<table>
<thead>
<tr>
<th>S. NO.</th>
<th>SUBJECT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRANSPORT</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>- E-Vehicles (EV)</td>
<td>1-12</td>
</tr>
<tr>
<td>2</td>
<td>ENVIRONMENT</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>- Air, Water &amp; Sound pollution</td>
<td>12-36</td>
</tr>
<tr>
<td>2.2</td>
<td>- Health</td>
<td>36-40</td>
</tr>
<tr>
<td>3</td>
<td>ENERGY CONSERVATION</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>- Oil &amp; Gas</td>
<td>40-50</td>
</tr>
<tr>
<td>3.2</td>
<td>- Electricity</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>RENEWABLES ENERGY</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>- Solar</td>
<td>52-54</td>
</tr>
<tr>
<td>4.2</td>
<td>- Wind</td>
<td>54-55</td>
</tr>
<tr>
<td>5</td>
<td>OTHERS</td>
<td>55-58</td>
</tr>
</tbody>
</table>

This Energy News contains excerpts of articles picked up from selected daily newspapers & magazines.
Tesla in Talks with China’s CATL for Rechargeable Batteries

Tesla Inc is in talks about ordering rechargeable batteries from top Chinese producer Contemporary Amperex Technology Co Ltd to power Model 3 cars the US electric automaker plans to start assembling at its new factory near Shanghai, people familiar with the matter said. CATL has been discussing the required specifications for the batteries with Tesla officials, the people said, asking not to be named because the talks are private. Still, there’s no guarantee that an agreement will be reached, according to the people. Securing a supply of batteries — the most important component in an electric car — in China, the world’s biggest car market, will be key to Tesla’s financial success as it prepares to open its first plant outside of the US. For CATL, winning orders from a high-profile customer like Tesla would bolster its profile as one of the world’s emerging battery-making power houses. Based in China’s southern Fujian province, the company is on course to become the biggest manufacturer of lithium-ion batteries in China. Tesla declined to comment. The carmaker, which has a battery supply relationship with Panasonic Corp, said in its latest annual report that it has one “fully qualified” vendor and it’s working to add more. CATL didn’t respond to a request for comment. Tesla is doubling down on China at an uncertain time for the company, the country and the global auto market. While it’s cutting jobs elsewhere and shutting down stores, the electric-vehicle pioneer is building a major facility near Shanghai. Still under construction, the plant comes amid China’s worst car sales slump in a generation, and with local Chinese rivals from BYD Co to NIO already selling EVs into the market.

*****

1
E-rickshaws Show the Way in Tier II-III Cities

Electric rickshaws, a late entrant into the Indian auto market, are slowly replacing cycle rickshaws in last mile connectivity in tier II-III cities, industry executives said. Almost three lakh battery powered ricks have now replaced the ubiquitous cycle rickshaws in key markets of the North East, Uttar Pradesh, West Bengal, Delhi and Bihar. These battery-powered vehicles have become one of the fastest growing segments in India, with a compounded growth rate of 20% in the past four years. In 2015, erick sales were 1.7 lakh units. The figure slated to grow 25% annually from 3.5 lakh units in FY18 to a million units by FY25. “Identifying a niche gap and its increased acceptability has benefited manufacturers like us,” said Mahesh Babu, chief executive, Mahindra Electric Mobility, which retails ericks Treo, Treo Yari, lithium-ion powered vehicles and eAlfa, the lead battery variant. The erick is affordable for the consumer and profitable for the owner. For instance, one pays ₹10 per ride while running cost for the owner is ₹20-30 a day, earning him ₹800-1,000, said Sulajja Firodia Motwani, founder and chief executive officer, Kinetic Green Energy and Power Solutions, which markets Kinetic Safar for passengers and buggies for cargo. Also, there is a customer need within every 3 kms, said Babu. No permit requirement (unlike autorickshaws), state subsidies due to zero tailpipe emissions and low operating costs have fuelled erick sales in the recent past, said Aswin Kumar, programme manager, mobility (automotive and transportation), Frost & Sullivan. Preferred brands include Yaatri, Saarthi, Galaxy and Kinetic and 32,000 ericks hit the streets every month. Of these, merely 11,000 are from organised players. Several smaller outfits make unsafe ericks from imported Chinese kits in the absence of tougher safety and construction norms. Many ply these vehicles without registration and insurance, said Motwani. A majority of ericks are powered by lead acid batteries. In the coming years, the share of Li-ion batteries, which is currently at 10%, is expected to increase among organised players. Lead acid battery-powered rickshaws are priced at ₹1.25 lakh and lithium ion battery engines at ₹1.5 lakh. Bajaj Auto and Piaggio have announced plans to launch erickshaws in 2020. To promote faster localisation, around 5 lakh ericks of ex-factory price up to ₹5 lakhs are set to get incentive of ₹50,000 each in phase II of the Faster Adoption and Manufacturing of Electric Vehicles in India (FAME-II).

*****
City to get 131 charging stations for electric vehicles

The capital will get 131 public charging stations for electric vehicles to address the concerns of potential buyers and to ensure that people have access to recharging facilities in their vicinity. According to the plan approved by the power ministry and the Delhi government, 33 such facilities will be set up at Metro stations, 34 at CNG stations, 24 at Indian Oil petrol pumps, 15 at Bharat Petroleum fuel stations and nine at Hindustan Petroleum pumps. One each will be set up in the parking area of T-3 at IGI Airport and Jamia Millia Islamia. Sources said the government wants the facilities to be made operational in three months. The Centre, in consultation with municipal authorities and the Delhi government, has decided that the three municipal corporations and Delhi Transco Ltd will be the nodal agencies for their respective areas. This were decided at a meeting chaired by power minister R K Singh in mid-February. Officials said the facilities will be operated by the four nodal agencies for three years and they will charge a fee from users. The government expects private players to set up similar charging stations at a later stage when the business becomes financially viable. The Centre expects there will be a major push to the sale of electric vehicles in Delhi as government departments will procure or hire more of them and a few car major car makers are likely to launch their high range electric vehicles in July. “One of the reasons why people think twice before buying an electric car is ‘range anxiety’ — the apprehension they would have no option to recharge in case the vehicle runs out of battery. The government is trying to address that concern. The skeleton of charging network will bring confidence as one can be sure of getting a charging station in a few km range. More stations will come up as demand goes up,” said Alekhya Datta, fellow and area convener of TERI. Officials said the locations of charging stations have been decided in such a manner that these can even cater to the need of electric vehicles coming from Noida, Gurgaon and Ghaziabad.

*****
High Energy to partner CECRI for electric-vehicle batteries

The Tiruchi-based High Energy Batteries Ltd, will join hands with Central Electrochemical Research Institute (CECRI) to produce battery for electric vehicles. The BSE-listed company will be the joint venture partner and bring in funds for a pilot project to make. CECRI is a research institute under the Council for Scientific and Industrial Research (CSIR); its main focus has been electro-chemistry for decades. It has developed battery chemistries and want to try them out in a pilot project. It was NITI-Aayog Member and former DRDO chief Dr V K Saraswat, who pitched the idea of roping in a private sector player for the pilot project since CECRI is a scientific research body with little expertise or funds to set up manufacturing. In meeting in Chennai, attended by Dr Saraswat, CECRI scientists and High Energy Batteries Managing Director GA Patanjali, among others, Dr Saraswat mooted the idea of the pilot project in which High Energy Batteries would invest. The company indicated that an investment of up to ₹5 crore was possible. A non-profit company will be set up for this purpose. While batteries can be made with different chemical compounds, the pilot plant would make them those with a combination of lithium, nickel, manganese and cobalt — for use in electric vehicles. An electro-chemical battery has four major elements — cathode, anode, electrolyte and separator. Cathode, the heart of the battery, is the domain of CECRI. Dr Saraswat has roped in three other institutes of CSIR — Indian Institute of Chemical Technology, Hyderabad, Central Glass and Ceramic Research Institute, Kolkata, and National Physical Laboratories, Delhi, for lending their expertise for the other three components. ITI Ltd has also agreed to participate. AS Prakash, Principal Scientist, CECRI, has been named the ‘mission director’ for the pilot project. Meanwhile, two other entities have come forward to take CECRI’s technology for setting up battery plants — Tunga Services and ITI Ltd. Two memoranda of understanding were signed between CECRI and the companies for initial agreement of technology transfer. Raasi Green Earth had signed an agreement with CECRI for battery technology.

Former Director ticked off- The CECRI-Saraswat meeting, also saw some unpleasant scenes. Saraswat publicly ticked off Dr Vijaymohan Pillai, who recently retired as Director of CECRI. “You wasted three years. You should have
done what I did today,” Saraswat told Pillai. Many in CECRI, however, didn’t appreciate the public admonishment. Some later told BusinessLine that Pillai had done whatever he could. Saraswat told CECRI that he would review the project every three months and wanted the pilot plant to be set up in nine months. “Otherwise, some heads will roll,” he said.

*****

**Subsidy on e-buses not the way forward**

The first batch of the proposed 1,000 electric buses for Delhi is likely to be rolled out by the end of this year. Experts, on Thursday, however cautioned the state government about issues related to subsidy, batteries and power consumption of these buses while implementing the project. At a conference, Connect Karo, organised by the World Resources Institute (WRI), experts discussed the electric vehicle (EV) model of China as a case in point. It was after hosting the Summer Olympics in 2008 that China pushed for e-buses in its public transport system at a massive scale. Now, the city of Shenzhen has become the first in the world to have an all-electric fleet of 16,000 buses. Daizong Liu, China transport program director for WRI, said instead of giving a subsidy on procurement of e-buses, the Delhi government should consider subsidising the basis of usage. “For years, the Chinese administration used to give heavy subsidy for buying e-buses. But, later it turned that there was no way to ensure quality of service after the operators started to run these buses. So, now China
is reworking its subsidy model to make it usage-based. Electricity or charging cost is waived depending on the number of kilometers clocked and the satisfaction level of passengers,” he said, adding that another way of subsidizing e-buses is providing land for depots to operators. While experts said that buses and taxis are the best segments to kick start an electric vehicle revolution in any city, subsidising them is only a short term measure to give it an initial push. The Delhi government, which has earmarked a budget of Rs 1,807 crore as initial cost for the project, is going to provide a subsidy of Rs 75 lakh per bus, or 60% of the cost of the e-bus, whichever is lower, to the concessioner. An e-bus that the government plans to run will cost either Rs 1.5 crore or Rs 1.75 crore, depending on the model chosen. Liu said the e-bus project in Shenzhen too faced multiple challenges. “Like in Delhi, China also faced the problem of multiplicity of authority. To get even a single e-bus on road, one had to get approvals from at least seven different agencies. Issuing licenses to a large number of e-buses was taking a lot of time through the usual channel. So, the state formed a special cell comprising representatives of every concerned department who meet at least twice a year to give all the approvals by sitting together,” he said. The e-bus project in Delhi was delayed by several weeks because of lack of coordination between the state transportation and power departments. It took two cabinet meetings led by chief minister Arvind Kejriwal to get adequate responses from the power department on the project. To bridge this gap, Jasmine Shah, vice-chairperson of the Dialogue and Development Commission of Delhi, said the Delhi government will be setting up a dedicated electric vehicle cell in its transport department, which will be the nodal agency for the project. Shah said Delhi’s draft electric vehicle policy puts the thrust on shifting the 73-lakh twowheelers into electric, as they are the major polluters in the city’s air. “The policy also plans to disincentivise petrol and diesel vehicles by asking them to pay more,” he said. Prabhjot Kaur, CEO at Centre for Battery Engineering and Electric Vehicles (C-BEEV), said the model used by Shenzhen, where batteries in e-buses are taken, on rent is a more reliable model instead of asking the manufacturers to build it. In Shenzhen, bus operators only buy the bus from manufacturers and take the batteries on rent by a third party. The third party, in this case, is an expert manufacturer, which
takes care of replacement and maintenance of the batteries, thereby saving on the operating cost of the buses.

*****

**E-buses gaining traction on Indian roads**

It’s the new player that’s stepping hard on the accelerator. Olectra Greentech now has 108 electric buses on roads from Himachal Pradesh to Kerala. It’s also in the race to supply buses to 14 States and cities — from Pune, which is looking for 125 buses in the next two years, to pollution-ridden Delhi, which tendered for 385 e-buses and hopes to have over 1,000 within two years. Olectra has also done a pilot e-bus run between Delhi and Agra. The auto industry giant is, of course, Tata Motors, and it is also out in front in e-buses. It has got orders from six cities for 255 buses and 50 of these are already plying the roads. Others are slated to be delivered by end-May. “Tata Motors developed electric buses ahead of all domestic OEMs and won orders from Guwahati, Indore, Jammu, Jaipur, Kolkata and Lucknow,” says Girish Wagh, Tata’s Commercial Vehicles Business Unit president. The numbers may look still look paltry but make no mistake: a public transport revolution is shifting into high gear in India. Bengaluru has called for 1,500 buses. In Hyderabad, 40 Olectra buses are driving between the airport and different points in the city and there are plans for more soon. In Kolkata, three buses made by VE Commercial Vehicles have racked up 40,000 km on city roads and Tata e-buses are also making their way round the city. The electric revolution on Indian roads has been a long time coming. But it needed a push from the government, which has come with Fame-II (Faster Adoption and Manufacturing of Electric Vehicles in India, Phase II). Fame-II decided to focus on public transport and has thrown in ₹10,000 crore as subsidies to buy 7,000 buses over three years. “This will trigger the industry to make long-term investments to create EV products in this segment,” says Chetan Maini, Sun Mobility co-founder and vice-chairman. Racing to the starting line are old and new players. Tata and Ashok Leyland are the industry giants which have provided over 80 per cent of buses plying our roads. Also in the race are the Mahindra Group and VE Commercial Vehicles (VECV), a Eicher Motors-and-Volvo tie-up. VECV, which has 20 per cent of the conventional-
engine bus market, hopes to make an even bigger dent in the e-bus segment. “We anticipate a similar share or more,” says B Srinivas, VECV’s senior vice-president, BUS, sales and marketing.

