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Best-laid plans won’t make air safe by 2050

A recent study has found that Delhi needs to take very aggressive steps to reduce emissions, including a complete prohibition on crop residue burning in neighboring states, to even bring down people’s average PM2.5 exposure closer to the national safe standard by 2050. According to 'Burden of Disease Attributable to Major Air Pollution Sources in India', released on January 11, even if emission standards of vehicles improve as planned, thermal power plants and industries meet energy efficiency targets as expected, and cleaner technologies replace biomass burning at homes and in brick kilns, Delhi's PM2.5 exposure will continue to rise till 2050. The study on people's PM2.5 exposure from different emission sources also simulates future scenarios depending on the nature of action taken to control air pollution. For example, while Delhi's annual average exposure in 2015 was about 140 micrograms per cubic metres, in 2030 — under the scenario 'S2' — the annual average concentration only reduces to 120 micrograms per cubic metres but rises after that, hovering around the same levels as in 2015. Only in 'S3', when very stringent action has been taken, the annual average starts declining to a little over 80 in 2030 and a little under it in 2050, but continues to be higher than the national safe standard of 40 micrograms per cubic metres. According to the study's authors — from IIT Bombay, the US-based Health Effects Institute and Institute for Health Metrics and Evaluation, they used a global chemical transport model. Chandra Venkataraman, climate scientist at IIT Bombay, said it was a three-step process where detailed emission databases were developed that included nearly all emission sources. These are then deployed in an air quality model and also takes into account atmospheric chemistry. The scenarios assessed include business as usual, S2 — when energy efficiency targets for thermal power plants and industries are met as per India's submissions during the Paris agreement in 2015, vehicle emission standards are improved as planned in the auto fuel policy, and cleaner technologies have replaced solid fuel burning at homes, brick kilns and industries, and S3 — when crop residue burning has fully stopped and low carbon growth has become a norm. Most north Indian states that presented the state-level assessments fail to meet PM2.5 standards in 2050, said the authors. According to the study, biomass burning at homes, followed by open waste or biomass burning, and then dust and coal fly ash are the highest contributors to the PM2.5 exposures in Delhi. Nationally, if no action is taken, population exposures to PM2.5 are likely to increase by over 40% by 2050. "Exposures increase from 74 micrograms per cubic metres in 2015 to 106 in 2050. Exposure levels are kept close to the 2015 levels under an ambitious S2 scenario. Only under the most active reductions under S3, exposures are likely to reduce by nearly 35% from 2015 to 2050, reaching about 48 micrograms per cubic metres. "If no action is taken, the burden of disease will also grow substantially by 2050. Compared with nearly 1.1 million deaths in 2015, deaths attributable to the PM2.5 exposures are expected to rise to 3.6 million. Despite polluted cities like Delhi making headlines all the time, the study also found more than 75% of premature deaths attributable to air pollution were in rural areas. But exposure to PM2.5 in cities and rural areas was found to be similar."
China is winning its war on air pollution

China is seeing signs of success in its fight against smog as pollution levels slump dramatically in the capital region Beijing. Concentrations of PM2.5 — the tiny particles that pose the greatest health risks — plunged 33 percent from a year earlier in the fourth quarter across Beijing, Tianjin and 26 surrounding cities, Greenpeace East Asia said in a report Thursday. Levels in the capital alone tumbled 54 percent. The drops come after government policies last year forced millions of homes and businesses to switch from coal to cleaner-burning gas. The bluer skies came at a price, as the widespread switching to natural gas contributed to shortages of the fuel, leaving homes frigid and factories shut. Still, improving air quality is a win for President Xi Jinping, who pledged to unleash an “iron hand” against pollution, and anti-coal measures will likely continue, according to Sanford C. Bernstein & Co. “The switch from coal to gas has dramatically reduced pollution,” Bernstein analysts including Neil Beveridge in Hong Kong wrote in a report Thursday. “While there have been problems in implementation, the plan is delivering results. ”Replacing coal with gas for residential and industrial use is part of a series of measures to clean smoggy cities, along with closing outdated or illegal steel mills, coal mines and aluminum smelters. Natural gas demand rose 19 percent through October, the latest government data show. It will probably rise by 15 percent this year as Beijing sticks to its anti-coal guns and spurs development of gas infrastructure, Beveridge wrote.

Worth it?

The shift toward cleaner heating fuels proved problematic in November and December, as some regions ran short of natural gas, forcing the government to halt factories to prioritise supplies for residential users, and in some cases let homes go back to burning coal. However, “negative effects caused by the transition from coal to gas are relatively small,” making it worthwhile for China to expand the switch and start up nuclear power plant construction, said Jiang Kejun, a researcher at the Energy Research Institute under the National Development and Reform Commission. The NDRC in December announced a winter-heating plan for northern regions expected to cut coal use 150 million metric tons by 2021. Natural gas, biomass, heat pumps, direct electric heating and geothermal power will replace the dirtier-burning fuel. Besides a reduction in household coal use, measures to cut industrial emissions and favorable weather conditions “contributed to the very dramatic reduction in pollution levels” in Beijing and surrounding areas, Lauri Myllyvirta, an energy analyst at Greenpeace in Beijing, said by phone. Nationwide, the air-quality improvement was less dramatic, with a 4.5 percent decrease in PM2.5 levels during 2017, according to Greenpeace. We shall expect the winter in 2018 to be even cleaner as the government carries out the campaign on coal to gas more thoroughly,“ said Tian Miao, a Beijing-based energy specialist at Everbright Sun Hung Kai Co.
Cities and towns across the country where the hazardous particulate matter (PM10 and PM2.5) exceeds prescribed limits will now under law have to implement measures to reduce dust. Many big cities such as Delhi, Mumbai, Kolkata, Chandigarh, Lucknow, Varanasi and Kanpur, among others, fall in this category. Two months after issuing detailed guidelines on dust mitigation measures for handling both on-site and offsite management of construction and demolition wastes, the Union environment ministry has now notified specific rules under the Environment (Protection) Act, 1986 making its implementation “mandatory” for such cities and towns. The notified rules inserted 11-point measures in the existing Act, empowering the ministry to issue notices against local authorities and state agencies for non-implementation of those actions. While seven of these points are mean for those construction and demolition activities which need environmental clearance, the remaining four are for “all construction and demolition activities”, including private residential constructions. While this would give more teeth to monitoring activities in cities such as Delhi, which already have rules in place for managing dust at construction sites, others cities will now have to start implementing these measures. Under the rule, which came into force the day the ministry issued the gazette notification on January 25, no building or infrastructure project requiring environmental clearance, will get approval without approved dust mitigation measures. Besides, developers of such projects will be required to black-top all roads leading to the construction sites and they will not be permitted to excavate without adequate dust mitigation measures in place. They will also be required to keep soil, sand or any construction and demolition waste covered. It will also be mandatory for them to put in place wind-breaker of appropriate height (one-third of the building height and maximum up to 10 metres) and put in place a “water sprinkling system”. For construction and demolition activities which do not require environmental clearance, the new rules prohibit “grinding and cutting of building materials in open area”. This rule will be applicable for even private residential buildings. This category of buildings will be allowed to store construction material and waste only within an earmarked area. Roadside storage is not allowed and action can be taken against violators by local authorities. These measures will be meant for cities which exceed the annual prescribed limit of 40 microgram per cubic metre for PM2.5 and 60 microgram per cubic metre for PM10. These standards are part of the National Ambient Air Quality Standards (NAAQS) developed by the Central Pollution Control Board (CPCB). According to CPCB, as many as 195 cities and towns exceeded the prescribed PM10 limit in 2016 while 31 cities were over the PM2.5 standard.
India among 5 worst countries in terms of environmental health

A new index has ranked India as one of the bottom five countries worldwide in terms of environmental performance, slipping from 141 in the last ranking in 2016 to 177 among 180 countries this year. The latest global Environmental Performance Index (EPI) was released by Yale University and Columbia University in collaboration with the World Economic Forum on Tuesday. The EPI report ranks the countries on 24 indicators across 10 categories. India ranks at the bottom in terms of environmental health, which includes air quality. It also ranked near the bottom, at 178, in terms of air quality alone. The new report highlighted air pollution as a leading threat. “These are just rankings,” Harsh Vardhan, environment minister, said on Wednesday at a conference. “We have been doing our work sincerely and will continue to do so. The rankings will take care of themselves.” The ministry has emphasised its role in streamlining the process of granting environmental clearances, by reducing the number of days taken for granting clearances. Environmental activists argue that this results in shoddy and rushed assessments of impacts on environment. A recent report from the Health Effects Institute found if India does not take further measures to tackle the problem, the number of deaths linked to air pollution will triple from the current level of 1.1 million. Three South Asian countries: India, Nepal and Bangladesh are in the bottom five, with Burundi and the Democratic Republic of Congo. China ranks 120th on the index.

