly reduce greenhouse gas emissions and that it has the potential to meet the ever-increasing energy demand in the country. Addressing the scientists and staff of the Atomic Minerals Directorate for Exploration and Research (AMD) on the occasion of 70 years of exploration and research by the organisation, Naidu underlined the importance of nuclear energy in the context of climate change, which was one of the foremost environmental concerns. Naidu stressed on the need to make modern technologies safer and reliable. Noting that India had a commendable record of operating its nuclear fleet for over 40 years without any serious incident, he exuded confidence that more safety features would be added with constant technological advancements. He said India's abiding interest in nuclear energy grew out of a deep conviction that the power of atom could be harnessed to help the country to achieve human and societal development. He said that India consciously made a strategic choice to pursue a low-carbon growth model in the coming decades and added that reducing pollution was a major challenge.

Source: ***Business Standard***

ExxonMobil may tie up with GAIL to set up green energy platform

16 May. ExxonMobil Corp, the world's most valuable energy company, may shortly form a partnership with GAIL (India) Ltd to set up a green energy platform in India. The proposed ExxonMobil-GAIL tie-up comes against the backdrop of Infrastructure Leasing and Financial Services Ltd (IL&FS) agreeing to sell its 874 MW operational wind energy portfolio to the state-run gas utility for ₹ 48 bn in its first asset sale since it started defaulting on payments last year. With the biggest expense being the cost of capital in the green energy business, the financial heft of global oil majors will help India's clean energy sector. India has been working on the largest clean energy programme and has an installed renewable energy capacity of 74.79 GW. Of this, solar and wind power accounts for 25.21GW and 35.14GW, respectively.

Source: ***Livemint***

Government plans 400 MW storage-linked renewable projects

15 May. In order to provide a leg-up to the power storage industry — which is still in a nascent stage in the country — the government is coming up with 400 MW of renewable energy tenders for round-the-clock (RTC) electricity supply. The Ministry of New and Renewable Energy (MNRE) said that storage-backed power from these sources would be supplied to the New Delhi Municipal Council and Dadra and Nagar Haveli. The development comes at a time when the government is gradually training its focus to promote storage technologies. In March, the union Cabinet approved the setting up of a national mission on transformative mobility and battery storage, aimed at boosting the deployment of electric vehicles and setting up of adequate battery-making capacity. According to India Energy Storage Alliance, the market for energy storage would grow to over 300 GWh (gigawatt hour) during 2018-25 and India is expected to attract investment over $3 bn in the next three years.

Source: ***The Financial Express***

Delhi Metro to soon set world record of running metro services on solar energy

15 May. Delhi Metro – the lifeline of the national capital has taken sustainable development with energy-efficient solutions to an international level. Along with curbing pollution and giving more importance to green solutions, Delhi Metro is expected to set a record of utilization of solar energy. According to a recent Dainik Jagran report, the Delhi Metro Rail Corp (DMRC) has started utilizing around 100 MW of solar energy after receiving solar energy supply from the Rewa district of Madhya Pradesh. The metro trains in Phase-3 network are utilizing more solar energy and with this, the metro operator has been able to save electricity by a huge amount. The 750 MW solar power plant in the Rewa district has been supplying solar energy since 18 April, last month. At that time, DMRC received around 27 MW of solar power. With this, DMRC started running the operations of Delhi Metro Violet Line completely through solar energy. It was said then that slowly and steadily, the supply of solar energy will increase from Rewa. Delhi Metro is to receive around 99 MW solar energy supply from the solar power plant of Rewa on a daily basis. In this way, DMRC will be able to receive 345 million units of solar power at affordable costs on a yearly basis.

Source: ***The Financial Express***

Hungary's MOL will store some contaminated Russian oil

21 May. Hungarian refining company MOL said that it will it start taking clean Russian oil later this week via a major pipeline after agreeing to store 100,000 tonnes of contaminated crude. Russian crude flows to Europe through the major Druzhba pipeline were suspended last month due to contamination, sending shockwaves through global oil markets. Dividing up the contaminated oil between European refiners served by the pipeline is a key step before flows of clean oil can resume.