**New ballgame**- But electric vehicles are a new ballgame and there are fresh players who reckon they can take on the market heavyweights. Chief amongst these is Olectra, part-promoted by BYD, the Chinese bus giant, which in China sold 30,000 buses and electric taxis in December alone. Incidentally, BYD expands as Build Your Dreams. Other newcomers, too, are dreaming big. JBM, a Delhi-based automobile components and renewable-energy company, has tied up with Solaris, a Polish coach-and-bus company to launch its first bus. The company also plans a big foray into making electric-charging systems needed for the electric revolution. In addition, the Adani Group is said to be planning an e-bus factory at Mundra. Everyone knows electric-powered mobility is the way to go. But government subsidies are still required because it’s reckoned e-buses are 20 per cent costlier to run than conventional diesel buses. Still, forecasts show that costs will fall and that e-buses will account for 70-75 per cent of the buses on Indian roads by 2024. “The future’s nearer than we think. Almost all State transport corporations have placed e-bus orders,” says Deepesh Rathore, co-founder and director, Emerging Markets Automotive Advisors. Still, it won’t immediately be a smooth ride for all-electric fleets, with range and time needed to recharge posing the biggest challenges. Delhi, for instance, is a city of distances so the government’s stipulated buses need a 220 km range for daily travel. For other cities, Tata supplies nine metre buses with a 120-150 km range. And VECV currently offers buses with a 170-km range. Srinivas notes that longer-lasting batteries can be developed but they’ll increase cost. “You have to strike a frugal balance,” he says, adding: “The way we’re placed, 170 km is more than enough.” The new technology will also bring in an entirely new way of working for State transport corporations. Most e-bus-makers will also sign what’s known in trade parlance as “opex” contracts. That is, transport companies will provide conductors but bus-makers will operate the vehicles and supply drivers. Also, the corporations provide bus-depot space but the opex company installs charging points and other equipment. Says Olectra Greentech executive director N Naga Satyam: “It’s a totally new technology. I don’t want my operators losing money because of technical
difficulties,” adding, Olectra offers 10-year maintenance contracts. Tata, however, doesn’t believe in opex contracts. Says Wagh: “Maintenance is usually less for electric buses. At present, we’re hand-holding and training driving-and-maintenance crews.” But electric technology is still in its infancy and companies are taking different routes to power up. Maini’s Sun Mobility, for instance, which has tied up with Ashok Leyland, offers swappable batteries that are changed at charging stations. Ashok Leyland buses are already running in Ahmedabad. Maini believes swappable batteries are the way forward: “Batteries make up over 50 per cent of vehicle cost so separating batteries from the vehicle and allowing quick swaps using robotic technology allow vehicles to be significantly cheaper.” There are, however, differing views on battery technology. Some players reckon robotic-changing systems are expensive and tougher to use.

**China, way ahead**- E-buses may be new in India but they definitely aren’t in China. Bustling Shenzhen, a high-tech metropolis of 12 million, is the world’s first city to go all electric. It has 16,500 buses and operators say the fuel bill has halved. In January, all Shenzhen taxis went electric. The city also reckons CO2 emissions have plunged 48 per cent. In fact, China is so far in front it’s almost out of sight in the e-bus race. Out of an estimated 385,000 e-buses globally, 90 per cent are in China. Thirty Chinese cities plan to go all-electric by 2020. Similarly, London’s single-decker buses will be emission-free by 2020 and its double-decker buses are going hybrid this year. The Chinese, who started going electric in 2011, are an impressive example of what can be achieved rapidly. But that may be a problem for everyone else because it’ll be impossible to match Chinese battery manufacturers’ prices. Will e-buses change urban transportation’s face? In China, commuters have been pleasantly surprised by the silent, air-conditioned e-buses plying their cities. In fact, there have been complaints the noiseless buses pose a threat to road users. It’s tough to imagine that in India but this could be a transportation revolution that creeps up on us without warning.

*****
Naidu says - switch over to e-vehicles for curbing pollution

Vice-president Vekaiah Naidu on Thursday said there was an urgent need to switch to electric vehicles to address the problem of traffic congestion and air pollution in cities. Naidu, who delivered the keynote address at the two-day long Connect Karo event organised by WRI India, said, “Congestion is adversely impacting the economic efficiency of our cities. The government is investing in public welfare system like Metro but there is a need for a comprehensive mobility plan as standalone Metro systems are not effective and need holistic planning.”

The two-day long conference is aimed at facilitating discussion on sustainable urban development with environmentally clean transportation and climate change.

A comprehensive mobility plan, Naidu said, is needed to meet the needs of cities for the next 20-40 years and India should follow the global trend of switching to electric vehicles and bicycles. Naidu, who is a former urban development minister, said that the switch from private to public transport is essential to check congestion and air pollution in cities. The Vice President also inaugurated two online platforms – Electric Mobility Forum and the Climate Explorer — developed by WRI India at the event. The Electric Mobility Forum aims at bringing together various stakeholders to help electrify and decarbonise transportation. The India Climate Explorer is an onestop open-access data visualisation portal to monitor progress in meeting the climate goals. He said that the best way to address climate change, which has become a big challenge, is to be friendly with the nature and live in harmony with it. The pace at which urbanisation is taking pace, Naidu said, there was a need to invest in our cities. “As we brace ourselves to cope with this challenge of climate change, we will have to marshal all our intelligence, knowledge, science and understanding of nature to do that,” he said. OP Agarwal, CEO, WRI India, said, “India is urbanising at a rapid pace. If this growth is harnessed appropriately, we could build a clean, sustainable, equitable and technologically advanced urban environment that supports livelihoods and enhances well-being of people.” Air quality has been a matter of concern and every winter several parts of the country face ambient air quality that is ‘extremely poor’. While the Central government has started several welfare schemes, Naidu said that these schemes can’t be successfully implemented till we change the mindset of people.

*****
In first phase of procurement, Delhi govt. issues global tenders for deploying 375 electric buses

The Delhi government on Monday issued global tenders for engagement of 375 of the 1,000 electric buses it has decided to procure to combat high levels of air pollution and boost public transport in the national capital. Delhi transport minister Kailash Gahlot said the 375 e-buses will form the first phase of procurement of the 1,000 buses. “I want to congratulate all Delhitiites. Keeping our commitment to fight pollution and moving towards clean fuel technology, AAP government has released global tenders for engagement of 375 electric buses in Delhi. This is the first phase of procurement of a total of 1000 e-buses,” he said. Earlier this month, the Delhi cabinet sanctioned procurement of 1,000 low-floor electric buses, saying the first batch of it was likely to be rolled on by the end of this year. The electric buses will be parked and charged overnight at six depots. These are East Vinod Nagar, Burari, Rohini Sector 37, Mudhela Kalan, ITDR Sarai kale Khan and Bamnauli. Providing the charging infrastructure in the depots and the housing of charging units will be the responsibility of the concessionaire. The arrangements to provide power infrastructure at intermediate charging points along bus routes will also be the responsibility of the concessionaires. The government, which has earmarked a budget of Rs 1,807 crore for the transport department, is going to provide a subsidy of ₹75 lakhs per bus, or 60% of the cost of the bus, whichever is lower, to the concessioner. The cabinet in the same meeting had also given its approval to allow the transport department to ask the prospective bidders to bring the
buses with CCTV cameras, Automatic Vehicle Tracking System (AVTS), panic buttons and panic alarms, as per the specification finalised by the government. The techno-financial assessment report submitted by consultant Delhi Integrated MultiModal Transit System (DIMTS) has suggested two models of e-buses. One, where the bus will be charged once a day, preferably overnight, and operate during the day. One such bus would cost ₹1.75 crore. Second, is where the buses would require charging even during its operational period. This type of bus would cost ₹1.5 crore each. Officials on condition of anonymity said a decision on whether both the models will be allowed or either of two, will be taken by the Cabinet on Saturday. The report also stated that the e-buses will have a running range between 120 kilometre and 180 kilometre per day. The cost of setting up charging infrastructure is likely to go up to ₹320 crores.

*****

हवा-पानी में जहर घोल रही ड्राई सेल बैट्री

दिल्ली की लैंडफिल साइट्स को ड्राई सेल बैट्री खतरनाक बना रही है। डस्टबिन से होते हुए ज्यादातर बेकार बैट्री सीधे लैंडफिल साइट्स तक पहुँच रही हैं। इनके जरिए कई खतरनाक केमिकल्स लैंडफिल साइट्स को अधिक खतरनाक बना रहे हैं। इस खतरे के बारे में दिल्ली के 86 परसेंट लोगों को कोई जानकारी ही नहीं है। यह खुलासा टॉक्सिक लिंक की नई स्टडी में हुआ है। दिल्ली में रहनेवाले हर 10 में 9 लोग इस बैट्री को घरेलू कचरे के साथ डस्टबिन में फेक रहे हैं। इस बैट्री में कैडमियम, लैड, सरकार से खतरनाक मेटल होते हैं। यह बैट्री डस्टबिन से होते हुए सीधे लैंडफिल साइट्स तक पहुँचती है और खतरनाक केमिकल वातावरण में जहर घोलना शुरू कर देते हैं। 400 से अधिक घरों में हुए सवेर से पता चला कि 86.5 परसेंट लोगों को पता ही नहीं है कि बेकार बैट्री कितनी खतरनाक है जबकि 92.5 परसेंट लोग बैट्री को घरेलू कचरे के साथ डस्टबिन में फेक देते हैं। देश में हर साल 2.7 बिलियन ड्राई सेल बैट्री का इस्तेमाल होता है। इनमें से 97 परसेंट बैट्री जिक कार्बन सेल की होती है। 2.4 बिलियन बैट्री सीधे लैंडफिल साइट्स तक पहुंचती हैं और हवा के साथ मिट्टी और पानी को भी प्रदूषित करती हैं। इन्हें बना रही बिलियन डॉलर की इंडस्ट्री के लिए कोई रेगुलेट्री क्रेब्स कर नहीं बना है।

*****
Paris deal won’t stop global warming

The sixth Global Environment Outlook (GEO6) report warns policymakers that current nationally determined contributions (NDC) under Paris Agreement, 2015 are just a third of the mitigation required to keep global temperatures below two degrees over pre-industrial levels. “What this means is that even if we fulfil all the NDCs, the global temperature will still shoot up to 2.7 to 3 degrees Celsius, and with the United States withdrawing from the agreement, it will likely go beyond 3 degrees,” said Dr. NH Ravindranath, professor at Centre for Sustainable Technologies at Indian Institute of Science, Bangalore, and one of the contributors to the global report. Last year, a special report by the Intergovernmental Panel on Climate Change said that an increase of 1.5 degrees over pre-industrial levels would mean heat waves, heavy rainfall, extreme weather conditions, and water shortage, reduced farm output, coral bleaching and sea level rise. With a two-degree rise, these risks would increase substantially. At the current pace of rise, the temperature target of 1.5 degrees is likely to be crossed between 2030 and 2052. “The target of 2 degrees is likely to be crossed 10-15 years after that,” said Ravindranath. To arrest the temperature, rise well below two degrees, emissions need to drop between 40% and 70% globally between 2010 and 2050, falling to net zero by 2070, according to GEO6 report. “The report presents a global perspective and the same is true for India. The outlook is bleak. What we are saying in the report is that we are not on track to achieve sustainable development goals. We have several global commitments and action plans at the national level but the translation to the local level is weak,” said Ravindranath. The GEO6 report was presented for consideration and endorsement on Wednesday during the ongoing fourth United Nations Environment Assembly in Nairobi, Kenya. The report examines how global environmental degradation has led to irreversible impacts on atmosphere, land, oceans, and biodiversity and these, in turn, have “very high impact” on the health of people. According to it, the world’s population is expected to reach 10 billion by 2050 with 66% of the population
living in urban centres by 2050. “To actually reverse the pressure of the human population on the health of the planet we need to think of ways to prevent people from migrating to cities because they are not ready for it. Already, big cities like Bangalore are running out of the water,” said DrRavindranath. “Nearly 600 million people in India depend on perennial rivers for water supply. With glaciers receding, whether these rivers will remain perennial is a question mark. These rivers are also responsible for groundwater recharge and sometimes the groundwater feeds the rivers, the whole system would be in jeopardy,” said Professor Arun Kansal, dean and head of the department of regional water studies at TERI School of Advanced Studies. To prevent mass migration to megacities, India needs to urgently address the land degradation and agrarian crisis, he added.