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Diesel cars’ market share dips to 23% from 50%

Call it a fear psychosis towards diesel cars, or pure economics. But the share of diesel in hatchbacks and sedans has fallen to under a quarter, which means that more than three cars out of every four sold are now run on petrol. The narrowing gap between petrol and diesel fuel prices has been one of the critical factors behind the trend, which should sound like music to environmentalists and green lobbies. The numbers are even more encouraging as the trend comes at a time when pollution figures have been at alarming levels across many Indian cities and there have been calls for controlling vehicular emissions, especially from diesel ones. According to numbers accessed by TOI, the share of diesel in car sales (hatchbacks and sedans, excluding SUVs) has fallen to 23%, coming down from a high of nearly 50% in 2012-13. The trend is only going to get stronger, say company executives who are now preparing for a life beyond diesel as the government pushes for cleaner technologies where the current focus is on electric drivetrains. The only challenge to the trend, however, remains the rising share of SUVs in the country. Diesel is traditionally the preferred choice in SUVs, though the mindset towards petrol is also finding some strength here. Take for example the Creta SUV where more than 30% of sales are coming from petrol version. The trend has been stark for some of the companies when it comes to small cars and sedans. For example, Honda Cars India has seen the share of diesel in overall sales shrink from 67% in 2013-14 to just a quarter at the end of 2016-17. Honda City sedan, which used to see 60% of sales coming from diesel in 2014, now gets only 20% of its volumes from the fuel. The same is the case for some of the models of Maruti Suzuki, the country's largest carmaker. For example, diesel variant now accounts for 30% of sales of the Ciaz sedan against 60% just some time back. However, diesel still remains strong for the company as some of its models such as Brezza mini SUV do not have a petrol variant. Maruti chairman R C Bhargava says that the trend is only going to get stronger, at least in the passenger cars segment. "I don't see a big play (for diesel). The market does not like diesel. I expect its share to come down. "Diesel cars, while giving higher fuel efficiency, are also expensive to maintain when compared to petrol versions. The higher maintenance comes at the top of an already expensive acquisition cost — diesel variants are priced higher than their petrol versions, by at least Rs 1lakh. With the difference between petrol and diesel fuel narrowing down, many people now prefer to opt for petrol versions. Against a gap of Rs 27 around the middle of 2012, the difference in the retail price of petrol and diesel fuel has narrowed down to only Rs 10 now. "Diesel is losing ground now, and the shift is quite pronounced," says Rakesh Srivastava, director (sales & marketing) at Hyundai India.
उज्जवला योजना में पाँच किलो के सिलेंडर मिलेंगे

'प्रधानमंत्री उज्जवला योजना' के तहत अब लाभार्थी बड़े रसोई गैस सिलेंडर की जगह पांच-पांच किलो के दो छोटे सिलेंडर भी ले सकते हैं। पहाड़ी और दूर दराज के क्षेत्रों में बड़ा सिलेंडर ले जाने से होने वाली दिक्कत से बचने के लिए पांच किलो के सिलेंडर शुरू किए हैं। ये सिलेंडर सबसे छोटी दर पर ही मिलेंगे। उज्जवला योजना के तहत लाभार्थियों के सामने अब 14.2 किलो का बड़ा सिलेंडर लेने के साथ-साथ पांच किलो का सिलेंडर लेने का भी विकल्प होगा। इंडियन ऑयल के अध्यक्ष संजीव सिंह के मुताबिक छोटे सिलेंडर की जमानत राशि 800 रुपये हैं। जबकि बड़े गैस सिलेंडर की सुरक्षा राशि 1250 रुपये है। ऐसे में कोई लाभार्थी उज्ज्वला गैस कनेक्शन के साथ पांच-पांच किलो के दो सिलेंडर लेता है, तो उसे तीन सौ पचास रुपये अतिरिक्त चुकाने होंगे। क्योंकि, उज्ज्वला गैस कनेक्शन के तहत बड़े सिलेंडर की जमानत राशि यानी 1250 रुपये का ही प्रावधान है।

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पेट्रोल के साथ-साथ एथेनॉल से भी चलेगी बाइक

मोटर साइकिल बनाने वाली दो बड़ी कंपनियाँ देश में जल्द ही दो तरह के ईंधन से चलने वाली मोटर साइकिल उतारने की तैयारी में हैं। केंद्रीय परिवहन मंत्री निर्मल गडकरी ने रविवार को यह जानकारी दी। दो तरह के ईंधन से चलने वाली दो बड़ी फ्लेक्स इंजन वाली बाइक पेट्रोल के साथ-साथ एथेनॉल से भी चलने में भी सक्षम होगी। गडकरी देश में इलेक्ट्रिक वाहनों के साथ-साथ एथेनॉल जैसे वैकल्पिक ईंधन से चलाए जाने में सक्षम वाहनों को प्रोत्साहन देने की वकालत करते रहेंगे। एथेनॉल आधारित परिवहन को बढ़ाने के लिए उन्होंने एथेनॉल का उत्पादन बढ़ाने पर भी जोर दिया है। गडकरी ने कहा, पहले के अंत तक दोपहिया वाहन बनाने वाले दो कंपनियों ने इलेक्ट्रिक के साथ-साथ दो तरह के ईंधन से चलने में सक्षम मोटर साइकिल बाजार में उतारने का वादा किया है। इन मोटर साइकिल को 100 फीसद पेट्रोल या 100 फीसद एथेनॉल पर चलाया जा सकेगा। केंद्रीय मंत्री ने कहा कि अभी हम कच्चे तेल के आयात पर सात लाख करोड़ रुपये खर्च करते हैं। यदि हमें एथेनॉल की मदद से इसमें दो लाख करोड़ रुपये बचाने में भी सफल हुए, तो यह कृषि अर्थव्यवस्था को बढ़ाने वाला कदम होगा। सरकार ऐसी नीतियों पर काम कर रही है, जिनसे गेहूँ, धान, बांस की पराली के अलावा अन्य चीजों से एथेनॉल उत्पादन को बढ़ावा दिया जा सके। गडकरी ने बताया कि एक टन धान की पराली से 280 लीटर एथेनॉल बन सकता है। इससे देश में एक नया उद्योग खड़ा होगा। यह प्रदूषण मुक्त और स्वच्छ ईंधन होगा। उन्होंने कहा कि जब अमेरिका, ब्राजील और इटली में मर्सिडीज बीएमडब्ल्यू, फोर्ड या टोयोटा जैसी कंपनियों फ्लेक्स इंजन वाले वाहन चला सकती हैं, तो भारत में ऐसा क्यों नहीं हो सकता। एक लीटर एथेनॉल की कीमत पेट्रोल की तुलना में आधी होती है।

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‘Water scarcity may hit thermal power’

India ‘thermal power plants, about 90% of which rely on fresh water for cooling, risk facing serious outages because of shortage of water, according to a new report by the World Resources Institute (WRI). Between 2013 and 2016, 14 of India’s 20 largest thermal utility companies experienced one or more shutdowns due to water shortages, the WRI said, and calculated that this cost the power producers more than ₹91 billion ($1.4 billion) in potential revenue from the sale of power.

‘Lost generation’ - “India lost about 14 terawatt-hours of thermal power generation due to water shortages in 2016, cancelling out more than 20% of growth in the country’s total electricity generation from 2015,” the report’s authors wrote. About 40% of the country’s thermal power plants are facing great stress in terms of water availability, according to the report, defines water stress as the ratio of total water withdrawal over available supply. According to the report, not only does high water stress result in equipment shutting down, it also results in a lower level of efficiency when it is running. “Water shortages shut down power plants across India every year,” O.P. Agarwal, CEO of WRI India, said in a release. “When power plants rely on water sourced from scarce regions, they put electricity generation at risk and leave less water for cities, farms and families. Without urgent action, water will become a choke point for India’s power sector.” Freshwater-cooled thermal power plants that are located in high water-stress areas have a 21% lower average capacity factor, compared to the ones in low and medium water-stress areas.” the WRI said. The WRI’s report predicts that this problem is set to worsen as India’s thermal power sector expands and demand for water from other sectors increases. It says that by 2030, 70% of India’s thermal power plants are likely to experience increased competition for water from agriculture, industry and municipalities. Significantly, the study found that water stress often occurs in places with abundant water supplies. “Some of the most disruptive water shortages occurred in India’s most water-abundant areas,” the WRI report’s authors said. “We also found that, even in water-abundant or low water-stress regions, thermal plants can still face water shortage-related risks during droughts or when monsoons are delayed. Some of those plants — for example, Farakka, Raichur, and Tiroda — experienced significant, if not the biggest, disruptions in generation caused by water shortages.”
Green energy targets clear in mind, but is India technology-ready?