Source: *Reuters*

Poland urges Russia to compensate for oil mistakes: Polish PM

21 May. Russian suppliers will have to provide financial compensation for their mistakes over contaminated oil, Polish Prime Minister (PM) Mateusz Morawiecki said. Flows through the Druzhba pipeline were suspended last month due to contamination, sending shockwaves through global oil markets. Pipeline operator Transneft is set to compensate buyers for any proven losses. Polish Energy Minister Krzysztof Tchorzewski has requested urgent action from Russia to resume supplies of clean oil as quickly as possible, the ministry said. Operations at Polish refineries are continuing uninterrupted thanks to sea deliveries and the release of oil reserves by the Ministry of Energy, the ministry said.

Source: *Reuters*

Villagers seize oil storage tanks in Peruvian Amazon: Petroperu

21 May. Villagers in the Peruvian Amazon have seized control of oil storage tanks operated by state-owned Petroperu and halted crude deliveries to its refinery in the city of Iquitos, the company said. About 90 members of the Saramurillo community in the Loreto region took control of oil tanks at the company's Station 1 facility on 15 May, the company said. Petroperu said it may suspend routine maintenance along part of its pipeline that transports crude to the Pacific coast from privately-operated oil fields in the Amazon, including Frontera Energy's Block 192. Saramurillo is one of several native villages affected by more than a dozen oil spills from Petroperu's pipeline in recent years.

Source: *Reuters*

Ukraine resumes oil supplies to Hungary

21 May. Ukrainian oil transit company UkrTransNafta has resumed oil transit toward European consumers after Hungary confirmed that it was ready to receive Russian oil, the company said. UkrTransNafta said it had resumed flows but then halted them several hours later after Hungary's MOL reported technical problems.

Source: *Reuters*

Greenpeace activists block BP London HQ demanding end to oil exploration

20 May. Greenpeace activists blocked the entrance to BP's London headquarters (HQ), demanding one of the world's biggest energy companies ends all new oil and gas exploration or goes out of business. BP is due to hold its annual general meeting (AGM) of shareholders in the Scottish oil city of Aberdeen. BP, which employs 73,000 people, produces 3.8 million barrels of oil equivalent per day - more than OPEC (Organization of the Petroleum Exporting Countries) members such as United Arab Emirates or Kuwait. BP has said it aims to keep emissions from its operations flat in the decade until 2025, despite strong growth in its business which has been rebuilding after facing $67 bn in fines and clean-up costs following the disastrous 2010 Gulf of Mexico oil spill.

Source: *Reuters*

Carlyle in talks with pipeline firms to sell 25 percent stake in US oil export project

19 May. Carlyle Group LP is in discussions with three companies that operate pipelines and terminals to sell a 25 percent stake in its Corpus Christi, Texas, crude oil export terminal for $625 mn. Carlyle is also in talks with the three companies to jointly operate a crude oil pipeline from Houston to Corpus Christi. Carlyle and other companies are working to open at least eight facilities to export US (United States) crude oil to global markets from the US Gulf Coast. The US is now producing more than 12 mn barrels per day (bpd), more than Saudi Arabia and Russia. US crude exports were near a new record at nearly 3.4 mn bpd. Carlyle-backed Lone Star Ports LLC is proposing a 1.4 mn bpd export facility on a harbor island near Corpus Christi. It has said it expects to begin operations at the facility in October 2020. Lone Star Ports and its partner, the Port of Corpus Christi, have filed for permits to build a deepwater port that could handle tankers carrying up to 2 mn barrels of oil.

Source: ***Reuters***

Instability could lead to 95 percent oil production loss: Libya's NOC chief

18 May. Libya's National Oil Corp (NOC) chief Mustafa Sanalla said continued instability in Libya could make it lose 95 percent of its oil production. Sanalla said an attack had happened near Zella oilfield.

Source: ***Reuters***

Iran's crude exports slide to 500k bpd or less

18 May. Iranian crude oil exports have fallen in May to 500,000 barrels per day (bpd) or lower, after the United States (US) tightened the screws on Tehran's main source of income, deepening global supply losses. Aiming to cut Iran's sales to zero, Washington ended sanctions waivers importers of Iranian oil. Iran has nonetheless sent abroad between 250,000 bpd and 500,000 bpd of oil so far in May. Data from Refinitiv Eikon put crude shipments at about 250,000 bpd and exports of crude and condensate, a light oil, at about 400,000 bpd.

