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ENERGIE ET DEVELOPPEMENT DURABLE

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En bref

Infrastructures

- Les infrastructures connaissent un développement historique 75 ans après l'Indépendance du pays et un budget d'investissement en forte hausse.
- Le programme de développement des infrastructures portuaires Sagarmala réduit les coûts logistiques et soutient la croissance des exportations de l'Inde, qui ont atteint 400 Mds USD en 2021-22.
- Le gouvernement propose à la consultation des acteurs son nouveau projet de réforme de la loi sur la gestion des ports. Le texte vise notamment à promouvoir une planification intégrée entre les Etats, développer la lutte contre les pollutions.

Ferroviaire

- Le modèle de train Vande Bharat, figure phare du programme *Make in India*, atteint la vitesse de 180 km/h lors d'une phase de test.
- L'usine nationale de construction de trains *Integral Coach Factory (ICF)* de Chennai étend sa production aux métros et approvisionnera notamment en matériel roulant les métros de Nagpur et Pune.

Energies fossiles et biocarburants

- A l'occasion de la journée mondiale des biocarburants, le Premier Ministre Modi inaugure une centrale de production de biocarburants de seconde génération dans l'Haryana.

Electricité et énergies renouvelables

- La crise d'approvisionnement en charbon accélère la transition de l'industrie vers les énergies renouvelables.
- Le conglomérat indien Larsen & Toubro met en service la première moitié des capacités d'une usine de production d'hydrogène vert en construction dans le Gujarat.

- Le gouvernement envisage la mise en place d'un programme *Production Linked-Incentives (PLI)*, à l'image de ce qui existe déjà pour le solaire, pour soutenir le développement d'une industrie de production d'éoliennes offshore en Inde.
- Le gouvernement revient sur son engagement auprès des développeurs solaires de garantir l'exemption de droits de douanes à l'importation de panneaux solaires pour les projets remportés avant l'introduction de ces nouvelles taxes au 1er avril 2022.
- Shell India et Ohmium International, qui produit des électrolyseurs de technologie PEM (*Proton Exhange Membrane*), nouent un partenariat pour explorer le marché de l'hydrogène vert en Inde et à l'international.
- Le Ministère des Energies Renouvelables (MNRE) met à jour la *Approved List of Moduls Manufacturers* pour y intégrer de nouveaux producteurs indiens.

Mobilités électriques

- Les ventes de véhicules électriques en Inde ont triplé en trois ans, notamment portées par le segment des deux-roues et des bus.
- Le fabricant de deux-roues Hero Electric signe un accord de partenariat avec Jio-bp, la coentreprise entre bp et Reliance Industries détenant un réseau de bornes de recharge, afin d'accélérer l'adoption des deux-roues électriques en Inde.
- Suite à plusieurs incidents d'explosion de batteries, l'Inde va renforcer les normes de contrôle et de sécurité des batteries des véhicules électriques vendus dans le pays à compter du 1er octobre.

Environnement et qualité de l'air

- Suite aux annonces de Narendra Modi lors de la COP26, l'Inde a soumis sa nouvelle contribution déterminée à l'échelle nationale (NDC) à l'UNFCC, avec deux objectifs rehaussés par rapport à la NDC de la COP21 et l'affirmation de LIFE – LIfestyle For Environment comme levier d'action.
- Selon une étude, l'Inde compte 18 des 20 villes les plus polluées en particules fines PM2.5 du monde.
- L'Inde et le Népal ont signé un Memorandum of Understanding sur la préservation de la biodiversité et la lutte contre les changements climatiques.
- Une étude prévoit un effondrement des ressources en eau approvisionnant le Nord de l'Inde et une partie du Pakistan d'ici 2060.

Revue de presse

1. Infrastructures

Independence Day 2022: India's Mammoth Infrastructure Growth As Gati Shakti Sets The Tone

Republicworld, 15/08/2022

From the days when the British-era bridges were appreciated for their sturdiness to the day when the 'golden joint' connecting the two halves of the Chenab bridge (the World's highest arch bridge) finally getting completed Saturday, August 13, India's infrastructure story has come a long way.

Two sets of numbers tell the story - the overall outlay of first-ever Union Budget for 1947-48 announced by then Finance Minister R K Shanmukham Chetty was Rs 197.29 crore, while the budget increase for the infrastructure development in the budget for 2022-23 over the previous year's expenditure has been increased by 35.4% to Rs 7.50 lakh crore.

While the core infrastructure that the Britishers left India with was built with the objective of serving their interests, the aim of developing infrastructure in the post-colonial era was to serve the country's economic interests and the common masses.