India’s green energy targets for the next few years may be clear and crisp, but the country may need to focus more on related technologies to achieve its environment-friendly goals. While, it is investing in the research and development (R&D) of a superior technology for coal-based power generation, major policies for battery charging and energy storage are still lacking. In 2011, the government shared plans to invest in the Advanced Ultra Super Critical (AUSC) Technology for Thermal Power and the expectation was to have its first plant ready in 2017. However, it was only in August 2016 that the Cabinet Committee on Economic Affairs approved a R&D proposal for developing Advanced Ultra Super Critical (AUSC) Technology for Thermal Power Plants at an estimated cost of Rs.15.54 billion and a time cycle of two and a half years. State run BHEL and NTPC are working on this project. According to industry sources, most other countries seem to have given up on the technology due to various reasons such as bleak future for coal based power generation and high costs involved in generating electricity using such a technology. This also means India will have to develop this technology indigenously. As of December last year, India had an installed capacity of 192.97 gigawatt of thermal power. It is committed to make coal-based generation energy efficient under the Paris Climate agreement. AUSC technology involves bringing steam temperatures up to 700°C, while Ultra Super Critical Technology involves a temperature of 600°C. “The US has given up on this thermal power technology, because there is hardly any use of this anymore. India will need to use coal as a power generation source at least for the next two to three decades. The difficulty India would face is not on the boiler technology, but that on the steam turbine as the companies India sources the technology from for turbines are not working at the AUSC level. Japan was earlier looking at it, but not anymore,” said M S Unnikrishnan, managing director and chief executive officer, Thermax. In addition, Unnikrishnan points out, India may benefit from this investment in research “if we are able to achieve a result in the next two to three years”. The Central Electricity Authority has estimated that the country may not need any new thermal power capacity in the next 10 years. “For the next 10 years, we have said we will not invest in a new coal plant. If within that period energy storage technologies are put in place, we may not need more coal. I am not sure of the relevance of a conversation on AUSC, we will have to wait and watch,” said Amarthaluru Subba Rao, executive director (finance and strategy), CLP India. Rao says India’s current thermal capacity faces a modernization challenge. “Meeting the new emissions norms and managing costs are going to be a phenomenal journey. Perhaps investments in AUSC R&D are a back-up plan if energy storage is not developed 10 years from now,” he added.
Hero Future Energies emerges front-runner for Orange Renewable

In what will rank among the top deals in India’s clean energy space, Munjal family-promoted Hero Future Energies Pvt. Ltd has emerged as the front-runner to acquire Orange Renewable from Singapore-based AT Capital Group. New Delhi-based Orange Renewable, a unit of AT Holdings Pte. Ltd, is among India’s largest renewable energy platforms with an operational capacity of 758 megawatt (MW), made up of 567MW of wind projects and 191MW of solar plants. Mint reported on 14 November about Hyderabad-based Greenko Group, backed by Singapore’s sovereign wealth fund GIC Holdings Pte. Ltd and Abu Dhabi Investment Authority, and Hero Future Energies being in separate talks to acquire the portfolio. “Greenko is no longer in the fray with the talks with Hero Future at an advanced stage,” said a person aware of the development, requesting anonymity. Hero Future Energies has an operational portfolio of 1,200MW and is planning to put up a large grid-connected solar plant of up to 100MW capacity in South-East Asia. Backed by International Finance Corp. (IFC), the private sector investment arm of the World Bank, the renewable energy firm plans to expand its operations in Africa and India, and be present across the solar energy value chain. “Hero Future is interested in Orange Renewable’s portfolio,” said a second person who also did not wish to be identified. The portfolio of Orange Renewable, founded by Arvind Tiku, an Indian-born Singapore resident, has been up for sale for some time now. The Economic Times reported on 19 July about Renew Power Ventures Pvt. Ltd being in active discussions with Orange Renewable to acquire its portfolio at an enterprise value of Rs6,175 crores. The two persons quoted above added that the deal will ultimately hinge on the valuation of the assets. Rothschild has been given the mandate to find a buyer. Sudhir Nunes, chief executive officer, wind business at Orange Renewable, in an emailed response said, “Unfortunately we are unable to comment on market speculations. “AT Capital Group’s portfolio includes investments in real estate, hospitality, natural resources, renewable energy, engineering and construction. “The company will like to maintain its policy of not commenting on rumours except as required by law,” said a Hero Future Energies spokesperson in an emailed response. Queries emailed to Tiku and spokespersons for Rothschild and Greenko Group remained unanswered at press time.

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Low renewable tariffs are good for the country provided the projects are financially viable at these levels, Power Finance Corp Chairman Rajeev Sharma has. The state owned power sector financier sees significant business opportunities in this space, he said. The company is also looking at various ways to reduce bad loans including takeover of stressed assets by state-run companies, diversifying borrowing portfolio, and tie-ups with discoms to explore opportunities in electricity distribution segment, Sharma told ET in an interview. It is also eyeing business opportunities in debt refinancing, mining projects for power projects and funding the electrification projects of Indian Railways. PFC’s gross non-performing assets (NPAs) stood at 8.33% of its at Rs 21,503 crore for the quarter ended September 2017 while its net NPAs were at Rs 16,970 crore, or 6.69%.” Going forward—...we see a significant fall in NPA level, primarily on account of reversal of government sector NPAs,” Sharma said. The company had recently upgraded a government NPA account of Rs. 6,748 crores to standard asset, and if it is expected to get an upgrade of about Rs. 5,221 crores during 2019-20, he said. PFC is also actively undertaking various measures available under Reserve Bank of India guidelines and legal frame work, including invoking insolvency code, to resolve stress in certain loan accounts, Sharma said. “PFC has also been actively considering other stress resolution options like government loan takeover of certain strategic projects,” he said. PFC which raised about Rs 28,000 crore at 7% in the first half of this fiscal, is looking to diversify its borrowing portfolio. “We have already raised $400 million through first green bond issuance, which got listed at London and Singapore stock exchanges”, Sharma said. “We have also raised $300 million through a syndicated loan at competitive rates. We are also in the process of raising funds through masala bonds. Further, we are also attempting to refinance our existing foreign currency borrowing to reduce the cost of borrowing.”
India hits 20GW solar capacity milestone

India has achieved 20 gw (giga watt) cumulative solar capacity, achieving the milestone four years ahead of the target for 2022 originally set in the National Solar Mission. The achievement comes on the back of a major renewable energy push by Modi government, which after coming to power in 2014 had scaled up the target to 100 gw of solar capacity by 2022. According to the latest India research report by green energy market tracker Mercom Capital, the utility-scale cumulative installations now stand at approximately 18.4 gw, with rooftop solar accounting for another 1.6 gw. For the first time, solar was the top source of new power capacity additions in India during the calendar year 2017, with preliminary figures showing solar installations reaching 9.6 gw in this period and accounting for 45% of total capacity additions. But the country has reached the milestone at a time when protectionist measures threaten to slow down activity in the industry. The pace of overall solar installations is expected to be less impressive in 2018 as several protectionist government policies appear poised to increase costs and uncertainty. “The government’s revised solar installation target of 100 gw by 2022 has recently been clashing with PM Modi’s ‘Make in India’ initiative to promote domestic manufacturing. The recommendation for 70% safeguard duty on (solar panel) imports, the ongoing anti-dumping case, and a 7.85% port duty on imported modules are together creating an atmosphere of regulatory uncertainty that is taking a toll on the industry and slowing down installation activity,” the Mercom report quoted CEO Raj Prabhu as saying. The rooftop solar sector also witnessed steady growth in 2017 alongside the rise in grid-connected utility-scale capacity. In a display of government’s commitment to this segment, solar power producer Azure Power on Tuesday won a project to electrify 152 schools with rooftop solar projects of 11.35 mw. The company will sign the agreement with Navodaya Vidyalaya Samiti, an autonomous body under human resources development ministry.
India to set up $350-mn solar fund

In order to kick-start fund mobilisation under the International Solar Alliance (ISA), the central government will set up a $350-million solar development fund. Nine companies and banks have agreed to develop and finance various solar projects, which include a $1-billion partnership corpus of NTPC and CLP India to the ISA. The fund was announced by R K Singh, Minister of Power and New and Renewable Energy, at the first ever outreach programme of the ISA in Abu Dhabi’s World Future Energy Summit (WFES) 2018. “Over the years, renewable energy has become cheaper and is set to replace conventional energy, which is a healthy development... India has one of the fastest-growing renewable energy programmes in the world and the country would achieve its target of 175 gigawatts of installed renewable energy capacity well before 2020. The ISA shall help mobilise sufficient funds for solar energy projects,” Singh said in his address at the WFES.

Upendra Tripathy, interim director general, ISA, said the letter of intent/memoranda of understanding (MoUs) of nine solar-related projects of various companies and bankers had been signed at the WFES. The firms are: Vyonarc Development, Greenko Solar, Gensol Group and SOLARIG from Spain, Shakti Pump, Refex Energy, Amplus Solar, TATA Power, Jackson Solar, and Zodiac Energy.

Amplus Energy Solutions signed an MoU with YES Bank to co-finance solar projects in India. YES, Bank will look for bankable projects to invest in and Amplus will develop them. The project capacity is expected to be up to 1,000 megawatt under the partnership, to be developed by 2023. The bank has announced it will mobilise $1 billion by 2023 for financing solar energy projects in India, and $5 billion till 2030. Tripathy said CLP India and NTPC announced forging a partnership deal with the ISA and committed to making a voluntary contribution of $1 million each to the ISA fund corpus. The International Energy Agency and Green Climate Fund also announced entering into partnerships with the ISA. “Over 100 projects shall be signed by April 2018 under the ISA umbrella,” he said. Officially announced during the UN Climate Change Conference in Paris on November 30, 2015, the ISA is a partnership of countries rich in solar resources. Currently, there are 121 countries, with a large participation from Africa, Southeast Asia, and Europe, which have in principle agreed to be members of the ISA. France is a partner country and the then French President, François Hollande, laid the foundation of the ISA in Guru gram last year. On receipt of 15 ratifications, the ISA Framework Agreement entered into force in December last year, making the ISA a de jure treaty-based international intergovernmental organisation.

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MNRE keen to give big push to solar manufacturing

The Ministry of New and Renewable Energy has released a concept note of a proposal to build India’s manufacturing supply chain covering polysilicon, wafers/ingots, cells and modules to accelerate the growth of the solar photovoltaic sector. MNRE is proposing a slew of subsidies and incentives, including direct financial support of more than ₹11,000 crore for manufacturers to expand and upgrade, a 12 GW Central Public Sector Undertaking (CPSU) domestic content requirement (DCR) programme to create robust domestic demand, an increasing DCR requirement from modules to polysilicon, 30 per cent central financial assistance, cheaper loans, a custom duty exemption and cheaper power.