Source: ***Reuters***

Global demand upturn, IMO rule could boost Brent oil to $90 a barrel: BofA

17 May. De-escalation of a trade war could result in a weaker dollar and stronger global growth, which along with International Maritime Organization (IMO) changes to shipping fuel rules could raise Brent oil to $90 a barrel, Bank of America (BofA) Merrill Lynch said. The IMO's mandated switch, due to take effect next year, will require fuels to have a sulphur content below 0.5 percent, compared with 3.5 percent now. However, prices could dip to $50 per barrel if the US-China trade war hurts consumer sentiment, which could eventually lead to an economic downturn, the bank said. December 2019 Brent options imply only a 10 percent chance of a jump above $90 per barrel and a 6 percent chance of prices falling below $50 per barrel, the bank said.

Source: ***Reuters***

Russia's early May oil output below level set in global deal

17 May. Russian oil output from 1 May to 16 May fell to 11.156 mn barrels per day (bpd), below the 11.18 bn bpd level set as part of the global oil deal between OPEC and its allies. Oil intake to the Transneft pipeline system was down by 6 percent from 1 May to 16 May compared to average April levels.

Source: ***Reuters***

Czechs have oil reserves for 68 days after loans

16 May. The Czech Republic has oil reserves for 68 days after two loans it gave to PKN Orlen's Unipetrol refineries to cope with outages in supplies from Russia. Russian export flows have been disrupted since April when high levels of organic chloride were found in crude pumped via the Druzhba pipeline to the Baltic port of Ust-Luga.

Source: ***Reuters***

South Korea's oil imports from Iran rise 17 percent on-year in April, but set to end from May

15 May. South Korea's Iranian oil imports rose 17 percent in April from a year earlier, customs data showed, but shipments are set to end from May as waivers on US (United States) sanctions on Tehran expired at the start of this month. South Korea in April imported 1.45 million tonnes of crude oil from Iran, or 353,223 barrels per day (bpd), compared to 1.24 million tonnes a year earlier, according to data. For the January-April period, the country's imports of Iranian crude dropped by 17.4 percent to 3.87 million tonnes (mt), or 235,533 bpd, versus nearly 4.7 mt in the same period last year, the data showed. South Korea was granted six-month waivers from the US in November to buy oil from Iran, mostly condensate, or an ultra-light form of crude oil. South Korea's overall April crude oil imports were 12.76 mt, or 3.1 mn bpd, up 10.2 percent from 11.58 mt a year earlier. Its oil shipments from Saudi Arabia, the country's top crude supplier rose 8.5 percent year-on-year to 3.59 million tonnes, or 874,401 bpd, the data showed.

Source: *Reuters*

INTERNATIONAL: GAS

US natural gas futures rise to five-week high as output drops

20 May. US (United States) natural gas futures were up over 1 percent after pulling back from a five-week high earlier in the day following reports that some equipment problems that cut output in West Virginia would likely be resolved soon. Traders said prices spiked due to the steep drop in production and on forecasts power generators would burn more gas than previously expected to produce electricity to meet higher air conditioning demand over the next two weeks. Output in the Lower 48 US states dropped to a six-month low of 86.2 billion cubic feet per day (bcfd) from 89.3 bcfd due to big declines mostly in West Virginia and the offshore Gulf of Mexico, according to Refinitiv Eikon data. That is well short of the all-time daily high of 90.4 bcfd hit on 29 March. Columbia Gas Transmission (TCO) said problems affecting its pipe in West Virginia related to a MarkWest plant would likely be resolved later. Those problems caused the amount of gas produced in the state to drop to 3.1 bcfd from 5.9 bcfd.