*****
Delhi’s pollution crisis comes in two waves: Study

Delhi, considered among the most polluted cities in the world, sees two spikes in pollution during winter months, a new study has shown. In both spikes, lasting a week each, pollution levels shoot up at least five times above the permissible limits, forcing authorities to implement emergency measures. Researchers from Indian Institute of Technology (IIT)-Delhi, the University of California, University of Illinois, and other research organisations found that while the first peak hits the National Capital Region (NCR) sometime around late October and early November, the second one, comparatively milder, occurs around December-end and early January. The researchers analysed 16 years of satellite data (from 2001 to 2016) to obtain weekly concentration of PM2.5 levels in Delhi-NCR between October and May of the following year. The research was published in Atmospheric Environment, a peer-reviewed scientific journal, in February 2019. PM 2.5 — particulate matter that are 2.5 microns or less in width — are pollutants that can penetrate deep inside the lungs. The study indicates two peak pollution episodes in Delhi-NCR. The first peak occurs in the week of October 29-November 4. The second peak is slightly lower than the first peak and hits between December 30 and January 5,” said Sagnik Dey, associate professor at the Centre for Atmospheric Studies in IITDelhi. Pollution levels start peaking from October 15-21 and peak between October 29 and November 4. This peak continues till around November 11 after which pollution levels start declining. The concentration of PM 2.5 again starts building up from around December 17-23 and hits a peak around December 30-January 5. In 2018, Delhi witnessed one peak on November 9, a day after Diwali, when pollution hit the emergency level. Another peak was witnessed between December 23 and 25. Pollution levels hit the emergency levels at least two times after that, largely because of unfavourable wind conditions. Delhi encountered its worst fog in 17 years in the last week of October and the first week of November in 2016. During the first episode, stubble burning plays a major role with northwesterly winds bringing in toxic fumes from the stubble burning regions of Punjab and Haryana (where farmers burn stubble from the previous crop to get ready for the new season). The second episode is triggered by multiple factors, including local emissions, unfavourable meteorological conditions, and pollutants coming in from outside Delhi. “Satellite data shows
that pollution from stubble burning shot up by at least 9% between 2009 and 2016. The Punjab government implemented the Sub-Soil Water Preservation Act which reduced the time period between wheat and paddy crops [meaning farmers have less time to clear the previous crop]. This could have led to a rise in stubble burning,” said Dey. The research also shows that places located downwind of Delhi become more polluted because the wind transports the pollutants locally emitted by vehicles and industries within Delhi. This, researchers term as ‘Megacity Outflow’. An earlier study done by The Energy Resources Institute (TERI) and Automotive Research Association of India said that while Noida receives 40% of its pollution from Delhi, Gurugram and Faridabad receive around 15% and 17% of their pollution from Delhi. While east and north-east Delhi remain more polluted during the October-November episode, the pollution rises across the national capital, except South Delhi, during the December January episode. “Pollution levels in Delhi are governed primarily by two factors — meteorology and groundlevel activities. If we can manage the ground level activities, pollution can be brought down. If we can plan our actions keeping in mind these two periods, we will able to further bring down pollution levels,” said D Saha, former head of the Central Pollution Control Board’s air quality laboratory.

*****

Rank-bad air: five of world’s 10 worst in NCR

Five out of the top 10 most-polluted cities in the world are in Delhi-NCR with Gurgaon being at the number 1 spot clocking an annual average PM2.5 reading of 135.8 micrograms per cubic metre (ug/m³) in 2018. This has been revealed by data compiled in the IQAir AirVisual 2018 World Air Quality Report prepared in collaboration with Greenpeace Southeast Asia. Ghaziabad is at the second spot with 135.2ug/m³, while Faisalabad in Pakistan is third with 130.4. Faridabad, Bhiwadi and Noida take the next three spots with average PM2.5 readings of 129.1, 125.4 and 123.6, respectively. Delhi had an average yearly PM2.5 concentrations of 113.5ug/m³ putting it eleventh on the list. However, it is still the most polluted capital followed by Dhaka at 97.1. The third spot went to Kabul with 61.8ug/m³. The National Ambient Air Quality Standards puts the annual permissible PM2.5 limit at 40ug/m³. The annual permissible limits prescribed by World Health
Organization is even lower at 10ug/m³. The data also reveals that Delhi was ranked 12th in 2017 with an average reading of 108.2ug/m³, which increased to 113.5ug/m³ in 2018. Monthly data also showed an overall increase in Delhi with November, December and January having the foulest air quality. In January 2017, the average PM2.5 was 157ug/m³, while in 2018 it was 204.6ug/m³. In December 2017, it was 199.9ug/m³, while in 2018 it was 218.8ug/m³. In November 2017, it was 231.3ug/m³, while the next year it was 194.2ug/m³. Air pollution has been a major issue plaguing policymakers and citizens in India. If the country reduces particulate pollution by 25% under National Clean Air Programme (NCAP), residents of Delhi and Uttar Pradesh could live almost three years longer, according to a recent Air Quality Life Index (AQLI) report. The Greenpeace report stated that four of the five most-polluted countries and regions in the world were located in South Asia. “Of the 84 cities monitored, 99% failed to meet the WHO annual guidelines for PM2.5. As a whole, cities here average a PM2.5 concentrations of 60ug/m³, six times the recommended limit of 10ug/m³. Sources of PM2.5 pollution vary by region and city, but common contributors include vehicle exhaust, open crop and biomass burning, industrial emissions and coal combustion,” it stated. The city rankings show Asian locations dominating the highest 100 average PM2.5 levels during 2018, with cities in India, China, Pakistan and Bangladesh occupying the top 50 spots. Middle-East region cities also rank highly with Kuwait City, Dubai and Manama all exceeding the WHO guidelines by over 500%. At country-level weighted by population, Bangladesh emerged as the most-polluted country on average, closely followed by Pakistan and India, with Middle-Eastern countries, Afghanistan and Mongolia also within the top 10. “Of the cities included in South Asia, it is interesting to note that, although Delhi typically receives most media coverage as one of the world’s pollution capitals, the Indian capital only ranks 10th for annual PM2.5 concentrations,” the report stated. Pujarini Sen of Greenpeace India said, “We need to do much more than was has already been planned and done. If we want India to breathe clean air, it’s high time that our plans such as NCAP, GRAP, CAP, etc become stringent, aggressive, legally binding and most of all implementable at ground.”

*****
Chief secretary Vijay Dev has asked Delhi Jal Board to start the process of levying environmental compensation of Rs 100-300-500 per household. In a meeting of the National Green Tribunal-appointed monitoring committee on Yamuna, the top bureaucrat of the city government “expressed displeasure at the delay and directed the CEO DJB to pursue levy of sewage charges by following the most feasible alternative without further loss of time”. In 2015, holding every Delhi resident responsible for polluting the Yamuna, the NGT had ordered every household to pay a certain amount each month as environment compensation ranging between Rs 100 and Rs 500. However, not a single penny has been collected as authorities are yet to initiate the collection process. “It was informed by the members of the monitoring committee that levy of environmental compensation (EC) under Polluters Pays Principle was a direction of National Green Tribunal for all households, irrespective of whether they lived in a sewered or unsewered area. However, the Delhi Jal Board is yet to comply with the said directions issued in 2015,” minutes of the meeting held last week states. According to the monitoring committee, merely because subsidy for sewage treatment has been subsumed in the water subsidy cannot be a ground that households pay nothing for the treatment of sewage generation and avoid paying anything. “This was happening even in the case of upscale colonies, which could not be the intention of the policy. Besides, DJB had reported that the Delhi government had decided to levy flat charges of Rs100/300/500 sometime in 2015 but this was not given effect to because a conduit for collection of the sewage conveyance charges was not decided,” it said. The committee informed Dev that NGT had already been apprised of the reluctance of DJB to implement this direction, and this would become an important issue for recording non-compliance of the tribunal’s orders when the next report is sent in early May.****
Diabetes deaths due to air pollution highest in India

The burden of Type 2 diabetes contributed by exposure to fine particulate pollution is the highest in India, according to the State of Global Air 2019 report released on Wednesday. Air pollution lowers insulin sensitivity, contributing to diabetes. In 2017, exposure to PM 2.5 pollution was found to be the third leading risk factor globally for Type 2 diabetes-related deaths and disability after high blood sugar and excessive body weight. Globally, such exposure contributed to about 2.76 lakh deaths and 15.2 million life years lost to disability in 2017. This burden was highest in India, where it accounted for 55,000 deaths and 2.7 million life years lost, according to the report by Health Effects Institute (HEI) and Institute of Health Metrics and Evaluation’s Global Burden of Disease project. India was followed by China, Indonesia, Mexico and Brazil. “PM 2.5 particles are endocrine disruptors. They can affect insulin secretion and insulin sensitivity. They can also damage the beta cells in the pancreas that produces insulin... the exact pathways are not known yet. But increasingly, research is showing these connections. So apart from poor diet, obesity etc., air pollution definitely plays a role in diabetes,” said Dr Vishwanathan Mohan, diabetologist and chairman
of Dr Mohan’s Diabetes Specialties Centre Diabetes affected at least 65 million
people in India in 2017, according to The Lancet Global Health study released
last year. In 2017, diabetes accounted for more than one million deaths and 57
million life years lost globally — an increase of 175% and 141%, respectively,
since 1990. India also tops a list of 13 countries, with populations over 50
million, in which more than 10% of the population was exposed to household
air pollution by use of solid fuels. About 60% of India’s population was exposed
to household pollution, followed by China with 32%. However, the report
recognises that the proportion of households cooking with solid fuels in India
has dipped from 76% in 2005 to 60% (846 million) in 2017, “due in part to a
major government program to shift households from solid fuels to liquefied
petroleum gas.” “India has initiated major steps to address pollution sources:
the Pradhan Mantri Ujjwala Yojana Household LPG program, accelerated
Bharat Stage VI vehicle standards, and the new National Clean Air Programme.
These and future initiatives have the potential, if fully implemented as part of
a sustained commitment to air quality, to result in significant health benefits in
coming years,” said Robert O’Keefe, vice president, Health Effects Institute,
Boston, US. Exposure to outdoor and indoor air pollution together contributed
to over 1.2 million deaths in India and China in 2017, the report said. Globally,
air pollution (PM 2.5, household and ozone emissions) is estimated to have
contributed to about 4.9 million deaths — 8.7% of all deaths globally and 5.9%
of all life years lost to disability. India and China have the highest health burden
from air pollution, followed by Pakistan, Indonesia, Bangladesh and Nigeria.
Since 1990, there has been a 68% jump in the number of deaths attributed to
PM 2.5 exposure, with the largest spike between 1990 and 2010.

*****
Consistently poor air quality, and now the tag of the world’s most polluted city, have left the corporate sector grappling with a talent retention problem as fears that professionals working in Gurgaon could relocate to places with cleaner air become bigger with each day. A few startups already have. A study, which was conducted by IQAir AirVisual and Greenpeace and released in Jakarta on Tuesday, states Gurgaon’s average annual PM2.5 levels were at an alarming 135.8 micrograms per cubic metre. Deep Kalra, founder and CEO of online travel company Makemytrip.com, said the city’s worsening air quality has left several of his employees worried about their health. “My CMO (chief marketing officer) recently had a child who has to be restricted indoors all the time to avoid the pollution, else the kid develops health problems,” he said. Kalra, who was speaking at the launch of the ‘Green Gurugram’ initiative of the Gurugram Metropolitan Development Authority (GMDA) on Tuesday, added that several employees, especially at the middle level, are looking to relocate to other cities for better quality of life. Vinod Sood, MD at Hughes Systique, a provider of software R&D services, aired similar concerns. He said that professionals who are looking to start a family want to avoid any damage that their children might suffer in their initial years due to pollution, and would rather move to cities
such as Pune and Hyderabad. It is not just the employees currently working in Gurgaon that are a cause for concern for their companies. Several firms are also finding it difficult to acquire new talent, said Sood. “We generally hire people from overseas for new technologies such as artificial intelligence and big data, and while the prospective candidates are excited about opportunities in India, they do not want to relocate to NCR,” he said. Manas Fuloria, CEO of IT firm Nagarro, said Gurgaon could lose companies and capital at this rate. “We can see a flight of talent due to environmental concerns. Cities like Hyderabad, Pune and Bengaluru are becoming preferable alternatives,” he said. Niranjan Raje, a resident and former member of the Supreme Court-empowered EPCA, said air pollution is adversely affecting the lives of people in Gurgaon, especially infants and the elderly. “Retired people like me have a lot of trouble breathing and chest-related issues as well, hence we move out of the city every winter. However, now more and more youngsters are also thinking of moving to cities such as Pune, Hyderabad and Bengaluru,” said Raje. Several startups and their employees have already started the process of shifting. For instance, Smriti Anand, who works with CoWrks, a company providing co-working space, is moving to Bengaluru. The BJP-led Haryana government’s recent move to amend the Punjab Land Preservation Act (PLPA), 1900 to allow more construction in the Aravalis ecosystem and the rollout of a road project through the Aravalli Biodiversity Project has only added to the industry’s apprehensions.

*****

Industries, vehicles foul up air in Ghaziabad

Long before the IQAir AirVisual-Greenpeace study came up with its report ranking Ghaziabad as the secondmost polluted city in the world, the NCR’s industrial hub hogged media headlines for having the worst air quality in the country on at least two occasions — in November 2017 and October 2018. Experts say industries, vehicles and construction sites are the biggest contributors to coarse pollutants in Ghaziabad — which is otherwise doing reasonably well on other civic parameters — and enforcement mechanism needs to be overhauled to achieve desired results. “While the district administration and the pollution control department claim that effective steps
like closing down of polluting industries and imposition of fines are being taken on a regular basis, there are hundreds of illegal polluting industries operating out of the district. And something has to be done to shut them down,” said Sushil Raghav, a city-based environmentalist. According to experts, the increasing number of vehicles in the past three decades has further aggravated the problem. Moreover, there are rampant construction activities going on in Ghaziabad, flouting NGT norms. “Construction waste and dust release pollutants, including PM2.5, in the air, taking a toll on the city’s air quality. Despite their best efforts, authorities have not been able to clamp down on erring developers,” said Raghav. As compared with Ghaziabad, neighbouring Noida figured lower on the PM2.5 parameters and was ranked as the sixthmost polluted city. “GRAP was implemented in Noida for most parts of last year. While PM10 levels are on a rise, PM 2.5 is rising because of increasing vehicular pressure and population density,” an UPPCB official said.