Invites suggestions-The concept note is open to comments and suggestions until December 31. The programme aims to strengthen the ‘Make in India’ campaign, reduce the country’s dependence on foreign manufacturers, and make domestic manufacturers competitive with their international counterparts. Indian solar installations have risen from just 6 MW in 2009 to a cumulative total of approximately 20 GW to date, with another 9.5-10 GW of installations expected this year alone, according to the Mercom India Q3 Market Update. The government is planning a three-pronged approach to support local manufacturers that includes: providing a level playing field with the imposition of anti-dumping duty on cells and modules, creating demand through a DCR programme, and supporting manufacturers financially by providing multiple subsidies outlined in this policy proposal. To ensure a guaranteed market, the policy proposes a 12,000 MW CPSU (this is higher than the earlier proposed 7.5 GWs) programme that would have to comply with World Trade Organization rules. If these incentives are seriously implemented and there is clear visibility for the next five years of market demand, then more manufacturers from China and other countries may decide to establish manufacturing units in India.

Preparing for tenders-The MNRE is preparing to announce tenders for solar projects in the coming four months, starting this month. Under the plan, the MNRE expects to work alongside states to announce tenders needed to reach 20 GW of ground-mounted capacity in solar parks in the 2017-18 fiscal year. Another 30 GW is expected to be tendered in 2018-19 with 30 GW to follow in 2019-20.
The recent suggestion of the Directorate General of Safeguards Duty (DGS) to impose a 70 per cent duty on import of Chinese solar equipment might make power costlier, feels the industry. Chinese solar import has grown 643 per cent from 2014-15. However, this has also helped the fall of solar power rates to a recent record low of Rs 2.43 a unit, due to cheap solar power panels, mostly from China. Power developers fear the duty, if imposed, would lead to escalation in rates. The DGS in its preliminary report investigating dumping of solar cells (whether or not assembled in modules or panels), has suggested a duty of 70 per cent on import from China and Malaysia. It has identified ‘serious injury’ to the domestic industry from the rising import and declining prices of Chinese solar panels. The DGS has also observed that while China’s import growth slowed in other countries, it increased considerably towards India. The reasons cited are duties imposed by both the European Union and America on Chinese solar imports. There has also been a surge in Indian demand due to the government’s target revision of solar capacity addition to 100 Gw by 2022. Indian developers also have lately reduced dependence on other countries. DGS has not suggested any duty on import from the US and EU, as the share of shipment from here is only about three per cent. That from China has increased to 90 per cent in five years. The DGS investigation was in response to an application by the Indian Solar Manufacturers’ Association (Isma), pleading damage to the indigenous sector. They say around 80 per cent of the market has been taken away by import “We welcome this initiative by the government, as it is bound to increase employment and help achieve the required energy security. The duty will give the necessary boost to solar cell and module manufacturers,” said Hitesh Doshi, chairman, Waaree Group. The DGS has also said solar manufacturing units in Special Economic Zones should also attract the duty.
Towards solar-powered agriculture

In the past few years, solar pumps have consistently piqued the interest of various bureaucrats and politicians. The Prime Minister spoke about solar pumps from the ramparts of the Red Fort in 2016. There is no shortage of ideas which the Centre, States, civil society organisations, and enterprises are adopting to enhance penetration of solar for irrigation. But how should India proceed with this impactful technology?

Case Studies-Maharashtra is solarising its agricultural feeders by installing solar power plants at the substation level, through competitive bidding. Karnataka is promoting solar pumps for existing grid-connected farmers under a net-metering regime, allowing them to generate additional income by feeding back surplus energy into the grid. In eastern States, GIZ, a German development agency, has piloted community ownership models providing water-as-a-service using solar pumps. Despite the diversity of approaches and significant government subsidies, only about 1,42,000 pumps have been deployed till date against a target of one million pumps by 2021. Such limited demand, in a country with 132 million farmers and 28 million existing irrigation pumps, calls for a reflection on existing deployment approaches. In India, 53% of the net-sown area is still rain-fed. Solar pumps hold potential to enhance irrigation access, advance low-carbon agriculture, reduce the burden of rising electricity subsidies, and improve the resilience of farmers against a changing climate. But farmers’ perspectives have to be considered and the local context appreciated when deploying the technology to maximise economic returns.

What can be done—At the Council on Energy, Environment and Water (CEEW), we have published three new research studies. I propose seven takeaways for the government to consider while promoting solar for irrigation. First, target marginal farmers with smaller solar pumps, particularly in areas with good groundwater development potential. Our research, based on a recent primary survey of 1,600 farmers in Uttar Pradesh, revealed that close to 60% of marginal farmers relied on buying water, the costliest option for irrigation, or on renting pumps to meet their needs. Second, couple solar pump deployment with micro-irrigation and water harvesting interventions at the farm and community levels. While lack of irrigation is a major bottleneck, 30% of farmers reported limited water availability for irrigation as a challenge. Third, focus on technology demonstration and deploy at least five solar pumps in each block of the country. CEEW research suggests that such efforts could have a profound effect on farmers’ willingness to adopt solar pumps and spur bottom-up demand. Fourth, in regions with already good penetration of electric pumps, prefer feeder solarisation through competitive bidding over solarisation of individual pumps. A comparative economic analysis finds that solarising individual grid-connected pumps is the costliest approach for the government to expand irrigation cover, while not being the most attractive option for farmers. Fifth, in regions with prevailing local water markets, promote community-owned solar pumps. CEEW research finds that while joint ownership drew interest from 20% of farmers, close to 80% of them were interested in buying water from a community-owned or enterprise-owned solar pump at competitive prices. Sixth, encourage sharing of solar pumps among farmers through farmer extension programmes. Given zero marginal cost of pumping with solar, water sharing, already a prevalent practice in many parts of the country, helps put a marginal price to the water. Seventh, provide interest-subsidy to farmers combined with reduced capital subsidy to enable large-scale deployment of solar pumps in a shorter span of time. Such an approach would cover a greater number of farmers, helping them reap the benefits of solar pumps sooner, and increase overall returns to the economy. Guided by on-ground experiences and an expanding body of research, the government should continuously improve and innovate its support mechanisms on solar for irrigation. India must exploit the potential of this decentralised technology to achieve the dual national targets of 100 GW of solar and doubling farmers income by 2022 — setting a world-class example of greening the economy and overcoming its developmental challenges, simultaneously.
मोबाइल टावर में सौर ऊर्जा से गांव हो सकते है रोशन

देश के लाखों मोबाइल टावरों को सौर ऊर्जा से संचालित करने के लिए पर्यावरण को सुधार जा सकता है, बल्कि ऊर्जा खर्च में भारी कमी के साथ-साथ हजारों गांवों के बिजली पहुंच को जा सकता है। देश में इस समय 7.36 लाख से ज्यादा मोबाइल अथवा टेलीकॉम टावर हैं। इनमें 6.86 लाख टावर बिजली अथवा डीजल से चलते हैं। इनमें से केवल 50 हजार टावर स्वच्छ ऊर्जा से चलते हैं। लेकिन इन हरित टावरों में भी मात्र 2500 टावरों में ही सौर ऊर्जा का प्रयोग हो रहा है। बाकी में अपने स्वच्छ ईंधनों का प्रयोग होता है। सौर ऊर्जा संचालित ज्यादातर टावर नक्सल प्रभावित क्षेत्रों में हैं। टेलीकॉम टावरों में सौर ऊर्जा के इस्तेमाल की स्कीम को सरकार ने सितंबर, 2014 में हरी इंडी दी थी। इसके तहत झारखंड, बिहार, छुटीसगढ़, मध्य प्रदेश, महाराष्ट्र, पश्चिम बंगाल, ओडिशा, उत्तर प्रदेश तथा अंध्र प्रदेश समेत दस नक्सल प्रभावित राज्यों में अब तक लगभग 2200 सौर ऊर्जा संचालित टेलीकॉम टावर स्थापित किए जा चुके हैं। अगले साल इस तरह के 10 हजार सौर ऊर्जा संचालित टावर और लगाने का सरकार का इरादा है। झारखंड के नक्सल प्रभावित इलाकों में सौर ऊर्जा संचालित मोबाइल टावरों से सुरक्षा बलों को नक्सलियों के खिलाफ सुरक्षा उपाय जुटाने में बड़ी मदद मिल रही है। पहले नक्सली अक्सर टावर की बिजली सुरक्षित नहीं करते थे, जिससे सामयिकी भ्रष्टाचार हो जाता था। टावर परिसरों में सौर पैनल लगाए जाने के बाद ये समस्या खत्म हो गई है। क्योंकि इनकी बैटरी चार्ज होने के बाद एक सप्ताह तक चलती है। अब तक स्थापित सभी सौर ऊर्जा टावर सहायक क्षेत्र की कंपनी बीएसएनएल द्वारा लगाए गए हैं। निजी क्षेत्र की टेलीकॉम कंपनियों ने इसमें विशेष रुचि नहीं दिखाई है। इसका कारण नीतिगत अस्पष्टता के अलावा प्रोत्साहन का अभाव होना है। सौर ऊर्जा टावर लगाने में बीएसएनएल की सहयोगी कंपनी बीएसएल के वाइस प्रेसीडेंट, कार्योपरेट अफेयर्स व कम्यूनिकेशन, मनोज भान के मुताबिक एक टेलीकॉम टावर साल में औसतन 7.5 लाख रुपये की बिजली व डीजल की खपत करता है। यदि सभी टावरों के साथ सौर ऊर्जा पैनल लगाए जाएं तो न केवल खर्च में कमी आएगी, बल्कि फालू बिजली भी पैदा होगी, जिसका उपयोग हजारों गांवों को प्रभावित करने में क्रिया जा सकता है।