Source: *Reuters*

Qatar ships LNG to the UAE after Dolphin pipeline outage

19 May. A major gas pipeline from Qatar to the United Arab Emirates (UAE), Dolphin, experienced an outage for several days last month and Qatar filled the gap with additional liquefied gas supplies. Qatar, the world's biggest producer of LNG (liquefied natural gas), said when the embargo was imposed in June 2017 it would not close the pipeline, which would have caused major disruptions to the UAE's gas system. Dolphin supplies 2 billion cubic feet (bcf) of natural gas per day from Qatar's North Field to customers in the UAE. The project is owned by Dolphin Energy Ltd, which in turn is owned by the UAE's Mubadala with 51 percent, Total with 24.5 percent and Occidental with 24.5 percent. The pipeline encountered a major failure in Qatar's territory in mid-April resulting in a shutdown of all of its facilities for several days.

Source: *Reuters*

US LNG exporters face headwinds due to trade war with China

17 May. The US (United States) trade war with China has dozens of developers of liquefied natural gas (LNG) export terminals scrambling to find other buyers, now that the fastest-growing market for the fuel is out of reach. US shipments of LNG to China hit a record in 2017 but have already dropped to next-to-nothing so far in 2019. Then, China said it would raise tariffs on US LNG imports to 25 percent on 1 June from the current rate of 10 percent, retaliating against Washington's increase in tariffs on $200 bn of Chinese goods. The tariffs are discouraging Chinese customers from signing long-term deals with US suppliers, analysts warned, which has made banks and investors less willing to finance projects under development. Natural gas use is growing fast among power generators worldwide as countries like China seek to wean themselves off dirtier coal, although gas is still a small part of the overall fuel mix. World demand for natural gas is expected to grow from 340 billion cubic feet per day (bcfd) in 2015 to 485 bcfd by 2040, according to the US Energy Information Administration (EIA), with China accounting for more than a quarter of that growth. Six US LNG projects have units currently under construction. Major US suppliers disagreed. They said low US gas prices will attract enough customers to justify funding new export projects, regardless of what China does.

Source: *Reuters*

'Iraq has contingency plans in case Iran gas imports halted'

16 May. Iraq has contingency plans for any stoppage of Iranian gas imports for its power grid but hopes no such disruption will take place, Oil Minister Thamer Ghadhban said. He said a meeting of OPEC (Organization of the Petroleum Exporting Countries)'s ministerial monitoring committee in Saudi Arabia this weekend would assess member states' commitment to a deal reducing oil production and that oil prices and markets were now stable. Turkey has asked to buy more Iraqi crude, Ghadhban said. The United States is ramping up sanctions pressure on Iraq's neighbour and ally Iran, especially over oil exports. Iraq relies heavily on gas from Iran for its electricity supply, which is stretched during hot summer months.

Source: *Reuters*

Santos buys into Exxon-led PNG gas field amid political ructions

16 May. ExxonMobil has agreed to sell down its holding in the P'nyang gas field in Papua New Guinea to Santos Ltd, giving the Australian company a stake in the field that will help feed an expansion of Exxon's PNG LNG project. Santos will buy a 14.3 percent stake from existing partners in P'nyang, including Oil Search Ltd and JX Nippon, but mostly from ExxonMobil, for a total of $187 mn, Santos said. The deal helps smooth the way for the planned expansion of PNG LNG, roughly aligning Santos' 13.5 percent stake in the LNG project and the new gas field.

Source: *Reuters*

Italy's Eni agrees to extend Algeria gas contract to at least 2027

16 May. Italian oil and gas group Eni said it had strengthened its ties with Algeria's Sonatrach by renewing a contract to import Algerian gas into Italy until 2027. Eni, which has a series of exploration and production assets in Algeria, said the agreement with Sonatrach also included an option to extend the contract deadline by a further two years. The agreement covers almost 15 percent of gas imported into Italy, Eni said. Italy, which imports around 90 percent of its needs, has key gas contracts with Russia, Libya, Algeria and Holland. It will also import Azeri gas when work on the Trans Adriatic Pipeline is complete.

Source: *Reuters*

New York deals critical blow to $1 bn shale gas pipeline

16 May. New York denied a key permit for a $1 bn Williams Companies shale gas pipeline, dealing a critical blow to a project that would shuttle fuel to customers in New York City and Long Island. The decision comes as states tussle with the Trump administration over pipelines designed to carry abundant natural gas to the Northeast from shale basins in Pennsylvania, Ohio and West Virginia. Northeast Supply Enhancement, which would add pipeline segments in New York, Pennsylvania and New Jersey to an existing Williams system, joins a slew of gas proposals in the region that have faced delays.