The major building blocks for any country's infrastructure are Roads, Railways, Logistics, Power, Digital and Airports, etc. Following is a look at how India has developed in these areas since Independence.

Roads

India has built the second largest road system in the world stretching across two million miles including national highways, major district roads, state highways and rural roads.

When India attained independence, the total length of National Highways (NHs) was 21,378 km, which has now reached 1.40 lakh km with a total road size of over 62 lakh km, making it the world's second-largest road network.

Railway electrification

Since 1925, when India ran its first electric train between Bandra Victoria Terminus to Kurla, the country has electrified over 83% of its broad gauge network, covering 52,247 route km. India plans to electrify all routes by 2024.

Airways

With the humble beginning of flying a single-engine De Havilland Puss Moth Tata Airlines plane transporting mail from Karachi to Chennai in 1932, piloted by JRD Tata, the commercial Indian aviation sector has travelled a long journey to now when the aviation industry is valued at a market size of $16 billion to emerge as the third largest aviation market in the world.

Power

The power sector in India has seen a tremendous surge since Independence when the total power generation capacity (Utilities and non-utilities) has powered up from a scanty 1,362 MW in 1947 to 459.15 GW at the end of March 2021.

The per capita electricity consumption, which was just 16.3 units in 1947 has increased to 1161 units in 2020-21.

Digital Infrastructure

As India gears up to adopt the 5G technology this year, it has come a long way from having just 82,000 telephone connections in 1947, when India's telecom network was highly unreliable and available to just a small section of the privileged population. Currently, India has the third largest telecom network in the world and the second largest mobile network with 1.2 billion subscribers in May 2021.

Under the BharatNet project, which intends to take broadband connectivity with high-speed optic fibre cable to the 2,25,000 gram panchayats, the government has been able to connect 1,71,000 gram panchayats or village blocks.

Logistics

After 75 years of independence, India has gained 47th spot as logistics efficient economy in the world, as per the 2018 Logistics Performance Index. According to a 2021 Niti Aayog report, the logistics sector contributes 5% of India's GDP, giving employment to around 22 million people.

Infrastructure status to Data centres and Logistics sector

As India progressed, it also changed the perspective on how infrastructure was defined. Given the growing importance of logistics and data centres, they were given infrastructure status by the central government.

India is also slowly growing its data centre capacity with a total of 127 data centres operating in the territory currently ranking 14th globally. It's important to note in the Union budget 2022, FM Nirmala Sithraman accorded 'Infrastructure' status to data centres.

The government in February also granted the same status to the Logistics sector.

Gati-Shakti mission

The Rs 100 lakh crore Gati-Shakti mission launched by the Government of India is aimed at reducing the supply chain costs of transporting goods by revolutionising the country's infrastructure capacities.

Notably, the logistics and supply chain costs are over 12% of the Gross Domestic Product in India, way higher than the world average of 8%. The mission targets to build national highways, which will take the overall length of NHs to the 2 lakh km mark. The plan also envisions the building of over 200 new airports, heliports and water aerodromes.

Sagarmala programme will help in reducing logistics cost, says Shipping Minister Sonowal

Business Line, 13/08/2022

Due to ports connectivity and higher efficiency, India achieved a record $400 billion of goods exports in 2021-22, says the minister.

In the last seven years, initiatives in the Sagarmala programme to increase the capacity of ports by infrastructure modernisation and improving the connectivity have helped in lowering the

overall cost of ports; reducing turnaround time for vessels; increasing efficiency and providing the ability to handle larger ships and developing strategic importance of Indian ports in the South Asian region.

It is the results of these efforts in ports that helped India to achieve the $400 billion of goods exports — a record in 2021-22, said the Union Minister for Ports, Shipping and Waterways Sarbananda Sonowal.

The Centre's ambitious Sagarmala Programme aims to promote port-led development, and accelerate economic growth in the country by reducing the logistics cost for both domestic and international cargo with requisite infrastructure investment, he said at the 24th Biennial convention of the Federation of Freight Forwarders Association in India.

This is the apex body representing 28 member-associations from across the country representing 6,500 Customs brokers (employing over 1,10,000 people).

The Prime Minister's Gati Shakthi National Master Plan to provide multi-modal connectivity to various Special Economic Zones for seamless movement of people; goods and services resulting in efficient conduct of logistics and economic activities. Under this initiative, the Ministry of Ports and Shipping and Waterways has identified 101 projects worth ₹62,637 crore for implementation by 2024, he said.