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Enercon readies biggest wind turbines for India

For its second innings in India, German wind turbine manufacturer Enercon plans to bring in machines that will be the biggest to be sold in the country. The firm’s Chief Risk Officer, Wolfgang Juilfs, told Business Line on Sunday that the company has started offering machines of rated capacity of 3.5MW. It is developing suppliers for the machines, which will come in two versions — one with blades that will sweep a circle of 138 metres and the other 126 metres. The height of the tower on top of which the turbines would be placed will depend upon the site, but it could be as high as 131 metres, in which case the tower will be a hybrid of a concrete structure and tubular steel, Juilfs said. He said wind energy companies could participate in competitive bids now if the projects need to be commissioned by 2019-20end. Enercon will be ready with its machines by then. These, then, will be the biggest wind turbines to be sold in India. High. The only other company to have a 3MW machine is another German company, Nordex. Asked if Enercon’s upper-end machine was appropriate for the Indian market, Ralph Tobergte, who looks after Business Development at Enercon, said that since the company was joining a party of entrenched players, it had to do something different. Juilfs said the proposed machines will be competitive. Indeed, some in the industry believe that big machines could present challenges in terms of logistics. Enercon GmBH was among the earliest players in the Indian wind market. The company, which was founded and is owned by Aloys Wobben, a wind technologist of global repute, came to India in 1994. For 12 years, Enercon India, the joint venture of Enercon GmbH and the Mehra family with Yogesh Mehra as the Managing Director and Enercon machines were ubiquitous in India alongside Vestas, the Danish wind turbine manufacturer. Trouble broke out between the partners in 2006. There were a number of contentious issues, but primarily the Mehra family accused Enercon GmbH of denying it technology, starving it of components supplies in order to emasculate the Indian arm with a view to take full control. On its part, Enercon accused the Mehras of stealing technology and siphoning off funds. The legal battle is still on.

Wind energy tariff-Juilfs said that Enercon expected wind energy tariffs in India to go up. In the 500 MW Gujarat auctions that happened in December 2017, the least quoted tariff was ₹2.43 a kWhr, by a company backed by the PE fund, Actis. Some in the industry consider the tariff suicidal and born out of desperation to win orders. Juilfs said that tariffs will go up to around ₹2.70 in the next auctions, and rise further beyond that.

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Chinese automotive start-up bets big on its ‘Smart Intuitive Vehicle’

One of the biggest highlights of CES 2017 was China’s Tesla competitor Faraday Future, which stole the show with its futuristic electric car that many pegged to be a Tesla killer. Except it wasn’t. The Chinese company went bankrupt, most of its top executives quit and there seems no future for Faraday Future. Fast forward to CES 2018 and another Chinese start-up is stealing the show with its electric SUV that offers the highest drive range in any commercial EV so far, is as futuristic as you can imagine when it comes to interiors, and with a starting price tag of $45,000, is directly targets Tesla’s cheapest car, Model 3. But BYTON, the company that promises to bring its electric SUV to the market by the end of 2019, has far better credentials than its peer that went bust. The firm is backed by some of the largest Chinese tech companies such as Tencent and Foxconn. Just over a year old, the start-up boasts former executives of car brands BMW and Nissan, and tech companies Apple and Google in its ranks, and former Tesla employees. So why is this relatively unknown Chinese company getting so much attention for its upcoming SUV?

**Human-vehicle interaction**—The car comes with a massive 49x9.8 inch shared experience display centre console, which lets the driver and the passengers interact with the car simultaneously without disturbing each other. The car will take advantage of pretty much every non-typing input technologies to create a futuristic experience with its human-vehicle interaction — incorporating voice recognition, touch control, biometric identification and hand-gesture control technology. The voice interface will be powered by Amazon Alexa for intelligent voice control, with additional Amazon collaboration on audio and video content. To unlock the car, face recognition cameras will recognise the driver or the passenger. BYTON also recognises driver and passenger information to auto-adjust seat angles, entertainment options and other information according to user preferences and usage. To top it it all, the car covers 520 km on a single charge. The new SUV will be manufactured at the company’s plant in Nanjing, China. The car will be available in China towards the end of 2019, and in the US and Europe in 2020. “BYTON Concept SUV connects both the automotive and digital industries in ways that will deliver an entirely new connective experience for people on the move. The result is the world’s first Smart Intuitive Vehicle, or SIV,” said Carsten Breitfeld, CEO and co-founder, BYTON. “BYTON is tailor-made for fully electric mobility. Equally important, we have designed our car to be the first-ever affordable premium EV that fulfils the requirements as the first car in every household,” said Daniel Kirchert, President and co-founder.

**‘Smart surfaces’**—BYTON Concept leverages ‘smart surfaces’, beginning with the front grill. LED lights across the front highlight the luminescent logo in the middle, along with connecting lines and dots that can switch to different display modes to suit different driving scenarios as well as communicate with users and pedestrians. The rear of the car also adapts the smart surfaces design.

**Path to autonomy**—BYTON’s production car will be equipped with L3 ADAS (Advanced Driver Assistance Systems) in 2019. The company says L4 autonomous driving will be enabled from 2020 via a software upgrade, as will future sensor and camera upgrades. Tesla claims it will already have L4 autonomy — just one step from full autonomous cars — by 2019, and will be able to achieve full autonomy by 2020. That still makes Tesla ahead of Byton in terms of futuristic tech. But Byton’s concept is nevertheless a compelling proposition, only if it does not meet the fate of its predecessor.
E-vehicles may face pollution hurdle with hazardous batteries

India's ambitious electric vehicle plans could throw up challenges of environmental hazards if used batteries are not handled properly. The country does not have regulations on scrapping of electric vehicle batteries as of now. The automobile industry is moving towards the use of lithium-ion batteries instead of lead-acid batteries to offer quicker charging and higher range. "Lithium is not a product to be dealt with lightly. It requires proper handling," said R C Bhargava, chairman at Maruti Suzuki. Maruti's parent company Suzuki is setting up a Rs 11.51-billion lithium-ion battery unit with Toshiba and Denso in Gujarat. Bhargava said the company's electric vehicle plans for the country entail setting up a complete ecosystem, including appropriate treatment of end-of-life batteries. Suzuki has partnered with Toyota to introduce electric vehicles in India. Ashim Sharma, partner and group head (auto, engineering, and logistics) at Nomura Research Institute India, said that lithium-ion battery recycling is hazardous because of the highly reactive nature of lithium ions. "Proper rules and regulations need to be framed based on our temperature and humidity conditions. Improper handling can be dangerous," he added. The proper scrapping of batteries will not only alleviate possible environmental concerns but will also act as an enabler to locally source the chemical elements of the batteries such as lithium, nickel, manganese, cobalt, and titanium, thereby increasing the cost-effectiveness of the supply chain. Roland Folger, managing director and chief executive officer at luxury carmaker Mercedes Benz, said that everybody thinks that somebody will take care of the used batteries. "Since the electric vehicle programme is driven by environmental consciousness, my biggest amazement comes with the fact that not many people are talking about recycling. You can see guys on the roadside with a chisel and hammer, trying to recover the lead-acid batteries. If the acid from the lead-acid battery leaks into the groundwater, it can be highly poisonous. One lithium-ion battery has the potential to poison the whole water aquifer of Delhi," Folger said. Folger also said that using an electric vehicle during floods can be dangerous. "We have had floods in Chennai and Mumbai recently. What will you do with your electric vehicles (in such a situation)? Would you be comfortable sitting with huge batteries when the water level is rising?" he asked. Experts see used electric vehicle batteries holding the possibility of subsequent usage. "We believe that the life of a battery after use in vehicles can be used for static storage applications for at least an additional three to five years, thereby increasing the life-cycle of the battery usage. Internationally, this has been the application expectation and Mahindra has similar plans," said Mahindra Electric CEO Mahesh Babu. Mahindra has been the country's pioneer in vehicles. Babu said the company has a recycling plan for all lithium-ion batteries used in cars. "In fact, it is similar to the re-cycle procedure of the batteries used in mobile phones and other lithium-ion applications. We have a proper supplier who does the recycling of these batteries," he added. A Society of Indian Automobile Manufacturers white paper on electric vehicles suggested measures to incentivise recycling. It said that the minimum requirement of materials to be recycled should be mandated and manufacturers should be encouraged to develop closed-loop mechanisms for batteries ensuring minimum scrap.