*****

**Book your cycle on app, use QR code and ride off**

Like in central and south Delhi, the North Delhi Municipal Corporation too operationalised an application-based bicycle sharing system in areas under its jurisdiction on Thursday. The bike service, launched in association with Planet Green Bikes, will cover 25 key locations, including Delhi University, New Delhi Railway Station, Chandni Chowk and ITO intersection. Inaugurating the cycle service at the Vishwavidyalaya metro station, Adesh Gupta, mayor of the north corporation, said, “The problems of traffic jams and pollution in Delhi are getting worse by the day. In such a situation, we have taken this step to promote health and improve the environment.” A corporation official said that people have to download an app called Planet Green Bikes to avail the service. “They have to register themselves using their Aadhaar number to open an account,” the official said. “The service will be available free of cost for the first half hour and will cost the user Rs10 per hour after that.” Unlocking the bicycle from its docking station will require a QR code scan. Keeping in mind the high pedestrian traffic in North Campus, four docking points are located there. These are Vishwavidyalaya metro station, Shreya Mishra Marg near Patel Chest
Institute, Sudhir Bose Marg near Ramjas College and Guru Tegh Bahadur Marg opposite Khalsa College. The 21 other points include the Minto Road crossing, the ITO intersection, New Delhi Railway Station, Kohat Enclave towards Netaji Subhash Place, Rohini East metro station, Saraswati Vihar, Mukarba Chowk towards Peeragarhi and Madhuban Chowk crossing. Other points are Shakarpur, Raja Garden, Shadipur Depot, Mayapuri-Kirti Nagar furniture market, and Rajouri Garden towards Dhaula Kuan. In Karol Bagh, the selected points include Pusa Road going towards Rajendra Place metro station, Panchkuian Road, Mandir Marg crossing, RK Ashram Marg metro station, Jhandewalan metro station, Rajendra Place metro station and Karol Bagh roundabout going to Jhandewalan. According to corporation officials, there are four such points in old Delhi: Shankar Road, near Gate no 6 at Kashmere Gate metro station; Delhi Gate crossing on Bahadur Shah Zafar Marg and Old Delhi Railway Station. The New Delhi Municipal Council is successfully running the SmartBike service with 25 points where cycles can be accessed or docked, while SDMC has nine stands on the BRT corridor. Many bicycle sharing projects of this sort have come up in the recent past, but the city has failed to develop the associated infrastructure such as safe bicycle tracks, hampering the effort to promote cycling.

*****

Air quality moderate, may improve further; rain likely

Delhi’s air quality was recorded in the ‘moderate’ category on Sunday with an overall Air Quality Index (AQI) of 160. This could improve further in the next 24 hours with the IMD forecasting light rain for Monday. Spells of light rain are also likely to occur on Wednesday and Thursday, bringing down the maximum temperature by 2-3 degrees, an official said. “Under the influence of western disturbance, the air quality is expected to slightly improve and remain in the lower end of moderate category on Monday. AQI is predicted to be in the moderate to higher end of satisfactory range for next three days,” stated SAFAR’s daily forecast. Delhi’s minimum temperature was recorded at 10.8 degrees Celsius, three notches below normal for this time of the season. The maximum was recorded at 27 degrees Celsius, two degrees below normal. The
relative humidity has been oscillating between 35% and 97% in the last 24 hours and officials from the regional forecasting department say this is primarily due to an increase in moisture from an active western disturbance. “The western disturbance will bring light rain to Delhi and parts of north India. There will be cloudy skies over the next few days with scattered spells of light rain. This will once again bring down the maximum to around 25 degrees,” said a Met official. Delhi’s air quality has largely been hovering in the ‘moderate’ to ‘poor’ range. However, it also recorded a day of ‘satisfactory’ air quality on March 3 after rain. Forecast for Monday shows cloudy skies and light rain accompanied by strong surface winds. “The maximum and minimum should be around 27 and 14 degrees Celsius respectively,” said an official. An AQI from 51 to 100 is classified as ‘satisfactory’, 101 to 200 is ‘moderate’ and AQI between 201 to 300 is considered ‘poor’ on the CPCB index.

*****

UN Environment Assembly adopts two resolutions backed by India

The United Nations Environment Assembly (UNEA) adopted two resolutions piloted by India on addressing single-use plastic pollution and sustainable nitrogen management. This is the first time an Indiabacked resolution has been adopted at UNEA. The fourth session being held in Nairobi, Kenya concluded on Friday. The resolution on addressing single-use plastic pollution urges member states to develop national or regional plans, identify eco-friendly alternatives, work with research organisations and the industry to develop such alternatives, improve waste management practices. The Prime Minister had said India would phase out single-use plastic by 2022 during his World Environment Day speech in 2018. “This is the context for India to bring up the resolution and after tough negotiations, it was accepted. However, the member states did not want the resolution to say it would be ‘phased out’,” said an environment ministry official, requesting anonymity. So far, only 9% of the nine billion tonne plastics has been recycled. And, if this trend continues, landfills will have 12 billion metric tonne plastic litter by 2050. “We have generated huge quantities of plastic waste and it is not restricted to landfills in the cities, it gets into the rivers
and oceans and has a massive environmental impact. Many cities have banned polybags. We now have a national policy to phase out single-use plastic as well... The global agreements will help in driving research into viable alternatives,” said Dr. Rajiv Seth, former pro-VC of TERI school of advanced studies.

*****

**Crude Output Continues to fall**

Domestic crude oil output shrank 4% in the eleven months through February from a year earlier, continuing the declining trend for the seventh fiscal year in a row and pushing up India’s dependence on imports. Imports met 83.8% of local oil needs during April-Feb of 2018-19, up from 75.9% in 2011-12. Local production began falling in 2012-13 and has declined every year since despite billions of dollars of investments in sustaining production from ageing fields and finding new sources of oil. In early 2015, Prime Minister Narendra Modi set a target of cutting import dependence to 67% by 2022. Following this, the government drew up a plan to raise local output and expand the use of substitutes like natural gas and biofuels to bring down imports. The official measures are yet to show much impact. During April-Feb this fiscal year, domestic oil production fell to 31.35 million metric tonnes (MMT), a 4% decline from the same period last fiscal year. ONGC, the country’s largest oil producer, saw oil production drop 5.4% while Oil India’s output shrank 2.6%. Fields operated by private players also reported 1.3% lower output. At the heart of the problem are depleting fields and companies’ inability to make any major oil discovery for years that could substantially alter the country’s production profile. Operational problems such as the absence of rig or malfunctioning equipment system, sub-sea leakage in some fluid lines of Mumbai High and Neelam Heera fields, and underperformance in some Gujarat
fields contributed to lower production by ONGC, Oil Ministry’s monthly production report said. Underperforming wells have been blamed for OIL’s lower output. Delayed upgrade of Mangala Processing Terminal, delayed drilling, and closure of nearly 100 wells due to liquid handling constraint at the terminal and other technical limitations have affected production at Vedanta’s prolific Barmer block in Rajasthan, as per the official report. Crude oil imports rose 2.6% during April 2018-February 2019 from a year earlier. Import of petroleum products decreased 6.5% during the same period, primarily due to lower imports of diesel and petcoke, a dirty fuel that’s being discouraged in the country. Exports of petroleum products fell 9.7% during April 2018 – February 2019 due to lower exports of petrol, naphtha, diesel and fuel oil.

*****

**Pollution tied to psychotic episodes in teens: Study**

High levels of air pollution in England and Wales have been linked with psychotic experiences in teenagers, such as hearing voices and intense paranoia, scientists said on Wednesday, as poor air quality in British cities comes under scrutiny. Children and adolescents living in a city were twice as likely to experience a psychotic episode as those living in rural areas, said researchers at King’s College London, who described their study as the first of its kind in the country. “We found that adolescent psychotic experiences were more common in urban areas,” said Joanne Newbury, lead author of the paper, published in the journal ‘JAMA Psychiatry’. The researchers used data from a two-decade long study examining over 2,200 British children born in 1994-5, and compared it with national air pollution data from 2012, when the children would have been about 17 years old. About 30% of children reported at least one psychotic episode between the ages of 12 and 18, with the highest rates in cities with heavy exposure to nitrogen dioxide, nitrogen oxides and tiny air pollution particles, such as dust and smoke.

*****
Ghonda Gujran waste plant will poison Yamuna: Experts

Protests against the proposed integrated waste management facility at Ghonda Gujran in north-east Delhi gathered momentum on Thursday with experts and activists saying it could spell disaster as the land falls under the ‘O’ zone and leachate from the facility could destroy the aquifers present in the river’s flood plains. On Monday, the Delhi Development Authority (DDA) had allocated the 42.5-acre plot in Ghonda Gujran to the East Delhi Municipal Corporation for the proposed facility. Experts have demanded a roll-back of the decision. Even though a principal committee appointed by the National Green Tribunal (NGT) had rejected the proposal in September 2017, the Central Pollution Control Board (CPCB) in 2018 gave it a go-ahead saying “a portion of Ghonda Gujran (approximately 50 acres) could be allotted to the EDMC because it is in a ‘no-flood zone’”.

‘O’ ZONE AND FLOOD PLAINS- According to senior DDA and EDMC officials aware of the developments, the Ghonda Gujran area falls under ‘O’ zone — the riverfront zone. They, however, said the plot identified for the proposed plant was not on the flood plains, which has already been demarcated. “The plot falls under the O zone, but not under floodplains,” a senior DDA official said. The CPCB’s note also says that the site doesn’t fall under the floodplains and is at least 1,950 metre away from the ‘water body’. Activists, however, disagree. “The allotted plot falls under an active floodplain. It was inundated by flood water in 2008, 2010 and 2013. What more evidence do the authorities need,” said Manoj Misra, convener of Yamuna Jiye Abhiyan. The NGT’s principal committee had even expressed its concern over the leachate problem. “It was observed that the proposed site falls in the floodplain. Therefore, a landfill site or municipal solid waste processing facility could lead to potential hazard to human lives as well the flora and fauna dependant on the river’s water,” the principal committee had noted.

LEACHATE PROBLEM- Even though the EDMC said the proposed facility is not a landfill site and will be developed as an integrated waste management facility, which includes a wasteto-energy (WTE) plant, a biomethanation plant and a construction and demolition debris processing facility, activists said leachate from the plant could pollute the underground aquifers. Since the landfill will be
situated near the river, garbage, and toxic leachate could flow into to the water body and cause a health crisis due to the increased toxicity in drinking water. Leachate may also be absorbed in the underground water table, therefore polluting the aquifers. "There is no landfill that does not finally leak. Various studies show that from Ghazipur in Delhi to Pallavaram in Chennai, each one has irreversibly poisoned the aquifers as the leachate from the waste goes into groundwater. The toxins include heavy metals such as cadmium and nickel," said Chitra Mukherjee, head (advocacy and policy) at Chintan, an organisation working on solid waste management. She quoted a study conducted by Jawaharlal Nehru University’s environment department between 2012 and 2013 that revealed that the ground soil of the area around Ghazipur harboured organic pollutants which exceeded the permissible limits by up to 158 times. “It will have to be cleared by the Union environment ministry. If it has any shortcomings, it won’t be cleared," Dilraj Kaur, EDMC commissioner, said. A senior EDMC official said the plant would not have any leachate problems because the garbage will be treated the same day. Leachate forms when the waste is allowed to stand for several days. “There are problems of residue and reject from the waste-to-energy plant and bio-methanation plant. Where will you dump the residue or reject? It has to go to the same land fill site,” said a professor of civil engineering department of IIT Delhi, who refused to be named.

*****

Packaging firm Uflex develops plastic recycling tech

Uflex Ltd, one of India’s biggest flexible packaging companies, has developed a simple, cost-effective method to convert used plastics into pellets that can be used for making products used in daily life. “It is true that plastics take a long time to degrade. But it is possible to turn this long shelf life of plastic into an advantage using the right technology,” said Uflex CMD Ashok Kumar Chaturvedi on Saturday.

IndiaPlast show- At IndiaPlast 2019, the ongoing plastics show here, Uflex put up a demonstration unit to recycle multi-layer plastic packaging waste into pellets that can be used for making useful products. “We first demonstrated
this technology nearly 25 years ago and won recognition for this at Davos in 1995. We have been using the technology to recycle plastic scrap generated during manufacturing at our plants. Recently, some people asked me why we don’t have a demonstration unit so that people can see it is possible, and we decided to showcase it at IndiaPlast,” Chaturvedi said. “With our demo unit at the IndiaPlast exhibition, we have shown that plastic is recyclable. The pellets produced from recycled plastics can be used for making buckets, mugs and dustbins; park benches; tiles and tables; and roads and road dividers,” he said.

‘Cooking’ plastic waste- The plant is capable of recycling any kind of plastic waste, including printed and multi-laminated plastic films, metalised pet, polyester and BOPP. The machine that Uflex has developed costs around ₹2 crores and can produce pellets at a rate of 250 kg per hour. “Since the process involved is ‘cooking’ plastic waste, there is no emission of noxious gases, unlike the incineration process. And since it is cooking, the process requires only moderate temperatures, and hence is not very energy-intensive,” Chaturvedi told Businessline.