The minister said the freight forwarders are major stakeholders in India's EXIM and domestic cargo handling. Their role in moving the country's economy forward is tremendous and is a huge strength behind the PM Gati Shakti initiative, said Sarbanand Sonowal,

"Your suggestion of making India Atmanirbhar Bharat in the shipping industry by possessing our container shipping line and improving container availability to shipping is well noted," he said.

Draft Indian Ports Bill issued for stakeholder consultation

Mint, 18/08/2022

As part of its plan to revamp the British era legislation for the port sector, the government has issued Draft Indian Ports Bill, 2022 for stakeholder consultation.

The draft has been prepared to consolidate and amend the laws relating to ports, for the prevention and containment of pollution at ports and to ensure compliance with the country's obligation under the maritime treaties and international instruments to which India is a party.

It also has measures for conservation of ports; to empower and establish State Maritime Boards for effective administration, control and management of non-major ports in India; provide for adjudicatory mechanisms for redressal of port related disputes and to establish a national council for fostering structured growth and development of the port sector, and ensure optimum utilization of the coastline of India.

The draft IP Bill 2022 seeks to repeal and replace the existing 1908 Act.

The primary objectives of the proposed bill are four-fold: to promote integrated

planning between States inter-se and Centre-States through a purely consultative and recommendatory framework; ensure prevention of pollution measures for all ports in India while incorporating India's obligations under international treaties; address lacunae in the dispute resolution framework required for burgeoning ports sector; usher-in transparency and cooperation in development and other aspects through use of data.

India has a 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes. About 95% of India's trade by volume and 65% by value is done through maritime transport facilitated by ports.

It has become imperative that the Act is revamped to reflect the present-day frameworks, incorporate India's international obligations, address emerging environmental concerns, and aid the consultative development of the ports sector in the national interest, a ministry of ports, shipping and waterways statement said.

Accordingly, the draft Indian Ports Bill, 2022 (IP Bill 2022) has been prepared to consolidate and amend the laws relating to ports, for the prevention and containment of pollution at ports, to ensure compliance with the country's obligation under the maritime treaties and international instruments to which India is a party.

The proposed bill will homogenize and streamline the development of the maritime sector, along with, promoting ease of doing business by eliminating unnecessary delays, disagreements and defining responsibilities.

It will incorporate State Maritime Boards in the national framework. Additionally, Maritime State Development Council will ensure cooperative federalism where Centre and State/UT Governments will work together towards preparing progressive road map for the country.

The redundant provisions of the Act have been deleted or replaced with contemporaneous provisions.

Further, existing penalties in the Act which are outdated have been updated with respect to amounts and offences relevant to present day scenario, the statement said.

Three earlier versions of the Bill were circulated by the Ministry to various stakeholder including Major Ports, States Governments, State Maritime Boards and various Central Government ministries. Draft IP Bill, 2022 has been formulated keeping in view all remarks that have been received.

Sarbananda Sonowal, Union Minister for Ports, Shipping and Waterways has stated that this bill will help in instilling confidence among more players thereby increasing their participation and promoting healthy competition in maritime sector. He said this will lead to increased economic activity, wider markets, and a significant increase in associated employment possibilities, resulting in achieving the vision of Atmanirbhar Bharat of Prime Minister.

The ministry intends to seek feedback and suggestions on the draft IP Bill 2022 from all the stakeholders.

2. Ferroviaire

Third Vande Bharat rake reaches 180 kmph during trials in Rajasthan

Mint, 26/08/2022

India's locomotive-less train, known as Vande Bharat Express and Train 18, breached the 180 kmph speed limit during a test run on, according to Union Railway Minister Ashwani Vaishnaw who shared the video on Twitter.

"VandeBharat-2 speed trial started between Kota-Nagda section at 120/130/150 & 180 Kmph," Ashwani Vaishnaw wrote on Twitter while sharing the video.

Vande Bharat will replace the current Shatabdi Express — a day train. Train 18 is capable of touching 200 kmph provided the rest of Indian Railways' system such as tracks and signals permit.

With 16 coaches, the train will have the same passenger carrying capacity as that of the Shatabdi Express. It has aerodynamically designed driver cabins at both ends for quicker turn-around at destinations.

The train sports an advanced regenerative braking system which saves power. The fully air-conditioned train offers better passenger comfort and safety, as all equipment are fixed under the carriage, so that more space is available on board.

After the successful trial run of 110 km, the trial run of the second phase of this new began on the Kota-Nagda section This trial run will be done in a 225 km section between Kota and Nagda railway station, on which the train will be run at its maximum speed of 180 kmph.

According to Railways, after the completion of the trial run, its report will be sent to the Railway Safety Commissioner. Following the green signal from the Safety Commissioner, the new Vande Bharat Express train will start running on another new route. However, the decision on this is yet to be taken. Sources said the new train can be run between Ahmedabad and Mumbai.