Source: *Bloomberg*

INTERNATIONAL: COAL

Poland to hold talks on Prairie Mining coal project dispute

16 May. Top Polish government officials will meet to discuss a threat by Australia's Prairie Mining to sue Warsaw over difficulties it faced in developing two coal projects, the government said. Prairie Mining has said it has struggled to get permission to develop the Jan Karski and Debiensko mines and warned the Polish government it could take the case to international arbitration if it could not be resolved amicably. Prairie's mining projects include coking coal as well as thermal coal. Thermal coal, used for power, is struggling to attract investment because of environmental concerns, but coking coal - which is used in steelmaking - is still viewed as a strategic mineral.

Source: *Reuters*

China caps capacity at coal mines at risk for 'bumps'

16 May. China's National Coal Mine Safety Administration said it has set a production cap of 8 million tonnes (mt) of coal a year for each mine deemed to be at risk from so-called "bumps". As part of the measure to improve safety, capacity expansion on such mines will also be banned once they are in operation, the safety watchdog said. The announcement follows a coal mine accident in the eastern province of Shandong last October in which 21 people died. Coal mining safety in China remains poor, with several deadly accidents every year, despite frequent inspections and support from Beijing to improve conditions. Bumps occur when rock and coal erupt from the side of a mine shaft or tunnel under pressure from overhead rock. China has 400 mt a year in coal mining capacity at risk for bumps, accounting for more than 10 percent of the country's total 3.53 billion tonnes (bt) of coal capacity. Nearly two-thirds of the mines at risk for bumps are located in regions with lean coal resources, making them key to ensuring sufficient coal supply in those areas. The safety watchdog also ordered coal companies to limit the number of workers entering such mines and to strictly forbid overproduction. The country's state planner urged local governments to tighten approvals of coal mines at risk for bumps, and to curb production or shut down those with a high risk by end-2019.

Source: *Reuters*

INTERNATIONAL: POWER

Two Japanese utilities to invest $85 mn in gas-fired power plant

21 May. Japanese utilities Chugoku Electric Power Company and Shikoku Electric Power Company will invest in the operation of a gas-fired power plant in Myanmar in a bid to cash in on the growing electricity demand in the emerging economy. The two regional utilities in western Japan said they have sealed a deal on the acquisition of a 28.5 percent stake each in the operator of the Yangon plant via their subsidiaries, marking their first investments in Myanmar. Under the project, the Ahlone thermal power plant, which began operation in 2013 with an installed capacity of 121,000 kilowatt (kW), is supplying electricity to the Electric Power Generation Enterprise under the Ministry of Electricity and Energy for a term of 30 years till 2043. The Japanese power companies said they will provide expertise in operation and maintenance and expect to gain long-term stable investment revenue. In Myanmar, electricity demand is forecast to grow to 14.5 mn kW in 2030 from 2.8 mn kW in 2016. Last year, hydropower generation accounted for about 70 percent of the country's total electricity output, according to the ministry. Shikoku Electric also has participated in power projects in Chile, Qatar and Oman.

Source: *Myanmar Times*

Chinese power grid completes first spot electricity trading

21 May. China Southern Power Grid completed the first spot trading of electricity in the country's southern provinces. The trades involve 123 power distribution companies, 190 power generators and three major users. Average ex-plant power prices were reported at 0.263 yuan ($0.0381) per kilowatt hour (kWh) during the pilot transactions; Prices for low-demand night hours were 0.082 yuan/kwh and those for peak-demand hours at 0.362 yuan/kWh. The government said last year it would launch spot power trading in eight regions, including Guangdong, western Inner Mongolia, Zhejiang, Shanxi, Shandong, Fujian, Sichuan and Gansu, as part of the efforts to liberalise power prices currently set by the state.

Source: *Reuters*

Swiss electricity producer Alpiq sells Czech power plants to Sev.en Energy for $313 mn

17 May. Swiss electricity producer Alpiq has agreed to sell its two Czech coal-fired power stations to the Czech Republic's Sev.en Energy for around €280 mn ($313 mn), the companies said. Sev.en, which is owned by investor Pavel Tykac and operates a power plant and a lignite mine in the Czech Republic, will buy a 100 percent of Alpiq's 516 MW coal and gas-fired plant at Kladno near Prague and its 64 MW plant in the eastern city of Zlin, Alpiq said. Czech electricity producers CEZ and EPH had also bid for the assets.