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EESL plans pan-India rollout of 9,500 electric vehicles

State-run Energy Efficiency Services (EESL) is trying to rope in more states and make a Pan-India roll out of 9,500 electric vehicles this year, as the first 500 cars are ready to be delivered in Delhi next week. EESL in August last year floated a tender for 10,000 electric cars. The first part of this tender required 500 vehicles to be rolled out, while the remaining are to be delivered in the second phase of the tender. Only the first batch of cars was to be deployed in Delhi-NCR and the remaining 9,500 can be deployed in Delhi and any other state “We are actually planning to make it a Pan-India rollout. Many states have evinced interest in our EV programme. Once we start the roll out at the NCR level, more states will follow,” Saurabh Kumar, managing director, EESL, told ET. The first batch of 500 electric sedans is ready to be delivered to the Central government around January 15 and the supporting charging infrastructure is in place, he said. Presently, Andhra Pradesh, Maharashtra and Gujarat are the states apart from Delhi who have come forward to be a part of the electric vehicle roll out in the second phase, Kumar said. EESL is looking to approach more states for the second phase of the electric vehicles, the order for which should arrive by the second half of this year. The first batch of electric vehicles was to be delivered to the government in November last year, but it was not possible because of miscalculation of time, Kumar said. Tata Motors and Mahindra & Mahindra had bagged the order to supply the lot of electric vehicles. For the second phase, EESL will again approach the companies next month, asking them to match the lowest price arrived at in the reverse bid. Tata Motors, which emerged as the lowest bidder in the tender, quoted the price for its vehicle at Rs 11.2 lakh inclusive of GST. Mahindra & Mahindra, which was the second lowest bidder and quoted a price of around Rs 13 lakh per vehicle, later matched Tata Motor’s quote. “Tata Motors will anyway get 60% of the order, (as per the tender conditions). It’s up to Mahindra to match the price or not, because supplying 150 cars and 4,000 cars are two different things,” Kumar said Looking at the industry and government’s interest in the segment, Kumar said that he wants to focus on the present tender at hand, while another tender for EVs may also be expected. “I hope the second tender to be at least the same size if not large. It all depends on how this shapes up and how the government decides to take this forward. Beyond this there needs to be some guidance. Industry is taking this very seriously,” he said.

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Electric vehicles: charging infrastructure needs a jolt to meet 2030 target

Achieving the target of all-electric vehicles by 2030 will need a substantial push from the government and the private sector in terms of setting up the charging infrastructure, enabling cheaper availability of raw materials and incentivising midway measures such as hybrid vehicles.

What is the aim?

Prime Minister Narendra Modi to Transport Minister Nitin Gadkari and erstwhile Energy Minister Piyush Goyal have all spoken about the target to achieve an all-electric fleet of vehicles by 2030, in line with the ongoing global push away from the internal combustion engine.

What steps have been taken?

Different departments and ministries have stepped up their engagement with the electric vehicle industry. Energy Efficiency Services Limited, a government firm, has put in motion plans to procure 10,000 e-vehicles and has already given out tenders to the likes of Tata Motors and M&M. EESt aims to lease these vehicles out to government departments so as to replace their existing fleets of petrol and diesel vehicles.

The Government also notified the scheme for Faster Adoption and Manufacturing of (Hybrid & Electric Vehicles in India (FAME), as a part of its National Electric Mobility Mission Plan 2020. The scheme has four focus areas: technology development, pilot project, charging infrastructure and demand creation. The scheme has been extended till March 31, 2018.

Is the infrastructure ready?

There are several initiatives, by both the government and the private sector, to enhance the required charging infrastructure. The Centre has begun pilot projects in this regard, having already installed 25 charging stations in Bengaluru, and planning to expand this to other metros. Last year, Fortum India inaugurated a 22 KW AC charger on a pilot basis in Delhi, and the company said it was looking to install up to 160 charging stations over a year in Delhi, Mumbai and Bengaluru. The parent company Fortum Oyj also signed an agreement with government-owned NBCC (India) to bring cloud-based back-end infrastructure for electric vehicles to India. Reliance Energy also has said it planned to install 15 charging stations across its distribution license area in Mumbai over the next three years. “The company is also working on a third-party business model to provide charging station facilities for electric two-wheelers and four-wheelers in public places, parking plazas near highways, and offices and malls,” the company said. Tata Power has also installed two charging stations in Mumbai.

What are the roadblocks?

There are several. The first is that very few global carmakers have brought their electric variants into India. The fact that the government has also made a distinction between EVs and hybrid vehicles under the GST regime is seen as a problem. While EVs are to be taxed at 12%, hybrid vehicles are taxed at 28% plus a 15% cess. The view among carmakers is that people are still sceptical about the shift to all-electric vehicles since they fear the charge duration of the batteries. As such, they are more likely to try hybrid vehicles, but that sector is not being encouraged by the current tax structure. The other issue has to do with the charging stations themselves. While sector specialists said that EVs can be charged at home using AC power, this would take about 5-8 hours for a full charge. DC chargers, on the other hand, can do the same in a fraction of the time. Most of the chargers being installed across the country, however, are AC chargers.
French car maker Renault is working on an electric version (EV) of Kwid, its successful and affordable small car, increasing competition for India’s EV makers such as Mahindra and Mahindra Ltd and Tata Motors Ltd. Renault will introduce the electric Kwid in China, followed by India. The car’s road-worthiness and range extension tests are being done in India, a person aware of the matter said. “Lots of work has happened on the car in India, but a decision on its launch will happen once the Indian government formalizes its EV policy,” the person cited above said on condition of anonymity. The subsequent introduction of other EVs from Renault’s global portfolio in India will also depend on the EV policy, this person added. The launch of Kwid’s EV in China will be a huge achievement for the French carmaker, since this will be for the first time that a particular product designed and developed in India by a global vehicle manufacturer, will be launched in a developed market—bigger in total vehicle sales with an electric powertrain. Under ‘Drive the Future’, Renault’s mid-term plan for 2017-22, the car maker plans to launch one EV in India by 2022. By then, the carmaker will also globally launch electrified variants of 60% of all its offerings. It will also develop eight fully electric models and 12 electrified models based on alliance platforms, as per the mid-term document. Renault will be the second carmaker after the tie-up of Suzuki Motor Corp. and Toyota Motor Corp., which are expected to launch a small electric car in India after 2020. Maruti Suzuki India Ltd will sell and service the first small car from Toyota-Suzuki. The company will also establish charging stations for the car. “Renault is a global leader in EV technology but we need to adapt them to Indian conditions. We have our technology centre in India; however, it is critical to know the road map and policy framework before moving towards that direction. We are closely watching the developments in the EV market scenario in India, basis which our plans to introduce EVs in the Indian market would depend,” a company spokesperson said in response to an email query from Mint. The company also mentioned that it does not have a battery manufacturing unit in India; hence, a public-private partnership is required to build that.
In a bid to find new revenue streams, German multinational BASF is eyeing the growing electric vehicles (EVs) segment. BASF makes chemicals required in batteries for EVs and the company could make fresh investments in the country, if the segment sees traction in the coming years. Fresh investment will depend on other companies setting up local units for manufacturing such batteries, said Raman Ramachandran, Chairman and Managing Director, BASF, during a meeting with Business Line’s editorial in Mumbai. Ramachandran said that this new opportunity is being considered as the materials used for making EVs batteries is an area of focused R&D for the company. Electric vehicles are the next big technology jump and a number of countries want to fully adapt to this technology by about 2030s. If the government wants all cars to go fully electric by 2030, then local manufacturing of batteries is essential, he said. The company is already a part of the automobile value chain. It supplies paints, catalytic converters and engineering plastics, which are used as dashboards in cars. In the last four years, BASF has invested about ₹2,000 crores in the country. It has 12 manufacturing facilities in India, making products as diverse as foam materials used in beds, agrochemicals to vitamins added for reinforcing breakfast cereals. Ramachandran said that BASF along with making battery chemicals in India will also focus on storage capacity and longevity of such batteries. BASF already has battery-making clients in China, the US and Japan. The research on battery materials is happening in Japan. Investment in India by automobile makers for making EVs could become a trigger point for the company to invest in the battery chemical business, he said. He said that the company was also following the nascent semiconductor business in India as it provides chemicals to semiconductor makers globally. Ultrapure water, gases and electronic chemicals for semiconductor production are provided by BASF.

Agrochem concerns- On the issue of concerns over agrochemicals getting into food chains, Ramachandran pointed that if the products are used as recommended on the label and if the mandatory time between the application of chemicals and harvesting of food crops is strictly followed, then the chemicals will not enter the food chain. It is raising the awareness of farmers by continuously engaging with them on issues of safe practices. As a part of this engagement, it sells masks and gowns for safe spraying chemicals. These personal protection accessories are being sold to the farmers on a no profit basis, he added.
Hyundai Motor to unveil first electric vehicle in India in 2019

South Korean auto maker Hyundai, which has set a roadmap to introduce nine models in India over the next three years, will be driving in its first electric vehicle (EV) in the country in 2019. The company will also roll out a small car before Diwali this year and a compact SUV in 2019. “Of the nine models, two will be face-lifts, two new segment products – the AH 2 (internal name) and a sub-4 metre SUV, an electric vehicle (EV). The rest will be full model change,” Y. K Koo, MD & CEO, Hyundai Motor India, told The Hindu. He added that there was a global trend where everyone was talking about eco-friendly mobility, including EVs and hybrid, but since the Indian government was focused on EVs, the company would be unveiling its electric vehicle brand Ioniq at the upcoming Auto Expo. “In 2019, we will start EVs as completely knocked down (CKD) units to test the market. We will study the market response, pricing and customer behavior. If everything is ready, we may consider manufacturing them from our Chennai plant,” Mr. Koo said. He added that the company was waiting for a “clear picture and roadmap” from the government on the EVs, that the company “can follow and develop more EV products for India. “The company, which will be investing ₹5,500 crores to fund the product pipeline, will also be debuting its AMT (automated manual transmission) technology this year. “We will bring in new powertrain also – AMT engine. The AH 2 will come in CNG and AMT engine and will be launched before Diwali this year. The concept is contemporary family oriented car. While some people are calling it the new Santro, we have still not finalised the name for the AH 2,” he said.