Overseas plants- A leader in plastic packaging, Uflex has plants in Jammu as well as in Noida, Uttar Pradesh. Besides, it has plants in Dubai, Egypt, Hungary, Mexico and the US. Chaturvedi said that Uflex recently approached the Noida Authority for 8-10 acres of land at a discounted rate for processing plastic waste generated in the satellite town of the capital. It has also requested the Centre not to levy any GST on the finished products made from recycled plastic

*****

Stubble burning cost $150bn in 5 yrs.: Study

A new study has found that people living in areas that see intense agricultural crop residue burning (ACRB) are three times as likely to contract acute respiratory infection (ARI) compared to those in other areas, with children under the age of five being particularly susceptible. The study, by International Food Policy Research Institute (IFPRI) University of Washington estimated that eliminating crop residue burning could add 14.9 million life years in Haryana, Punjab and Delhi that would otherwise be lost to disability and disease.
economic life years lost is estimated to be at least $150 billion over five years according to the IFPRI study published in the International Journal of Epidemiology. The study arrives at its conclusions by merging fourth district level health survey data for 2013 with satellite data on crop fires in Haryana. Andhra Pradesh and Tamil Nadu where there is no stubble burning were used for comparison. The frequency of ARI symptoms in Haryana closely related to the number of fires observed. In Andhra Pradesh and Tamil Nad the frequency of ARI cases was far lower, the study found. Crop burning in Haryana and Punjab was most intense in 2013 according to the study. In Haryana, 5.4% of surveyed individuals reported ARI symptoms as compared to only 0.1% in the southern states compared. Delhi has amongst the worst air quality in the world. According to another recent study by researchers from the Indian Institute of Technology (IIT)-Delhi, the University of California, University of Illinois, and reported by Hindu Stan Times last week, Delhi’s air pollution sees two spikes — one coinciding with the stubble burning season in Punjab and Haryana, and the other with a sharp dip in temperature. Stubble burning during October and November in Punjab and Haryana contributes to air pollution in the national capital and creates toxic smog as it mixes with fog during winter every year. Even though overall air quality in 2018 was better than previous years, in December, Delhi encountered one of its longest spells of severe air. In Haryana 17.5% of people interviewed for the study lived in districts reporting 100 or more crop fires per day. Researchers concluded that living in a district with more than a 100 crop fires per day is associated with a threefold higher risk of ARI. Other risk factors include being less than five years old, living in areas with vehicular congestion, and using biomass for cooking among others. The Centre allocated ₹1,140.3 crores in the 2018 Budget for agricultural mechanisation in Punjab and Haryana aimed at clearing fields of stubble ahead of the new sowing season. Last year, a Nasa study, authored by scientists Hiren Jethva and Omar Torres from the Universities Space Research Association used data from the Indian agriculture ministry to show that rice crop production post monsoon in north-western India increased by 0.18 million tonnes per year between 2002 and 2016. The rise is consistent with the rise in crop fire numbers in Punjab and Haryana, from about 8,000 in 2002 to about 16,500 in 2016. Harinder Singh Lakhw, general secretary, Bharatiya Kisan Union in Punjab, said, “We notice
a rise in respiratory diseases during stubble burning season but most farmers don’t have access to straw management machinery [to deal with stubble and therefore resort to burning]. The 40% subsidy being offered on the machinery is just not enough because the cost of machines has also increased. For example, the cost of rotavator has increased from ₹70,000 to ₹1.2 lakh last year. Farmers should be compensated properly.”

****

वायु प्रदूषण से भारत को 2.1 लाख करोड़ की क्षति

उत्तर भारत में पराली जलाने के कारण पैदा होने वाले वायु प्रदूषण से स्वास्थ्य के साथ अर्थव्यवस्था को भी भारी नुकसान पहुंच रहा है। वायु प्रदूषण के कारण सांस संबंधी संक्रमण बढ़ने के साथ ही देश को सालाना 30 अरब डॉलर (एमबीएफ 2.1 लाख करोड़ स्वयं) का आधिक नुकसान भी हो रहा है। अमेरिका के इंटरनेशनल पूल कॉल्सिस रिसर्च इंस्टीट्यूट व सहयोगी संस्थाओं के शोधकर्ताओं ने पाया है कि पराली जलाने से होने वाले वायु प्रदूषण के कारण उत्तर भारत के विभिन्न जिलों में रहने वालों में एक्स्टेंडेड सेंटर स्टेटस्ट इंस्टेंशन (एआरआई) का खतरा बहुत अधिक होता है। इस अध्ययन में कहा गया है कि पांच साल से कम उम्र के बच्चों में इस संक्रमण का खतरा सर्वाधिक है। इस अनुसंधान के जरिए पहली बार उत्तर भारत में पराली जलाने से स्वास्थ्य एवं अर्थव्यवस्था पर पड़े वाले नुकसानों का अधिकार किया गया है। आईएफआइआई के रिसर्च फेलो और इस अध्ययन के सह लेखक सैलियोम स्कॉट ने कहा गया कि वायु की खराब गुणवत्ता दुनियाभर में स्वास्थ्य से जुड़ी सबसे बड़ी समस्या बन गई है। दिल्ली में तो हवा में पार्टिक्यल मैटर (पीएम) का स्तर विश्व स्वास्थ्य संगठन के मानकों से 20 गुना तक अधिक हो गया है। हरियाणा और पंजाब में किसानों के पराली जलाने से निकलने वाले धुएं के कारण दिल्ली में वायु गुणवत्ता पर असर पड़ता है।

• पराली जलाने से उत्तर भारत में बढ़ रहा वायु प्रदूषण।
• मानक से 20 गुना अधिक हो गया है वायु प्रदूषण।

****

ब्लैक होल्स खोजे तो ‘बिग बैंग’ पर उठा सवाल

आजकल ब्लैक होल एक बार फिर चरण में हैं। हाल ही में जापान, ताइवान और प्रिस्टन यूनिवर्सिटी के ग्यांगल वैज्ञानिकों ने ब्रह्मांड के सुरू तकों में स्थित 83 अरब अनु विशालकाय (सुपरमसिव) ब्लैक होल्स की खोज की है। इन बेहद विशालकाय ब्लैक होल्स की मौजूदगी के संकेत 83 अरब प्रकाश से लगभग 13 अरब प्रकाश वर्ष दूर हैं। दूसरी शब्दों में हम उन्हें देख रहे हैं क्योंकि वे 13 अरब वर्ष पहले अस्तित्व में थे। ब्रह्मांड की उत्पत्ति (बिग बैंग) 13.8 अरब वर्ष पहले की बताई जाती है। उस समय ब्रह्मांड की आयु इसकी वर्तमान आयु से 10 प्रतिशत से भी कम रही होगी।
दूसरे शब्दों में आधुनिक खगोलीय मानकों के आधार पर इन क्वासर्स और ब्लैक होल्स को प्रारंभिक ब्रह्मांड के निवासी कहें तो कोई अतिशयोक्ति न होगी। क्वासर्स ने भी लंबे समय से खगोल वैज्ञानिकों को उलझन में डाल रखा है। वैसे तो आकाश के हिसाब से क्वासर्स हमारी आकाशगंगा का करीब पाँच लाख वां हिस्सा होंगे, मगर ये 100 से भी अधिक आकाशगंगा के बाराबर रेड्वोर्ल्ड तथा ब्रह्मांड के निवासी कहें तो कोई अतिशयोक्ति न होगी। सवासर की खोज के शुरूआती दौर से ही वैज्ञानिक यह अनुमान लगाते आए हैं कि ब्रह्मांड के ये रहस्यमय बाबत्ते ब्रह्मांड की दूसरी सीमाओं पर स्थित हो सकते हैं। जापान, ताइवान और प्रिस्टन यूनिवर्सिटी के खगोलविदों की हालाइ खोज ने वैज्ञानिकों के इस पूर्वज्ञान की पुष्टि कर दी है। चूँकि ब्लैक होल हमें दिखाई नहीं देते, इसलिए इन ब्लैक होल्स की खोज 83 क्वासर्स की मदद से की गई है। इन क्वासर्स की गैसीय द्रव्यरामणीय भूमि भें मशीन लगातार द्रव्यरामणीय भूमि खगोल तरुंगों का उत्साहन करते हैं। इन्हीं तीव्र रेड्वोर्ल्ड के निरीक्षण के आधार पर वैज्ञानिकों ने इन 83 प्राचीन ब्लैक होल्स की खोज को अन्जाम दिया है। यह खोज एहिम यूनिवर्सिटी, जापान के खगोल वैज्ञानिक योशिकी मतसुओका के निर्देशान्त एस्ट्रोफिजिकल जर्नल नेटर्स में प्रकाशित हुए हैं। यह खोज ब्रह्मांड विज्ञानियों के लिए एक बड़ा इंतजार बनकर सामने आई है क्योंकि अनुमान है कि इन सभी ब्लैक होल्स का निर्माण बिग बैंग के ठीक बाद हुआ था, जबकि ब्रह्मांड के अनुसार उस समय तो आकाशगंगाओं और तारों को जन्म देने वाली जिहाडों का भी निर्माण शुरू नहीं हुआ था। इस खोजी अभियान में महत्वपूर्ण भूमिका निभाने वाले प्रिस्टन यूनिवर्सिटी के खगोल वैज्ञानिक माइकल स्ट्रॉस के मुताबिक ‘यह उल्लेखनीय है कि बिग बैंग के तुरंत बाद इनी विशाल घनी वस्तुएं बनने में सक्षम थी। यह ब्रह्मांड संबंधी हमारे वर्तमान मॉडल के लिए एक चुनौती है।’ गौरतब है कि अब तक की मान्यता के मुताबिक जब बड़ा-बड़ा तारों का हाइड्रोजन और हीमलयि रूपी ईंधन खत्म हो जाता है, तब उन्हें फैलाकर रखने वाली ऊर्जा चुक जाती है। ऐसे में अत्यधिक गुरुत्वाकर्षण के कारण वे सिकूड़कर अत्यधिक समस्यापूर्ण ब्लैक होल्स का उत्पत्ति करते हैं। नयी खोज के बाद अब प्रश्न तो यह उठ खड़ा हुआ है कि जब तारों का ही जन्म नहीं हुआ था तब तारों के अवशेष से 83 अति विशालकाय ब्लैक होल्स की उत्पत्ति कैसे हुई होगी/ क्या यह संबंध है कि तिथि के जन्म से पहले ही पृथ्वी का जन्म हो जाए/ यह नवीनतम खोज बिग बैंग को ब्रह्मांड की उत्पत्ति की स्पष्ट तालिका तथा व्याख्या मानने से इनकार करती है और उसमें संशोधन की मांग करती है। हमारा ब्रह्मांड अद्वैत रहस्यों से भरा पड़ा है। हम विज्ञान व गणित की सहायता से धीरे-धीरे इसके रहस्यों पर से पता हटा रहे हैं। लेकिन ऐसी हर कोशिश के परिणामस्वरूप पद्धति के पीछे से कुछ नए सवाल आकर खड़े हो जाते हैं। यही विज्ञान की फिटरत है। वह सवालों के जवाब तो देता है, लेकिन हर बार नए सवाल भी पड़ा जाता है।

*****
राजधानी के प्रदूषण में 61 फीसद हिस्सा धुएं का

राज्य लूटे, नई दिल्ली: दिल्ली के प्रदूषण की जड़ें यहां की सर्वजनिक परिसर में उत्पन्न ब्यवस्था का अर्थतः कमजोर होना है। आतंक यह है कि दिल्ली के प्रदूषण में 61 फीसद हिस्सा धुएं और औद्योगिक इकाईयों के धुएं रहे हैं। पीएम 2.5 और पीएम 10 भी यहां समान उच्चता और सीमा से अंतरण 76 फीसद बनाता है। हैरानी की बात बहुत कह तो सरकार तफ्त पर भी प्रदूषण से निपटने के लिए योजनाएं तो तमाम बन रही है, लेकिन उनके किया-नियम को लेकर संभावित कहीं नज़र नहीं आती।

कहने को दिल्ली में सार्वजनिक 48 मॉनिटरिंग स्टेशन हैं। इनमें 38 रियल टाइम हैं जबकि 10 मैनुअल। सुप्रीम कोर्ट के निर्देशों पर अभियंता दिल्ली-एनसीआर में एयर मॉनिटरिंग स्टेशनों को दर्जा बढ़ावा जा रहा है। फिराकल हैं दिल्ली-एनसीआर में कुल 110 मॉनिटरिंग स्टेशन लगे हैं। मार्च 2019 से हमीं संख्या 141 हो जाने को संख्या है। इतनी सघन निगरानी के बावजूद प्रदूषण थम नहीं रहा है।

dील्ली-एनसीआर के अध्यक्ष मंजू ननी बड़ूल ने निर्देश दिया कि सार्वजनिक प्रदूषण के मामले में अभियंता दिल्ली-एनसीआर के अध्यक्ष की संख्या को बढ़ावा देना चाहिए।

राजधानी के प्रदूषण में किसका कितना हिस्सा?

- 39 फीसद पाहने से निकले धुएं का।
- 22 फीसद औद्योगिक इकाईयों के धुएं का।
- 18 फीसद हवा के साथ आने वाले धुएं का।
- 6 फीसद रस्तों से निकले धुएं का।
- 3 फीसद उज्ज्वल संपत्ति से निकले धुएं का।
- 12 फीसद प्रदूषण अन्य सोतों का रहता है।

कुछ अन्य महत्त्वपूर्ण तथ्य

- 12 जनवरी 2017 को दिल्ली-एनसीआर के लिए मेजर इन्स्टेस के लिए एक एस्पेशिल एक्शन प्लान (एप) लागू हुआ।
- जून 2018 को कलेक्शन बैंकों एंवर एस्पेशिल एक्शन प्लान लागू किया गया।
- दिल्ली-एनसीआर में पीएम 10 और पीएम 2.5 का सार समान से 76 फीसद तक अधिक रहता है।
- 2013 से 2018 के लिए 8.88 फीसद की दर से वस्त्रों के नियमों में 34 फीसद की ओर अग्रसर आई है।
Plan for energy from waste at landfill yet to take off

Even seven months after the announcement of its ambitious project to generate energy from garbage lying at the long saturated Ghazipur landfill, the East Delhi Municipal Corporation has failed to initiate work at the site. Officials said the civic agency was waiting for a noobjection certificate from the ministry of environment, forest and climate change. In August 2018, the civic agency had signed a MOU with a private concessionaire (AG Dauters) to utilise old garbage for generating electricity, water and zero-carbon fuel. “It was the first of its projects based on the LT Plasma Gasification Technology, aimed to utilise the waste without adversely impacting the environment, and a solution to our waste-related problems. We decided to run the project for a year on a pilot basis and, based on the success, increase it to 21 years,” an official said. As per the norms, a civic agency needs to get clearance from MoEF, which will also analyse the technology and other factors. “After signing the agreement, we had a meeting with MoEF officials, but they are not quite convinced,” the official added. A MoEF official said there were certain parameters that were looked into before giving NOC to a project. “Unless the process is completed, we will not give nod for the project,” he said. As per the agreement, EDMC was supposed to provide three acres of land to the company to set up its plant,
which will consume 1500MT of waste on a daily basis and produce 560MW of green energy, 4.75 lakh litres of water and 2 lakh litre of zerocarbon fuel. Having failed to find a lasting solution to the ever-increasing mountain of garbage at Ghazipur landfill, EDMC is looking for alternatives to manage nearly 13 million tonnes of solid waste at the 29-acre dumping yard. At present, due to fund shortage, EDMC is finding it difficult to reclaim the landfill, unlike north and south corporations. The site has been in the limelight for frequent fires. On September 1, 2017, a portion of the landfill had collapsed there, killing two people. After that, there were reports of fires at the same place in 2018. On Sunday, too, a fire broke out over a portion of the landfill, close to the place where the “landslide” happened nearly two years ago. Another EDMC official said the place was inaccessible and had not been sloped for decades, thus leaving it susceptible to fires. “For the past 20 years, garbage has not been turned upside down here. But, now, we have initiated an exercise to provide levels and mix garbage with debris. This will help movement of trucks, curb fires, arrest soil erosion and ensure that the garbage doesn’t slide,” the official said.