Source: *Reuters*

INTERNATIONAL: NON-FOSSIL FUELS/ CLIMATE CHANGE TRENDS

French EDF Renewables wins tender to build 800 MW solar plant in Morocco

21 May. A consortium led by French EDF Renewables won a tender launched by the Moroccan agency for sustainable energy (Masen) to build an 800 MW solar plant in Morocco's Atlas Mountains, Masen said. The consortium to build the 7.57 billion dirham ($781.5 mn) plant also includes UAE's Masdar and Morocco's Green Energy of Africa, Masen said. The project, dubbed Noor Midelt 1, is the first phase of a larger project in the Atlas Mountains region of Morocco as the country plans to exceed 52 percent of renewable energy in the national energy mix by 2030. Masen has chosen a hybrid system for Noor Midelt 1 that uses concentrated solar plant (CSP) and photovoltaic technologies. The project is funded by European Investment Bank, the French Development Agency, the European Commission, the World Bank, the African Development Fund and the Clean Technology Fund, Masen said.

Source: ***Reuters***

China invests in renewable energy in Cuba

19 May. Cuba began investing in renewable energy in 2014 and is ramping up its efforts in a push to make renewables its principal source of electricity by 2030. China is one of the leading investors in Cuba's renewable energy program. The goal is for Cuba to derive 24 percent of its electricity from renewables such as sugarcane biomass, solar panels, wind farms, and small hydroelectric plants by 2024. Ovel Concepcion, director of renewable sources at the island's Electric Union, said his organization expects to install 700 MW of renewable solar power by 2030.

Source: ***CleanTechnica***

Argentina seeks faster US review of biodiesel tariffs

18 May. Argentina has requested that the United States (US) accelerate its review of anti-dumping duties it currently slaps on biodiesel imports from the South American nation, one of the world's top exporters of the fuel. Argentina, South America's second largest economy, had requested a review last November of US tariffs imposed at the end of 2017 due to allegations of subsidies and dumping, which in effect shut off access for Argentine exporters to the US market. Argentine exports of biodiesel to the US before anti-dumping measures came into effect totaled some $1.5 billion per year, which in 2016 was a quarter of the total value of Argentine exports to the US. Argentina's biodiesel sector in recent years has been hit by trade sanctions for allegations of unfair competition.

Source: ***Reuters***

Indonesia's Adaro expects to install first renewable power plant in 2020

17 May. Indonesia's second largest coal producer PT Adaro Energy, through its subsidiary PT Adaro Power, plans to complete its first commercial renewable energy power plant with a battery capacity of 6.5 MW to electrify two islands in Central Sulawesi, Paku and Umbele Morowali. The renewable energy project is a joint venture with French electricity company Électricité de France (the EDF Group). Adaro Power vice president Dharma Djojonegoro said that the joint venture with the EDF Group was a hybrid off-grid project that combined biomass, solar photovoltaic (PV) and battery storage that would provide a 24-hour electricity supply. Darma said once the power plant was operational, the electricity rate would be more affordable than the existing rate for electricity supplied through a diesel generator.

Source: ***Jakarta Post***

BP faces investor push to beef up fight against climate change

17 May. BP will face pressure at a meeting next week to set tougher targets to combat climate change, the latest signal from investors that they want the oil and gas industry to do more to clean up its act. After BP's 2018 carbon emissions rose to their highest in six years, the

London-based major is being lobbied by activists and an increasing number of shareholders to ensure its operations are in line with goals set by the 2015 Paris climate deal to curb global warming. BP has already backed a resolution being put to investors for it to be more transparent about its emissions, link executive pay to reducing emissions from BP's operations and show how future investments meet Paris goals. The motion, proposed by BP and a group of 58 shareholders holding 10 percent of its shares, known as Climate Action 100+, is expected to pass at BP's annual meeting in Aberdeen. But some investors want BP to go further and follow the lead of rival Royal Dutch Shell, which bowed to years of lobbying and set the toughest industry targets for cutting greenhouse gas emissions. BP has said it aims to keep emissions from its operations flat in the decade until 2025, despite strong growth in its business that has been rebuilding after facing $67 billion in fines and clean-up costs following the disastrous 2010 Gulf of Mexico oil spill.