Capacity ramp up-The company plans to increase capacity to about 7.63 lakh units by 2019 to support the new product additions. “Our capacity is about 7 lakh units. We can increase it by 13,000 more this year. By 2019, we want to add capacity for another 50,000 units.” Hyundai had produced over 6.78 lakh units in 2017. He added that the company would also have more flexible production for domestic market and export.
Nisaan may make budget e-car in In

Carlos Ghosn-led Nissan Motor Co is looking at manufacturing an all-electric budget small car in India - its cheapest globally - but has sought concessions from the government to support sales of the clean cars. A price of around Rs 7 lakh - or upwards of $10,000 -- is being considered for the car - which is under study presently. This may perhaps make the car the cheapest private electric passenger vehicle in the country, less expensive than even Mahindra & Mahindra's e2O mini car. "If you want to sell electric cars with significant volumes in India, you have to make them there. We are considering this (local manufacturing) as part of a study," Nicholas Thomas, Global Director for Nissan's electric vehicles (EV), told TOI. The company is also looking at exporting the India-made electric cars and may sell it in other Asian countries to gain economies of scale and ride on India's low-cost manufacturing processes. Asked how soon can a decision be firm?ed up, Thomas said, "It depends on the Indian electric market, and how soon it develops. "However, he said that the government needs to come up with credible solutions to support the growth of electric cars till they are in their infancy. "We've had many rounds of discussions with the Indian government on this issue. Though their target of having electric cars by 2030 is very clear, there is no clear roadmap on how to get there... We need more clarity. "Thomas said that battery costs - while coming down over the last few years - are still to reach affordable levels. The Leaf, which is one of the world's most-successful electric car having sold over 3 lakh vehicles since 2010, is priced upwards of $30,000 (around Rs 19 lakh) in the US. Getting the car to India as a fully-built imported unit would mean paying additional cumulative duties of around 200%, making it completely unviable. Nissan is doing the feasibility for the Leaf in India but does not intend to locally produce it. "It will be a niche category product."
India turns Tesla model on its head to target mass market

Tesla Inc. helped electric vehicles (EV) gain a mainstream foothold in the US by starting with luxury cars and then moving down-market. India’s nascent transition to EVs is heading in the opposite direction. Many consumers will get their first taste of electric vehicles from public-transit systems and corporate fleets in India, where car ownership per 1,000 citizens is just 20, compared with 800 in the US. Companies such as Bangalore-based Lithium Urban Technologies Pvt., which provides EV fleets to corporations, are expanding as India aspires to end sales of internal-combustion engines by 2030. “In the next five years we’ll have 10,000 electric cars and buses,” Sanjay Krishnan, the firm’s co-founder, said in an interview, adding that the company hopes to have its first electric bus as early as this year. India’s relatively low rate of car ownership means consumers have an opportunity to make the electrification leap without some of the challenges and costs other nations will face, and makes possible a path focused at first on mass transit and fleets. “We started with mass mobility and will then go to an aspirational model -- just the opposite of Tesla,” Mahesh Babu, chief executive officer of Mahindra Electric Mobility Ltd., said last month at a conference in New Delhi. “It’s important to think about public mobility when thinking of electric transport. Mahindra partnered with ride-hailing company Uber Technologies Inc. in November to supply hundreds of electric vehicles for Delhi and Hyderabad. The company, along with Tata Motors Ltd., is also supplying battery-powered vehicles for India’s first 10,000-car tender, aimed at government employees. Predictions about India’s path to wider EV acceptance mirror some of the ways in which China’s market developed. The Chinese also became acclimated to the technology through a long legacy of electric bikes and low-speed EVs. And about 75% of vehicles in car-sharing fleets are electric, according to Sophie Lu, an analyst at Bloomberg New Energy Finance in Beijing. The Chinese also became acclimated to the technology through a long legacy of electric bikes and low-speed EVs. And about 75% of vehicles in car-sharing fleets are electric, according to BNEF. Lithium Urban, whose clients include Accenture Plc and Tesco Plc, is looking to raise $20 million from institutional and strategic investors. It plans to double its current fleet of 400 electric cars over the next six months, expanding in New Delhi and entering cities including Chennai, Pune, Mumbai and Hyderabad, according to Joy Nandi, head of the national capital region at the company. Lithium Urban uses Mahindra & Mahindra Ltd’s electric-car model e2o to ferry corporate employees. The fleet is cheaper to run than internal-combustion engines, and its use by corporations assures vehicles travel the minimum 175 to 200 kilometers a day required to break even, Nandi said in an interview at his office near Delhi. “It costs under one rupee per kilometer on an electric car compared with four to five rupees on a diesel or petrol vehicle,” Nandi said. The company also sets up charging stations at its clients’ locations and is working with the government to build 60 of them in and around New Delhi. Even as corporations and public-transportation systems take their initial steps toward EV adoption, the nation’s goal of ending all sales of vehicles powered by fossil fuels in coming years will be a stretch, according to Rahul Mishra, a principal consultant at AT Kearney. The vision of electric mobility shows good intention to address emission concerns and leverage our strength in the power sector,” Mishra said in an interview. “However, a target without a clear road map is still an aspiration.” State-owned Energy Efficiency Services Ltd, which conducted a tender offer to replace the government’s fossil-fuel driven fleet with electric cars, sees potential demand of 500,000 vehicles. “Indian EVs will claim a good share of the mass-transportation market, unlike in the West,” Pawan Goenka, managing director at Mahindra & Mahindra, said in an interview. Goenka’s company plans to bid on all the government’s tenders for EVs for three-wheelers, four-wheelers and buses, Goenka said. Purchases made by fleet operators like Ola, Uber and Lithium Urban, along with regular large-scale procurement of EVs by the government, will accelerate the adoption of EVs in India, according to BNEF. Lithium Urban’s Nandi said he would like to see multiple operators succeed. “EV adoption in India will happen only as more players like us come into the market and buy more electric vehicles,” he said.
Carlos Ghosn-led Nissan Motor Co is looking at manufacturing an all-electric budget small car in India - its cheapest globally - but has sought concessions from the government to support sales of the clean cars. A price of around Rs 7 lakh - or upwards of $10,000 -- is being considered for the car - which is under study presently. This may perhaps make the car the cheapest private electric passenger vehicle in the country, less expensive than even Mahindra & Mahindra's e2O mini car. "If you want to sell electric cars with significant volumes in India, you have to make them there. We are considering this (local manufacturing) as part of a study," Nicholas Thomas, Global Director for Nissan's electric vehicles (EV), told TOI. The company is also looking at exporting the India-made electric cars and may sell it in other Asian countries to gain economies of scale and ride on India's low-cost manufacturing processes. Asked how soon can a decision be firm ed up, Thomas said, "It depends on the Indian electric market, and how soon it develops. “However, he said that the government needs to come up with credible solutions to support the growth of electric cars till they are in their infancy. "We've had many rounds of discussions with the Indian government on this issue. Though their target of having electric cars by 2030 is very clear, there is no clear roadmap on how to get there... We need more clarity. “Thomas said that battery costs - while coming down over the last few years - are still to reach affordable levels. The Leaf, which is one of the world's most-successful electric car having sold over 3 lakh vehicles since 2010, is priced upwards of $30,000 (around Rs 19 lakh) in the US. Getting the car to India as a fully-built imported unit would mean paying additional cumulative duties of around 200%, making it completely unviable. Nissan is doing the feasibility for the Leaf in India but does not intend to locally produce it. "It will be a niche category product."
Shock and awe: India has a date with electric vehicles