*****

Hold Your Breath

Aaraina Vishal did not have an ideal start to her life. When she was all of three months old, in late 2014, she developed a blocked nose and difficulty in breathing. So she was prescribed a nebuliser, a device that helps a patient inhale a medicated mist to ease breathing difficulties. After that, every second month she had to be rushed to the doctor for recurring cold and bouts of coughing. This continued for the first three years of her life. Vishal’s condition wasn’t genetic; it was entirely caused by her environment — the highly unsafe air of Ghaziabad. Here, construction debris combines with vehicular and factory emissions as well as smoke from farm fires in neighbouring states to brew the deadly cocktail that sends infants and children to emergency rooms in droves, and causes severe pulmonary, nervous and cardiac disorders in adults. She spent sleepless nights and her parents grew increasingly worried that things could get much worse for Vishal. In December 2017, they decided to leave
Ghaziabad, a suburb of New Delhi and part of the National Capital Region (NCR), now the world’s most polluted metropolis. They weighed different options and settled on the cooler, cleaner environs of Dehradun. “Touch wood, she has not had any problems here. The air is fabulous here,” says Vanita Arora, her relieved mother. They try to keep Vishal away from NCR, especially in winter. While Arora’s husband, who works for a news website, divides his time between Ghaziabad and Dehradun, she looks for freelance assignments designing coffee-table books and such. Relocating has not been easy. They have no family in Dehradun and work has not been easy to come by for Arora. But they do not regret the decision. “We are not the only ones to have moved to Dehradun. In our housing society, there are at least a couple of families who left Gurgaon for the same reason,” says 37-year-old Arora. Gurgaon, Ghaziabad and Faridabad — all part of NCR — were named the world’s most polluted cities in 2018, in a recent report by IQAir AirVisual, a data provider. The cities had an average annual PM 2.5 concentration of around 130 micrograms per cubic metre (g/m³), 13 times the World Health Organization (WHO) standard of 10 g/m³ and more than three times the safe limit (40 g/m³) prescribed by the Indian government. PM 2.5 is particulate matter with a diameter of 2.5 microns or less that can go deep into the respiratory system and even enter the bloodstream. A human hair, in comparison, has a diameter of 60 microns. Seven of the top 10 most polluted cities on the list and 15 of the top 20 — including New Delhi — and 25 of the top 50 are in India. India was the world’s third most polluted country, after its neighbours Bangladesh and Pakistan. This is hardly shocking, as such lists have now become an annual event. Children like Vishal particularly bear the brunt of pollution. Anjali Raina, a paediatrician in Delhi, says in the mid-1980s, when she started her career, she got one or two cases of bronchitis every year. Now, every second child that comes to her suffers from the condition. Any which way you look at it, India has an alarming air pollution problem. And yet, incredibly, there is little conversation around it, except for winter months in Delhi-NCR, when pollution shoots through the roof, or for a brief period after the release of such reports.

Governments — both in states and at the Centre — do not see it for the public health crisis it has become, putting millions at risk, especially vulnerable sections like the poor, kids and the elderly. India has to tackle pollution
aggressively and immediately, just like China did when faced with a similar problem in 2013. “The lesson from China is the scale and stringency of action,” says Anumita Roychowdhury, executive director of research at the Centre for Science for Environment, a New Delhi-based think tank. China is the world’s largest polluter, followed by the US and India. China and India are committed to the 2015 Paris Agreement on Climate Change, which aims to contain global surface temperature rise to 2 degrees Celsius by 2100 above pre-industrial levels and even attempt to limit it further to 1.5 degree Celsius. The US in June 2017 pulled out of the agreement.

**Chinese Action**- January 2013 was a month of reckoning for the Chinese government. Beijing was enveloped in a thick, apocalyptic smog. The concentration of PM 2.5 touched 755 micrograms per cubic metre (g/m³) — 30 times higher than the WHO-prescribed daily average limit of 25 g/m³. This forced the government to announce a $277-billion (a tenth of the current Indian economy) plan to cut pollution across the country by the end of 2017. The capital city was expected to reduce average annual PM 2.5 concentration by a third and the Beijing-Tianjin-Hebei area by a quarter and so on. To achieve these targets, new coal-fired plants around Beijing and some other cities were banned and existing ones were asked to cut emissions. Iron and steel plants were asked to limit production and some cities were made to take high-emission vehicles off the roads. The plan had its desired effect. In 2017, PM 2.5 concentration in Beijing, which had set aside another $120 billion to tackle pollution, was below 60 g/m³ as targeted, a decline of 32% from 2013, according to a study by the Energy Policy Institute at the University of Chicago. In the Beijing-Tianjin-Hebei area, the reduction was 36%, and in Shanghai and Guangzhou, 41% and 38%, respectively. China is also experimenting with giant public air cleaners, one 23-ft high and another nine times as tall. It took the US three times as long to achieve similar reductions after the Clean Air Act was enacted in 1970. The UK in 1956 enacted the Clean Air Act as a response to the Great Smog of 1952 in London. India has also had an air pollution law since 1981, but that hasn’t helped avoid the situation we find ourselves in today. Two months back, the Narendra Modi government unveiled its National Clean Air Programme (NCAP), which wants to cut PM 2.5 and PM 10 concentrations by 20-30% by 2024 from 2017 levels. More than a hundred cities will be asked to
submit a plan. The government also said the programme might be extended after a mid-term review. Does this mean deadline will be extended? If so, that does not reflect the kind of remedial urgency the current situation demands. Santosh Harish, a fellow at the Centre for Policy Research, a think tank, does not find much that is new in NCAP. “It is a compilation of existing air pollution control norms. It applies Delhi’s template to 101 cities,” he says, referring to the action plan that involves, among other things, setting up more monitoring stations, checking vehicle emissions, improving public transport and having a contingency plan for high-pollution days. “It is a laundry list of measures and they are behind schedule,” notes Harish. Questions sent to Harsh Vardhan, the Union environment minister, remained unanswered at the time of going to print.

There have been experiments by the Delhi government to tackle pollution, like its 2016 decision to allow private vehicles to ply on alternate days, depending on whether their licence plates ended in an odd or even number. The Centre’s plan to provide liquefied petroleum gas (LPG) connections to homes using solid fuels, which accounted for a quarter of air pollution in 2015, will make a serious dent in indoor pollution. Between the scheme’s launch in May 2016 and January 2019, 62 million new LPG connections were given. But a lot of the key efforts have been driven by the judiciary, including the ban on petrol vehicles older than 15 years and diesel vehicles older than 10 years in NCR. Harish and Roychowdhury stress on the importance of coming up with plans for regions, instead of for just individual cities, like what China has done. “Pollution doesn’t recognise state boundaries. It’s not just a Delhi problem. We need a Pan-India, and not a one-state, solution,” says Raghav Chadha, spokesperson for the Aam Aadmi Party, which runs the state government in Delhi.

Silent Killer- The gravity of the problem becomes evident when you look at its impact on human health. According to the India State-Level Disease Burden Initiative, air pollution caused 1.15 million premature deaths in 2017, or one in every eight deaths. “Till a couple of years ago, there were questions about whether pollution is such a big issue and whether it is causing so much damage. We have to base our actions on robust evidence, and fortunately, for air pollution we do have data,” says Lalit Dandona, director of the initiative. Air pollution could cause chronic obstructive pulmonary disease (COPD), lung
cancer, stroke, heart disease and acute lower respiratory infection, among others. Air pollution is the third biggest risk factor for disease and disability in India, according to the Global Burden of Disease Study 2017. It ranks above high blood pressure and tobacco use. Ashish Jain, a pulmonologist at New Delhi’s Max Hospital, says he has observed a rise in the number of people developing asthma over the past few years, “and lung function deteriorating faster in COPD patients than in a healthier environment.” There is a tendency in India to ignore an issue till it becomes grave, and air pollution runs that risk. “Environmental issues do not have a space in political agenda,” says Chandra Bhushan Pandey, a Lucknow-based environmental activist and member of BJP, which is in power both in Uttar Pradesh and at the Centre. Sure enough, this election season, air pollution doesn’t seem to be on the agenda of any political party so far. It is not as if India hasn’t taken steps for a cleaner future. The share of renewable energy in installed power capacity has more than doubled in 10 years to a fifth, but this has come at the cost of large hydel capacity and nuclear power, and not coal- and gas-fired power plants whose share has remained constant at two-thirds. The government wants the share of renewables to rise to 40% by 2030. Moreover, from 2020, only vehicles conforming to a more stringent emission standard can be sold. But these are clearly not enough. While India cannot ape China’s pace and rigidity in pollution control, it needs to demonstrate resolve and leadership in taming this silent killer.

*****

Haldia Petro to Put 28,700cr in Odisha Refinery

The Odisha government on Tuesday cleared a Haldia Petrochemicals proposal to invest ₹28,700 crores for setting up an integrated refinery and petrochem facility in Balasore. A panel led by chief minister Naveen Patnaik approved the proposal. Stateowned land will be allotted and fiscal concessions considered, said a state official said. “Haldia Petro has sought certain concessions. We are setting up a panel to examine it,” the official said. The government, however, will not take any equity in the project. Odisha has identified 2,000 acres for the project near the proposed Subarnarekha Port, which the state is building jointly with Tata Steel. The entire land parcel is under control of the state, though a
part of it is forest area, which will need regulatory clearance for industrial use. “Getting clearance is not insurmountable, though not easy,” the official said, adding that he expected the clearances in 10-12 months. The project will entail total investment of ₹70,000 crores, the official said, and phase I is expected to be completed in five years.

*****

Payments for Iran Oil Likely to Bring a Windfall for Uco Bank

The special payment mechanism to import crude from Iran has provided state-run Uco Bank about ₹13,000-14,000-crore windfall, helping the stressed lender get a new lease of life. The bank expects this interest-free floating fund to boost its income, but reversing the trend of continuous quarterly losses will also depend on the lender’s ability to contain and recover bad loans. Uco reported losses for the past 13 consecutive quarters. The floating fund bonanza may also be truncated in the future as Uco lost its exclusive right as the designated payment bank for Iran oil imports with the government also offering IDBI Bank a similar status. Till recently, the PSU lender had been the only bank settling payment for the country’s oil imports from the middle-east nation, following the tightening of US sanctions on Iran due to its aggressive nuclear programme. Two people familiar with the matter pegged the size of the floating fund at ₹13,000-14,000 crore. Managing director of Uco Bank AK Goel did not respond
to text messages seeking comments on the issue till the time of going to press. Uco’s zero exposure to the US and western financial system helped it earn this special status while exposed banks such as State Bank of India that had lost business because of the sanctions. The bank has limited overseas business with branches only in Singapore and Hong Kong. The mechanism is such that Indian oil refiners make the payment to the designated rupee-account at Uco for importing oil from Iran. The Kolkata-based lender, in turn, makes payment to Iranian exporters for exporting goods to India. Iranian banks such as Karafarin Bank and Middle East Bank have rupee accounts with Uco to support Indo-Iran bilateral trade. The Kolkata-based lender, which has been under RBI’s Prompt Corrective Action mechanism for high bad-loan ratio and negative return on assets, looks to gain from the lower cost of funds as the ₹13,000-14,000 crore float money it gained on account of Iran oil imports bears no cost. This will boost its operating profit which was seen at ₹381 crore for the December quarter. The bank reported ₹1,018 crore net loss in the same period while over 27% of its loan assets turned sticky. While the floating fund is likely to boost the bank’s financials in the fourth quarter, it will face challenges from IDBI Bank going forward as the Iran payment pie may get distributed between the two lenders.

*****

**CO₂ emissions soar as key nations turn back on green goals**

Global energy-related carbon emissions rose to a record high last year as energy demand and coal use increased, the International Energy Agency (IEA) said on Tuesday in a report that identified the United States, China and India as being the countries that accounted for 75% of the increase. The findings are worrying because the Intergovernmental Panel on Climate Change (IPCC) warned last
year that at the current rate of emissions, the average global temperature increase over pre-industrial levels would inevitably breach the 2°C target – a level beyond which climate change is expected to lead to “devastating consequences”. Energy-related carbon dioxide emissions in 2018 rose by 1.7% to 33.1 billion tonnes from the previous year, the fastest pace since 2013, with the power sector accounting for almost two-thirds of this increase, according to IEA estimates. The increase in energy demand was largely due to heating and cooling needs in nations that saw extreme temperatures, the report said. According to experts, the findings suggest a bigger compromise with goals to fight global warming, with the most significant being a rise in fossil fuel use.