Source: ***Reuters***

Poland already preparing for nuclear plant: Energy Minister

16 May. Poland is preparing to build its first nuclear power units in the Pomerania region in the north of the country, Energy Minister Krzysztof Tchórzewski said. The government plans to build a nuclear power plant by 2033. The communities living there have been preparing themselves for its construction, having observed nuclear power plants in operation elsewhere, and so the government has "societal approval" to build one, he said. A nuclear power station's investment cycle lasts about ten years, but preparatory work may take a few years, the minister said, but a lot has already been done, he said. The fuel required for a nuclear power plant is very small compared to a coal plant, he said. Poland's government has yet to approve a programme to fund construction of the six reactors. He said the energy ministry, as part of discussions about national energy policy and the plan for energy and climate, had decided that Poland should consider having nuclear energy in its energy mix.

Source: ***World Nuclear News***

Israel's Energix to buy $120 mn of solar panels from First Solar

16 May. Israel's Energix Renewable Energies said it will purchase $120 mn of solar panels from US (United States)-based First Solar. The deal will help advance Energix's plans to build photovoltaic (PV) projects in Israel and the US, the company said. Energix said it will pay a $5 mn down payment followed by a further $60 mn in the second half of 2019.

Source: ***Reuters***

Regulator's decision on EDF's Flamanville 3 reactor expected in June

16 May. French nuclear regulator ASN said that utility EDF had a significant amount of work to do before it starts loading fuel into its Flamanville 3 EPR nuclear reactor that is under construction in northern France. In parliament, the head of the nuclear watchdog told lawmakers the regulator would examine the state-controlled utility's proposals to resolve welding anomalies at the reactor, adding a decision on those proposals will be made in June. In its report, the regulator reiterated it would make a generic ruling on the extension of the lifespan of EDF's 900 MW reactors at the end of 2020.

Source: ***Reuters***

China sets renewable power quotas for 2019, 2020

15 May. China set mandatory renewable power quotas for each of its region for 2019 and 2020, the National Energy Administration (NEA) said, in an attempt to promote the use of clean energy in the country. Local grid companies will have to purchase a certain volume of electricity from renewable energy generators, the NEA said. The targets, setting as a portion of renewable energy use in total energy mix, vary from 10 percent in eastern province of Shandong to as high as 88 percent in southwestern province of Sichuan in 2019 based on their energy structure. The draft plan was launched in November.