In hindsight, 2017 may well turn out to be the watershed year for the Indian electric vehicles (EV) industry. After New Delhi said it would replace its entire fleet with the electric powertrain by 2030, about a dozen car makers have kicked off their EV plans. It started with the Niti Aayog policy document on EVs, which defined a 15-year roadmap to attain complete electrification. Shared mobility providers such as Ola, Uber, and Zoom then began tapping into the EV portfolio of Mahindra, and New Delhi followed up by ordering 10,000 vehicles to upgrade the fleet at some of its agencies. Finally, the Bharat Stage Protocol for Charging was formed to build the framework for future charging stations. Pawan Goenka, MD at Mahindra & Mahindra, says the evolution of EVs in India will take a different path when compared to China or Europe. “The thrust will come from institutional buyers, the government and shared mobility providers. The EVs are not yet viable for personal buyers, but it is only a matter of time,” added Goenka. Goenka believes that state support makes electric three-wheeler and four-wheeler fleet viable. For buses and two wheelers, it is still an expensive affair. Therefore, localising is key. Mahindra is both making cars and becoming a vendor for motors, power converters and electronics. The company has started assembly of batteries, committing $700 million to EV projects. The cost of batteries may halve by 2020, making EVs more affordable on one hand, while driving the costs higher for conventional vehicles that must comply with BS VI standards. Hence, experts believe that EVs will become increasingly viable in five years, with the Indian manufacturing ecosystem maturing by then. The first government order for 10,000 vehicles to electrify buses in India’s top 11 cities, routed through EESL and the department of heavy industries, is worth Rs 2,000 crore. Experts believe that business worth a billion dollars could be initiated in 2018 across all public transport segments — three-wheelers, four-wheelers and buses. Hence, there was a mega global alliance between Suzuki and Toyota, with the Indian market taking the centre-stage. Mahindra & Mahindra has tied up with Ford, while the Renault-Nissan alliance, too, has EVs planned for India. Honda Motor, Mercedes Benz, BMW, Volvo and JLR are also drafting their EV strategies for India. Mahindra’s rival Tata Motors, meanwhile, won the order for the 10,000 vehicles. The penetration of EVs globally is less than 1% and it is no different in India, but industry experts say at least a quarter of the global fleet would be electric-powered by 2030. **Power-deficient country** -For a power-deficit nation like India, there would be challenges in ensuring supplies to run cars. There are critics of the government initiative as 90% of power produced in India is coal-fired, and by implication, would add to the carbon footprint. Goenka believes that despite higher power output, EVs will emit 30-40% lower carbon dioxide than conventional vehicles. India, though, has issues related to charging infrastructure, range anxiety and actual vehicle cost. Besides charging infrastructure, the need for fast chargers, parking spots, and swappable batteries are areas that require robust solutions and public-private partnerships. Mahindra and Ola, in alliance with Nagpur’s municipal corporation, have rolled out a few hundred EVs, while Mahindra-Uber, along with certain state governments, are looking at ways to implement EV solutions. “In India, 75% of vehicles sold are small cars...How to electrify small cars and make them affordable is one of the challenges we have to face... The same is true with infrastructure. I don’t think anybody knows today what kind of infrastructure will come up to support EVs. When we start selling EVs in 2020, we will certainly set up some charging stations,” said R C Bhargava, chairman of Maruti Suzuki, India’s biggest carmaker. Bhargava said that in the best-case scenario, about 40% of new personal vehicles sold locally could be pure electric by 2030. Assuming a growth rate of 8% in the passenger vehicle segment every year, around 71 million new vehicles could be added between now and 2030. Of this, 14.4 million vehicles may be pure electric and the remaining 56.6 million strapped with conventional engines.
Hybrids also critical - Vikram Kirloskar, vice-chairman of Toyota Kirloskar Motor, says India will still need 60% of its vehicles to run on internal combustion engines, and that these engines will be a lot better if they are hybrids. Kirloskar believes hybrids are necessary to cut down on oil imports, and they will also be important for companies such as Toyota to meet the future norms on Corporate Average Fuel Economy. “A good start has been made... But there are two major concerns that I have — energy security and rising pollution — and both can be addressed by popularising hybrids,” said Kirloskar.
Telangana electric vehicle policy to create a separate consumer category, offer sops

Telangana is planning to come out with an exclusive policy for electric mobility which will create a separate consumer category in consultation with the State Electricity Regulator. At advanced stage of preparation, the policy aims to cover charging stations at public places and offer tariffs for such stations at concessional rate in consultation with the State Electricity Regulator.

**Incentives** - The policy will also consider offering some direct sops to the EVs, such as lower registration charges and their manufacture in the State to encourage companies to plug in. The State Government has had engagements with Mahindra & Mahindra, Tata Motors, Lohia Auto and few other manufacturers seeking their engagement in implementation of the electric vehicles, starting with last mile connectivity for Hyderabad metro rail project. One of the focus areas to promote the growth of the EVs is create the necessary infrastructure for EVs to thrive, that is creating a chain of charging stations at public places.

**Separate Category** - D Prabhakar Rao, Chairman and Managing Director of TS Transco and TS Genco, said, “TS power utilities are geared up to supply the required bulk power to charging agencies as well as retail consumers. It is proposed to create a separate consumer category for these charging agencies in the Retail Supply Tariff Order in consultation with TS Electricity Regulatory Commission. A draft policy is already ready and is in the finalisation process and approval before announcement. The policy seeks to bring out a regulatory framework too, which will require some amendments to some legislations to enable drawing of power to charging facilities.

**EV Manufacturing** - It plans to incorporate some suggestions and proposals of the State Transport and Municipal Administration departments. During a recent launch of shared mobility initiative of Mahindra Electric and Zoomcar, Jayesh Ranjan, Principal Secretary, Industries, said the State, apart from encouraging EVs for last mile connectivity for metro project, is keen to attract EV manufacturers into the State.

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Mercedes unveils India's first, locally made BS-VI car

Mercedes-Benz unveiled the BS-VI variant of its flagship S-Class on Friday. The luxury carmaker became the first in India to show preparedness for the commercial launch of a BS-VI compliant model, two years ahead of the regulation. Roland Folger, managing director (MD) and chief executive at Mercedes-Benz India, said with government incentive, the implementation of the BS-VI norms can be expedited. Mercedes-Benz claimed the new engine produces 68 per cent less nitrous oxides, 82 per cent less particulate matter and better fuel efficiency by six per cent than the outgoing model. The car, which can run on BS-IV fuel, is available in the country. As part of the fuel emission road map, India’s auto industry will leapfrog to BS-VI from 1 April, 2020. “I hope the government understands this, the adoption of Bharat Stage VI can be massively accelerated if you incentivise those companies — it will encourage others to follow us,” said Folger, clarifying that he was not seeking incentive for Mercedes as it would have anyways done it. It would have helped other manufacturers as well, he added. However, Nitin Gadkari, minister of road transport & highways, shipping and water resources, river development & Ganga rejuvenation said, “There’s no incentive required. The market is an incentive,” said Gadkari, adding the Mercedes had set an example for other manufacturers. “It will get good market as people will prefer them as compared to others,” he added. The Union minister said he hoped to see vehicles running on alternative clean fuels like ethanol, methanol, bio-fuels and electric. The reduced GST rate on bio fuel and electric vehicles to 12 per cent, as against 48 per cent on petrol models should be a good starting point for automakers and it doesn’t need further incentive. “This is the starting point,” said Folger. Each and every model Mercedes rolls out this year will be BS-VI compliant. The idea behind doing it from this year is to ensure a smooth transition to the next stage. If the company has launched a model in the middle of this year with BS-IV, it would have had to change the line up again next year to meet the 2020 regulations. “We would rather go full-fledged now,” said the Mercedes-Benz MD. The switch to the stricter emission norms will now help the firm in saving costs it as it doesn’t need to have BS-IV models anymore. It will also mean that the India subsidiary can launch the models sooner than later in India after its global debut as its product line up will be better aligned to Europe and it doesn’t have to create an “artificial variant” anymore. Meanwhile Gadkari said the petroleum ministry had taken the responsibility to offer the BS-VI grade fuel ahead of time. “They have said they are ready to supply the fuel in Delhi,” he said. Meanwhile commenting on the India’s electric mobility mission plan, the minister said, “You will see a big change in the next one year.” Nagpur will get 800 more electric taxis next month.
TaMo, Greaves Cotton Tap Foreign Expertise for ‘Cleaner’ CV Engines

Tata Motors and Greaves Cotton entered into agreements with foreign companies to develop and supply less-polluting engines, as India’s automotive industry is preparing itself to meet the Bharat Stage-VI (BSVI) emission standards before they come into effect two years from now. India’s largest truck maker, Tata Motors, has entered into a partnership with Canada’s Westport Fuel Systems for the development and supply of four-cylinder and six-cylinder natural gas, spark-ignited engines for commercial vehicles. Greaves Cotton, a specialist in engines used in small commercial vehicles, has tied up with Italian automaker Piaggio to supply BS-VI diesel and alternative-fuel engines. With emission rules getting stricter, the three-wheeler segment was expected to face significant challenges post 2020. The Greaves-Piaggio deal will address that problem in one of the most important lastmile connectivity components of the transportation market. For Greaves, the Piaggio deal is part of its overall strategy to become a complete powertrain solution provider and be fuel agnostic. Not only has the company started working on an all-new diesel engine platform for the three-wheeler segment on its own, it has also partnered with Pinnacle Technologies for the development of petrol and CNG engines and with Bengaluru-based Altigreen for electric powertrain. Greaves MD, Nagesh Basavanhalli said the market needed to be ready with technological solution by 2020 to meet new emission rules. “Our new solutions will cover the range of petrol, diesel and CNG to electric,” Basavanhalli added. Piaggio supplies more than 2.5 lakh engines a year for three-wheelers and 35,000-40,000 engines for diesel mini trucks. Development of petrol, CNG and electric solutions will help the company further diversify. Greaves is likely to also supply fully built engines to Piaggio. Under the pact with Tata Motors, Westport Fuel Systems will supply critical natural gas components to the Indian automaker. These will include advanced gas-injection systems and control. Adding a BS-VI CNG engine to the portfolio is an attempt by Tata Motors to hold on to its leadership position in the commercial vehicle segment and expand its market share. Westport had previously partnered with Tata Motors to develop and launch Tata Motors’ current BS-IV certified natural gas spark-ignited engines for commercial vehicles. Unlike the evolved markets, where it took almost a decade to transition from Euro IV to Euro VI, Indian vehicle makers have just five years for moving from the equivalent BS-IV standards to BS-VI. Given the deadline, it has become necessary for local vehicle makers to partner with powertrain specialists to meet the 2020 deadline. Tata Motors remains committed to this aim (providing economical solutions meeting latest emission rules), especially with the growing importance of natural gas in our product portfolio,” said Rajendra Petkar, head of power systems engineering at Tata Motors. “By enhancing our portfolio of natural gas engines, we are focused on increasing our market share even further.”

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