“We have to read this report in the light of another recent report which shows investments in fossil fuels is on the rise. It shows that industry has gone back to business-as-usual and is waiting on the fringes as they have got mixed signals from countries like US which have expressed desire to pull out of the Paris agreement,” said Karan Mangotra, fellow at The Energy and Resources Institute. “This trust deficit is a problem. We need a strong coalition of countries and companies vouching for green, viable and reliable energy systems.” IEA executive director Fatih Birol said 2018 marked an “extraordinary increase” in global energy demand, which grew at its fastest pace this decade. “Last year can also be considered another golden year for gas, which accounted for almost half the growth in global energy demand. But despite major growth in renewables, global emissions are still rising, demonstrating once again that more urgent action is needed on all fronts — developing all clean energy solutions, curbing emissions, improving efficiency, and spurring investments and innovation, including in carbon capture, utilisation and storage,” Birol added. According to the IEA report, global energy demand grew by 2.3% last year. “Cold snaps drove demand for heating and, more significantly, hotter summer temperatures pushed up demand for cooling,” the report said. China, India, and the United States accounted for 75% of the net increase in emissions, while emissions fell in Germany, Japan, Mexico, France and the United Kingdom, the report said. In India, carbon dioxide emissions rose by 4.8% due to a jump in energy use in power, transport and industry sectors. Despite this growth, per capita emissions in India are among the lowest at only 40% of the global average. According to the IPCC last year, limiting global warming to 1.5°C
would require “rapid and far-reaching” transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide would need to fall by about 45% from 2010 levels by 2030, reaching “net zero” around 2050. “The findings are a grim reminder of the challenge at hand, but it is not especially surprising. India’s emissions are increasing— which is entirely expected— but we seem to be on track to meet our Paris commitments. With a report like this, our response should not be to panic. Instead, we should strengthen our efforts in meeting our commitments, and aggressively implement mitigation measures in the present,” said Santosh Harish, a fellow at the Centre for Policy Research (CPR). “This trust deficit is a problem. We need a strong coalition of countries and companies vouching for green, viable and reliable energy systems.” IEA executive director Fatih Birol said 2018 marked an “extraordinary increase” in global energy demand, which grew at its fastest pace this decade. “Last year can also be considered another golden year for gas, which accounted for almost half the growth in global energy demand. But despite major growth in renewables, global emissions are still rising, demonstrating once again that more urgent action is needed on all fronts — developing all clean energy solutions, curbing emissions, improving efficiency, and spurring investments and innovation, including in carbon capture, utilisation and storage,” Birol added. According to the IEA report, global energy demand grew by 2.3% last year. “Cold snaps drove demand for heating and, more significantly, hotter summer temperatures pushed up demand for cooling,” the report said. China, India, and the United States accounted for 75% of the net increase in emissions, while emissions fell in Germany, Japan, Mexico, France and the United Kingdom, the report said. In India, carbon dioxide emissions rose by 4.8% due to a jump in energy use in power, transport and industry sectors. Despite this growth, per capita emissions in India are among the lowest at only 40% of the global average. According to the IPCC last year, limiting global warming to 1.5°C would require “rapid and far-reaching” transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide would need to fall by about 45% from 2010 levels by 2030, reaching “net zero” around 2050. “The findings are a grim reminder of the challenge at hand, but it is not especially surprising. India’s emissions are increasing— which is entirely
expected—but we seem to be on track to meet our Paris commitments. With a report like this, our response should not be to panic. Instead, we should strengthen our efforts in meeting our commitments, and aggressively implement mitigation measures in the present,” said Santosh Harish, a fellow at the Centre for Policy Research (CPR).

*****

**Oil exploration will remain a challenge for govts**

India’s hydrocarbon space will test the patience and policy consistency of the government of the day in the coming years as the country’s exploration policy enters a transition phase. Life of the New Exploration Licensing Policy (NELP) regime may remain only for the next 10-15 years, as the country’s entire oil and gas exploration as well as production business is shifting to Hydrocarbon Exploration Licensing Policy (HELP)-Open Acreage Licensing Programme (OALP). In many countries there are multiple models — revenue sharing, production sharing or customised — but these are places where the oil industry plays a dominant role. In India there are mainly three different categories — nomination basis: areas given prior to auction rounds; pre-NELP and NELP: where areas were given through auctions based on production sharing contracts; and HELP regime — a uniform licensing regime based on revenue sharing model and OALP. “Yes, all three can co-exist, but the challenge will be in implementation. The government of the day will be under pressure to ensure that there is no interruption in this high risk business due to policy issues,” an oil industry tracker said. But, the moot point is whether HELP will turn the tides for India in meeting its energy demand. HELP is just taking baby steps and by the time it stabilises it will take, conservatively speaking, a few years, said an analyst. Particularly when with growing consumption, India’s demand is also going to put pressure on the import bill. According to the Petroleum Planning & Analysis Cell estimates, the crude oil import bill is likely to increase by 27 per cent from $88 billion in 2017-18 to $112 billion in 2018-19 considering actual upto December 2018 and Indian basket (rate at which domestic refiners buy their requirement) crude oil price at $57.77 a barrel and exchange rate at ₹70.73 versus dollar for January 2019-March 2019.
No uniform model - The challenge is that India does not have a uniform licensing model for forming a base. Therefore, what will HELP mean economically, one will have to wait and watch, said an official in the know. Since NELP was introduced in the late 1990s, 314 blocks have been offered under various auction rounds, of which 254 have been awarded. There are 60 NELP blocks that are operational today by players such as ONGC, Reliance Industries and Oil India. From 2017 all new contracts have been signed under the HELP regime. Although most of the producing blocks in the country, at present, are those that have been offered before NELP or after NELP. All these production sharing contracts have a life. OALP is a continuous bidding process. In February, the government launched the third OALP bidding round offering 23 blocks. It has contracted for 55 blocks under OALP Bid Round-I. The second round was launched in January offering 14 blocks. The OALP adopts all features of HELP — reduced royalty rates, no oil cess, uniform licensing system, marketing and pricing freedom, revenue sharing model, exploration rights on all retained area for full contract life, among others.

Discovered small field - Parallely the government has been offering areas under Discovered Small Field policy. The second round of DSF is under way with the Empowered Committee of Secretaries (ECS) and Group of Ministers recently giving their nod for the award of 23 contract areas to highest ranked bidders. “The government is taking measures, but it has to ensure that market flexibility is taken care of and continuity in policy implementation remains. Besides, time taken to bring blocks offered under OALP into production will be at least eight-ten years,” said an industry player.

*****

The truth is in Delhi’s air: What builds destroys too

As Delhi and its neighbours struggled to rein in the monster of pollution for yet another winter, data showed that construction and demolition activity was the biggest source of foul air in the National Capital Region from December 2018 to February 2019. The data was collated from the Central Pollution Control Board inspections and complaints received online. Of the complaints received on the SAMEER web app of CPCB in December 593 related to construction and
demolition. The numbers went down in the subsequent two months, but were still high at 399 and 314, respectively. Particulate matter — PM10 and PM2.5 — is the primary pollutant in Delhi, with levels often shooting up to 10 times the permissible limit. A study conducted by IIT-Kanpur in 2016, on behalf of the Delhi environment department, stated that road dust and dust particles from construction and demolition sites comprised nearly 60% of this particulate matter. Soil, road dust and airborne fly ash are the major sources of PM10 pollution in summer, forming a layer that envelopes the city. While 131 complaints of garbage burning were recorded in December, in January, the number stood at 56, coming down further to 47 in February. Traffic congestion complaints were 105, 77 and 48, respectively, in the three months. For road dust, 127 complaints were received in December 69 in January and 52 in February. “A lot of complaints are coming in on the web app. People are even putting in complaints regarding encroachments, burning of wires, foul smell from some nearby drain, and so on. These can’t be categorised in the prominent sources of air pollution, but we are keeping a tab on these too and forwarding the complaints to the authority concerned,” a senior CPCB official told TOI. The apex pollution control board had last year put up a list of hotspots in NCR. These are Anand Vihar, Bawana, CRRI Mathura Road, DTU, Dr Karni Singh Shooting Range, Dwarka Sector-8, Jahangirpuri, Mundka, NSIT Dwarka, Narela, Okhla Phase-II, RK Puram, Rohini, Shadipur, Wazirpur, Faridabad Sector-16A, Vikas Sadan, Gurgaon, Haryana, Vasundhara (Ghaziabad), Knowledge Park-III, Greater Noida Sector-125, Noida, UP and RIICO Industrial Area III, Bhiwadi.

*****

Oil Wavers as Traders Weigh Yield-Curve Jitters, Tighter Supply

Crude oil prices toggled between gains and losses as anxious traders weighed a slowdown in the global economy with increasing tensions in OPEC member Venezuela. Futures fell as far as 1.5% in New York but later pared much of the losses, joining the volatility in equity markets. A closely watched gauge of US Treasuries inverted on Friday, signaling a recession, may be in the offing. Yet, a
US warning to Russia not to intervene in Venezuela brought a reminder of fragile global supplies, and a decline in the dollar also aided crude prices. Despite some economic warning signs, the threats to oil consumption seem “overpriced,” said Phil Flynn, a senior market analyst at Price Futures Group Inc. in Chicago. US unemployment remains low, gasoline demand has been robust and crude supplies look to get tighter in the coming months thanks to cuts by OPEC and its partners, he said. “There’s no real sign if you look at the real economy of a recession happening any time soon,” Flynn said. “Does the oil market care about that today? Probably not. But they are going to start to care about that in a few weeks when they start to see the inventories drawing down." US crude retreated after reaching $60 a barrel last week. Disappointing economic data and a lack of resolution to the US-China trade war have dampened sentiment. That’s offset continued signs that the producer coalition led by the Organization of Petroleum Exporting Countries is committed to curbing output. Disruptions in Venezuela and Iran have also helped to stabilize prices. WTI for May delivery lost 8 cents to $58.96 a barrel on the New York Mercantile Exchange at 11:50 a.m. local time, after earlier touching its lowest level since March 18. Prices declined 1.6% on Friday. Brent for May settlement was up 9 cents to $67.12 a barrel on the London-based ICE Futures Europe exchange, after falling more than 2% over the previous two sessions. The global benchmark crude was at a premium of $8.13 to WTI. US stocks shifted between gains and losses Monday, and European and Asian stocks tumbled after the gap between the 3-month and 10-year US debt yields turned negative at the end of last week. The inversion came after an index of American manufacturing slowed, and weaker-than-expected factory output data from France and Germany. While global crude supplies are thinning, “we’re more sensitive to when the next recession is coming, given that the last one was so painful," said Cailin Birch, a global economist at the Economist Intelligence Unit in London. “It’s a sufficiently scary warning sign that it’ll continue to hang over the market.”

*****
Regulator Drops Plan for LNG Industry

The downstream regulator has scrapped its plan to force LNG terminals to reserve a share of their capacity for common use after industry opposed the move arguing the proposal was premature and would hurt local gas demand. In March 2018, the Petroleum and Natural Gas Regulatory Board (PNGRB) had published a draft regulation for LNG terminals in the country, requiring them to register with the board, follow certain safety standards and, most contentiously, offer some common carrier capacity. The draft mandated an LNG terminal to “offer at all times, after registration, 20% of its short term (less than five years’ contract) uncommitted regasification capacity or 0.5 million metric tonnes per annum (MMTPA), whichever is higher, as common carrier capacity.” Uncommitted capacity means the part which is net of the entity’s own and contractual requirement. “We will bring regulation only to the extent of registration and safety,” PNGRB chairman DK Sarraf told ET, adding the proposal on common carrier capacity has been dropped. “We would like to support LNG terminals by keeping them away from regulatory burdens until they are fully established and their capacity utilisation goes beyond a level where some regulation becomes necessary to protect consumer interest,” he said. The draft provoked strong reaction from industry players, who felt proposed rules could upset the economics of LNG terminals as they may have to make additional investment for the capacity that will have to be reserved for common use. This would mean either longer payback period or higher toll for customers that could hurt demand for gas. “Industry told us that they respected
the consumer protection intent of the regulator but it was unnecessary at this point in time,” Sarraf said. “They said so many new terminals were coming up that there will be a lot of capacity in the country, and utilisation will be low for a long time. Therefore, capacity will anyway be available to every customer. But a new regulation will place unnecessary financial burden on LNG terminals, they said.” India has added about 10 million tonnes a year LNG regasification capacity in the past six months to about 37 million tonnes now. This is expected to rise to 50 million tonnes a year by 2022. The capacity explosion and the government’s aim to push up gas usage in India’s primary energy mix to 15% from 6% had triggered temptation to regulate LNG terminals.

*****

‘Natural gas network to cover 70% of population’

More than 70 per cent of India’s population will have access to natural gas supplies after the completion of projects awarded under the 10th round of city gas distribution bids. Speaking at an event to distribute Letter of Intents to 12 successful entities for the 50 Geographical Areas (GAs) under the 10th CGD Bidding Round, Minister for Petroleum and Natural Gas, Dharmendra Pradhan, said, “When we came to power only 20 per cent of the people had access to CGD. With the success of the 10th CGD Bid Round, the CGD network will expand to nearly 70 per cent of our population.” “Increasing domestic production is our top most priority alongside expanding gas infrastructure in the country to move to a gas-based economy. This will greatly help India become self-sufficient for its energy needs, lower our import dependence and help save foreign exchange,” Pradhan added. Over 2 crore PNG connections are likely to be provided by these entities, and 3,578 CNG stations will be put up in the area, an official statement said. During the current bid round, Indian Oil Corporation Ltd (IOCL) has won licences to retail gas in 10 cities while Hindustan Petroleum Corp Ltd (HPCL) won the rights for nine geographical areas.