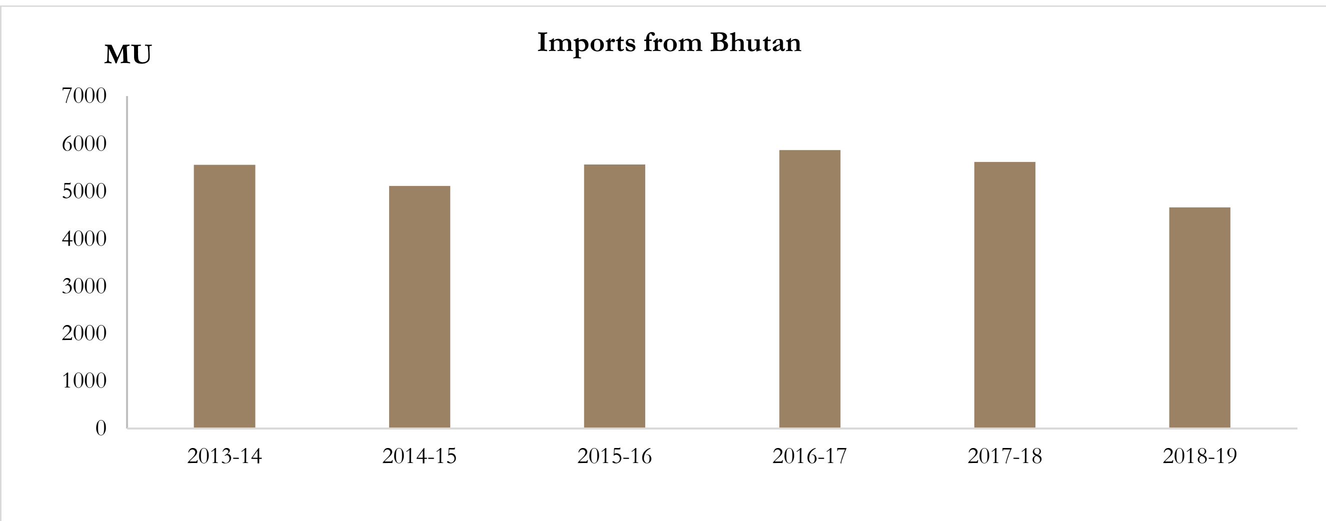
Source: ***Reuters***

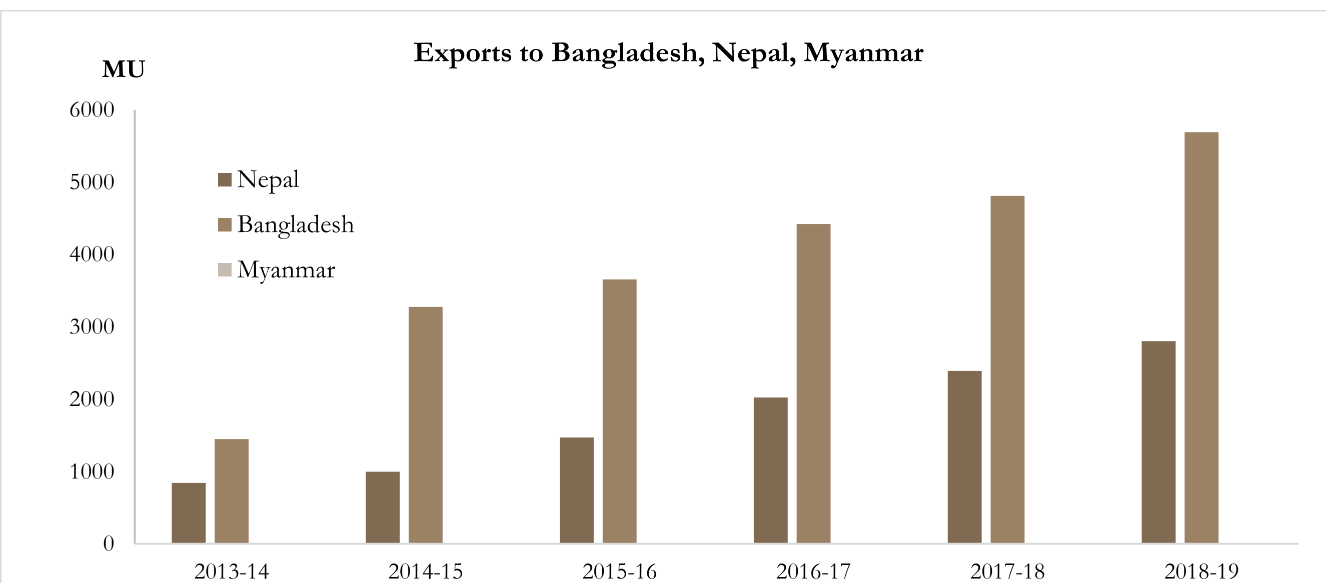
DATA INSIGHT

India's Electricity Sector: Imports & Exports Scenario

Fuel Type	Electricity Generation (BU)	% Share in Total
Thermal	1072.0	85.8%
Nuclear	37.7	3.0%
Hydro	135.0	10.8%
Bhutan Import (net)	4.7	0.4%
Total	1,249.4	100%

Trends in Imports & Exports of Electricity





Source: CEA & POSCO

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Publisher: *Baljit Kapoor*

Editorial Adviser: *Lydia Powell*

Editor: *Akhilesh Sati*

Content Development: *Vinod Kumar*

ORF OBSERVER RESEARCH FOUNDATION

OBSERVER RESEARCH FOUNDATION
20, Rouse Avenue, New Delhi- 110 002
PHONE: (011) 3533 2000, FAX: (011) 3533 2005
E-MAIL: energy@orfonline.org