*****
The capital’s power demand is expected to cross 7,400 megawatts (MW) this summer — around 400MW more than last year. Arrangements have been firmed up by BSES discoms to source adequate electricity to meet the demand of over 42 lakh consumers. These arrangements include long-term PPAs and banking arrangements with other states, including Himachal Pradesh, Uttar Pradesh, Jammu & Kashmir, Meghalaya, Manipur and Sikkim. “BSES discoms will get up to 865 MW (BRPL 550 MW, BYPL 315 MW) of power through banking arrangements. Apart from this, BRPL will also get 100 MW of wind power from April 2019. In case of unforeseen contingencies because of low generation and outages in power plants, discoms will purchase short-term power from the exchange,” said a spokesperson. Last summer, Delhi’s peak power demand had breached 7,000 megawatts for the first time — peaking at 7,016 MW. Peak power demand in BRPL’ area of south and west Delhi, which had reached 3,081 MW last summer, is expected to touch around 3,200 MW this year. In BYPL’ area of east and central Delhi, the peak power demand, which had touched 1,561 MW last year, is expected to be around 1,640 MW. “This expected peak power demand is an increase of over 250% over the peak power demand of 2,879 MW in 2002. It is interesting to note that Delhi’s peak power demand is more than that of Mumbai and Chennai put together,” said a discom official. The power company further claimed that they have invested substantial resources to strengthen the network. A large part of the distribution schemes, which were considered necessary to further strengthen the distribution system, have already been completed, with the balance work on track. “This has made the distribution network more robust for taking additional power load during summer months,” said an official. According to the discom, accurate demand (load) forecasting is critical for reliable power supply. It is done on various parameters like, (a) Dayahead in 96 time-slots, (b) Intra-day basis and (c) Medium term (from a fortnight to one year). Among other aspects, weather parameters like temperature, rainfall, clouds, wind speed, wind direction and humidity play an important role in accurate demand forecast. Even holidays and random disturbances have an impact on the power demand.

*****

51
India’s solar energy success story is showing signs of slowing down, with capacity addition this fiscal falling short of target at a three-year low. Developers added 6,500 MW of solar capacity in the financial year 2018-19, as against a target of 10,000 mw for the year. Capacity addition in 2017-18 was higher at 10,400 MW, while in the previous year, it was 9,100 MW, according to a senior official at the Ministry of New and Renewable Energy. Industry experts and developers said the imposition of safeguard duty and the cancellation of solar auctions were the main reasons for the relatively low addition. India imposed a 25% safeguard duty on the import of solar panels and modules, mostly from China and Malaysia, from end July for a year, followed by 20% for the next six months and 15% for another half-year. This increased the cost of installing solar projects and consequently tariffs, without so far leading to any appreciable growth in the domestic solar manufacturing industry. “Three things have caused this. Firstly, there was a period in the first half of 2018 where tenders were not happening,” a developer said on condition of anonymity. “Secondly, the imposition of safeguard duty. Developers have deliberately been delaying commissioning of projects until the duty peters out,” he said. Thirdly, both central and state agencies have been cancelling auctions whenever the winning tariffs seemed too high for them. The latest instance was Gujarat scrapping a 700 MW auction held in December. According to Solar Consultancy Bridge to India, 5,300 MW of valid winning bids were cancelled in 2018. “It is because of these three problems that the installation has been so low,” the developer said. The ministry official said 35,000 MW was tendered during the year. “But being tendered and actually getting projects on the ground are two different things,” the developer said. The government has set a target of installing 100 GW of solar capacity in the country by 2022. India’s installed solar capacity stood at 26,025.97 MW at the end of January, according to data on the Central Electricity Authority’s website.

*****
States to get Sops under Solar Park Scheme 2.0

The Centre has introduced a financial incentive for states and tweaked its policy to address two major issues plaguing solar park developers — shortage of land and lack of transmission facility. States will earn ₹0.02 for every unit of power produced at the solar parks, irrespective of where it is supplied, according to a letter to the principal secretaries of all states from the ministry of new and renewable energy. The letter is also addressed to the managing director of the Solar Energy Corporation of India (SECI) and solar park developers. This is expected to ease the problem of acquiring revenue or private land for projects auctioned by SECI, nodal agency for conducting wind and solar auctions. The amendment to the policy is significant especially for Gujarat where the developers are in a fix. Gujarat is highly favoured for producing renewable energy because of its geographical location. The state has been going slow on leasing land to projects auctioned by central agencies but continuing to allocate land for projects auctioned by its own agency. The fiscal incentive of ₹0.02 per unit will have to be borne by the developer, according to the letter, but it will be allowed to add it to the tariff while bidding at auctions. Connectivity hurdles have lately delayed commissioning green power projects. The ministry said the onus of external transmission from solar parks will be on SECI and the cost of transmission facilities will be drawn from the Central Financial Assistance it provides for setting up the parks. “Internal infrastructure of the renewable energy park like internal power evacuation system, road, water, levelling of land, fencing, telecommunication and other facilities would be done by the developer at its own cost,” said the letter. SECI also plans to set up a payment security fund (PSF), a risk mitigation mechanism to ensure regular payment of dues even if discoms drawing power delay payments citing funds crunch. “The PSF would be built up over time by SECI by levying ₹0.02 per unit from developers setting up projects in these parks,” it said. An official from the ministry tried to allay fears that the additional charges levied on the developers could raise tariffs. “There will be assurance to the developers that there is land and connectivity. This can only have a positive impact on the tariff. Lower the risk, lower the tariff,” he said on condition of anonymity.

*****

53
नई सौर प्रणाली हवा से पीने योग्य पानी बनाएगी

वैज्ञानिकों ने एक नई सौर प्रणाली विकसित की है, जो हवा के नमी को सोखकर उसे स्वच्छ और उपयोगी जल में परिवर्तित कर देती है। यह शोध पत्रिका एंडवांड मैटेरियल्स में प्रकाशित हुआ है। इस प्रौद्योगिकी का उपयोग आपदा वाली स्थितियों में किया जा सकता है। यह प्रणाली हाइड्रोजेल, जेल-पॉलीमर हाइब्रिड सामग्री पर निर्भर करती है, जो बड़ी मात्रा में पानी सोख सकते हैं। हाइड्रोजेल सोखता है पानी : अमेरिका के ओस्टन में टेक्सास विश्वविद्यालय के गुहुआ यू के नेतृत्व में शोधकर्ताओं ने हाइड्रोजेल का इस्तेमाल किया, जो जल सोखने और गर्म करने पर जल छोड़ने दोनों का काम करता है। शोधकर्ताओं ने कहा कि यह अनूठा मिश्रण नमी और गर्मी वाले मौसम में सफलतापूर्वक काम करता है। इस तकनीक के इस्तेमाल से पेयजल की कमी दूर की जा सकती है।

*****

Wind Projects Exit Gujarat as Leasing Land gets Tougher

Gujarat appears to be losing its status as the favourite destination of wind energy developers. Most winners of the latest wind auction by the Solar Energy Corporation of India, nodal agency that offers renewable energy projects, have decided to set up projects outside Gujarat because of land issues that have arisen lately, according to several people aware of the matter. Gujarat was favoured for wind projects because it has many sites, especially in the Kutch area, where wind speeds are very high. However, over several months, the state has gone slow on leasing land to projects auctioned by central agencies. About 2 acres are needed to generate a megawatt of wind energy. Of the 7,000 MW of wind projects auctioned last year, almost 3,500 MW are expected to be commissioned in Gujarat. However, with the state reluctant to lease land, some developers have started buying private land there, an expensive alternative. Also, winners of the 2,000 MW wind auction conducted last month will set up projects outside Gujarat. With the tender allowing projects to be built anywhere in the country, developers are looking at other good wind-producing states. Gujarat government officials had earlier indicated that land should be leased out only to projects auctioned by its distribution company. Winners of the sixth tranche of SECI’s auction include Renew Power, SB Energy, Adani
Green Energy and Continuum Wind Energy. The lowest tariff bid was ₹2.82 per unit. “Given all the issues there, we will most certainly not be going to Gujarat,” said one of the biggest winners of the auction on condition of anonymity. “Winners commissioning projects in Gujarat are those that acquired land long ago,” said a person familiar with the development. Even equipment manufacturers that also acquire land and offer it to those buying their towers and turbines are considering other states. “We have not offered Gujarat for SECI VI to anybody. We are looking at Karnataka, Maharashtra and a few pockets in Tamil Nadu,” said an executive of one of the biggest Indian wind equipment manufacturers. Other auction winners did not respond to queries or said they are yet to decide on their project location.

*****

Cabinet Clears ₹33,500-Cr Power Projects

The Cabinet on Thursday gave the green light to power projects worth ₹33,500 crores and breathed fresh life into stressed projects by facilitating coal supply to the fuel-starved plants. The flurry of decisions in the run-up to the general elections include a new mechanism to speed up strategic disinvestment, giving a boost to the hydro power sector, supporting electric vehicles, a ₹30,849-crore facelift to the Mumbai urban transport network over five years, a new Metro line for Delhi, steps to support sugarcane farmers, setting up Kendriya Vidyalayas and initiatives to improve regional air connectivity infrastructure. The government has lifted restrictions on coal allotment to merchant power
plants that supply electricity to short-term markets, including power exchanges, after almost a decade. This is expected to help them clear their debts. Restrictions on coal supply were lifted last year for plants with medium-term power purchase agreements. Plants feeding short-term competitive markets procure fuel from e-auctions or global markets. The Cabinet Committee on Economic Affairs (CCEA) has decided to treat all hydro plants as renewable, giving them access to cheaper overseas funds. The decisions include imposing hydro power obligations on states to cover future projects. It also approved raising debt repayment period to 18 years from 12 years and budgetary support for funding connecting roads and flood moderation component. Power minister RK Singh said that the Cabinet’s decisions would address coal-related issues of stressed assets and make hydropower more affordable. The panel approved various recommendations on coal supply made by a group of ministers on stressed power plants. The decisions include allowing power plants to use coal contracts in case of termination of power purchase agreements due to payment default by discoms and procurement of bulk power by a nodal agency against pre-declared Coal India contracts. Increasing quantity of coal for special forward e-auction for the power sector and holding coal supply auctions at regular intervals were also allowed.

**DISINVESTMENT PUSH** - The CCEA delegated more responsibilities to the alternative mechanism in all the cases of strategic disinvestment of central public sector entities (CPSEs) with in-principle approval to stake sale. “This will facilitate quick decision-making and obviate the need for multiple instances of approval by CCEA for the same CPSE,” the government said. The alternative mechanism includes finance minister and minister for road transport and highways as permanent members. The minister for the relevant ministry of the CPSE being divested joins the mechanism as a temporary member for decision on that unit. The CCEA has allowed the alternative mechanism to decide on the quantum of shares to be transacted, mode of sale and final pricing of the transaction. The Cabinet also cleared three separate measures to boost new-age mobility solutions such as setting up of a National Mission on Transformative Mobility and Battery Storage to drive clean, connected, shared, sustainable and holistic mobility initiatives. It will have an inter-ministerial steering committee chaired by the NITI Aayog chief. The mission will also
finalise a five-year phased manufacturing programme (PMP) till 2024 to support setting up of a few large-scale, export-competitive integrated batteries and cell-manufacturing giga-plants in India. The PMP will aim to localise production across the entire electric vehicles value chain. For regional air connectivity, CCEA has given more time for and extended the scope for revival and development of unserved and underserved airstrips of states, Airports Authority of India (AAI), civil enclaves, central public sector undertakings (CPSUs), helipads and water aerodromes. A budgetary support of ₹4,500 crores has been earmarked for this. The CCEA on Thursday approved Phase-IIIa of the Mumbai Urban Transport Project that will improve the city’s suburban rails by introducing air-conditioned coaches with automatic doors, extension and creation of rail corridors, modern control systems and decongestion of entry/exit points at stations. The network is severely congested as it carries traffic four times its capacity. The new projects include two 1320-MW thermal power plants at Buxar in Bihar by SJVN Ltd and in Khurja, Uttar Pradesh, by THDC Ltd. Announcements for both the projects were made in 2015 and THDC was allotted the Amelia coal mine in Madhya Pradesh in January 2017. UP discoms will purchase 60% power from the Khurja project, while Bihar discoms will offtake 85% from the Buxar plant.

TEESTA PROJECT CLEARED- Approval for acquisition of Lanco Teesta Hydro Power Ltd (LTHPL) and execution of balance work of the Teesta Stage-VI project in Sikkim by NHPC at a cost of ₹5,748 crores was also cleared. Investment sanction of ₹4,287 crores for construction of the 624-MW Kiru Hydro Electric Project in Jammu & Kashmir by NHPC and the state power development utility was also approved.

*****

कार्बन डाइऑक्साइड बनेगी कोयला

जानिकाओं ने कार्बन डाइऑक्साइड को ठोस बनाने की एक तकनीक विकसित करने का दावा किया है। हवा को स्वच्छ करने में यह खोज महत्वपूर्ण साबित हो सकती है। वैज्ञानिकों का कहना है कि खास तकनीक के जरिए प्रभावशाली तरीके से कार्बन को एक गैस से ठोस कार्बन पार्टिकल्स में बदला जा सकता है। ऑस्ट्रेलिया के आरएमआईटी विश्वविद्यालय के शोधकर्ताओं की टीम ने कार्बनडाइऑक्साइड को ठोस कार्बन में
बदलने की इलेक्ट्रो-केमिकल तकनीक को विकसित किया। कार्बन डाइऑक्साइड को परिवर्तित करने के लिए शोधकर्ताओं ने विशिष्ट सतह वाला तरल मेटल उत्प्रेक्षित किया, जो रसायनिक संक्रियात्मक इलेक्ट्रॉसिटी के संवहन के लिए इसे प्रभावी बनाता है। कार्बन डाइऑक्साइड इलेक्ट्रोलाइट लिक्विड, लिक्विड मेटल से भरे जार में घुल जाती है। सीओ2 कार्बन के ठोस रूप में परिवर्तित होने लगती है, जो प्राकृतिक रूप से तरल मेटल की सतह से अलग होने लगता है।

*****