According to sources, the new trains will have automatic fire sensors, CCTV cameras and GPS systems to make travelling safer and more comfortable. The higher speed of these trains are up to 180 Km/hour. ICF has set a target of manufacturing 75 Vande Bharat trains by August 2023.

Travelling in the new trains would be more comfortable because of the lighter coaches than the previous trains. The coaches are made of stainless steel. Due to less weight, the passengers would feel extra comfortable even at high speed. Also, there are automatic gates operated by the pilot. The windows are wide, there is more space for the luggage. The toilet installed will be advanced. Most of the parts of the trains are "Made in India" except for a few small parts, said sources.

For the safety of the passengers, 'Kavach' technology is being installed in all new trains, so that automatic breaks could be applied in case any train is coming on the same track.The test speed of the train is 180 kmph, while the maximum speed is 160 kmph.

The two Vande Bharat trains which are operational are in between New Delhi-Varanasi and New Delhi-Vaishnodevi Katra.

ICF to produce 3,500 coaches for Vande Bharat, Indian Railways and Metro projects

Metro Rail Today, 18/08/2022

Indian Railways' Chennai-based Integral Coach Factory (ICF) is all set to manufacture coaches for Vande Bharat Trains, Railways and Metro Rail projects in India. Besides 75 new Vande Bharat Trains, ICF is manufacturing coaches for the Kolkata Metro's North-South corridor, which belongs to the Indian Railways.

During celebrations of 75th Independence Day, AK Agarwal, General Manager, ICF, said, "The Integral Coach Factory (ICF) in Chennai is all set to produce metro train coaches for the Maharashtra Metro Rail Corporation Ltd (Maha-Metro), which has been entrusted to develop metro train services for Pune and Nagpur cities. Besides, all the 75 trains of Vande Bharat, planned to be introduced by August 15 next year, will be produced at ICF".

ICF and Maha Metro will soon sign a Memorandum of Understanding (MoU) for production of metro train coaches for Nagpur & Pune Metro Rail Project. The number of coaches, production cost, and other aspects of building metro coaches for Maha-Metro are being worked out. "An MOU will soon be signed between Maha-Metro and ICF," said an official.

Indian Railways has dropped its earlier plans to build Vande Bharat rakes at the Rail Coach Factory, Kapurthala, and Modern Coach Factory, Raebareli. "Minister of Railways Ashwini Vaishnaw, who recently inspected the ICF, said all the 75 rakes of Vande Bharat (version 2.0) will be built here," said Agarwal. He said that ICF is planning to manufacture 3,500 coaches in about 50 variants for prestigious projects like Vistadome, which will be running in Gujarat by this September, Gatishakti Freight Train in the Vande Bharat Platform and Steam Engine themed Heritage Train with electric propulsion in the Vande Bharat Platform will also be built. He further added that Garib Rath air-conditioned 3-tier coaches that facilitate AC travel at cheaper ticket fares will also be developed at ICF.

"In four years, 475 Vande Bharat trains will be manufactured and they will cover the entire country. Nearly 75 Vande Bharat express trains will be manufactured and deployed throughout the country before August 15, 2023," said Ashwini Vaishnaw, Union Minister of Railways, Communications and Electronics & Information Technology. The third rake of Vande Bharat train has recently completed its trial tests.

3. Energies fossiles et biocarburants

World Biofuel Day: PM Modi dedicates 2G ethanol plant in Panipat

Hindustan Times, 11/08/2022

On the occasion of World Biofuel Day, Prime Minister Narendra Modi on Wednesday dedicated the 2nd generation (2G) ethanol plant set up at the Indian Oil Corporation's Panipat refinery in Haryana.

"This plant will not only help reduce air pollution from the Delhi–NCR region but also help generate additional income and green fuel," the Prime Minister said addressing a gathering via video-conferencing from Delhi.

Spread over 34 acres, the ₹900 crore project is based on a state-of-the-art indigenous

technology. It will turn a new chapter in India's waste-to-wealth endeavours by utilising about 2 lakh tonnes of rice straw (parali) annually to generate around 3 crore litres of ethanol annually.

The PM also greeted the people of Haryana for the performance of the sportspersons from the state in the recently concluded CWG, 2022, saying, "Haryana's fields will also generate energy like its sportspersons have shown the energy by winning medals in the Commonwealth Games".

"Biofuel is the need of the hour as it will help reduce our dependency for fuel and energy on other countries. This will not only check the flow of money from the country but also generate additional income for our farmers," he said.

The Prime Minister said the country is heading in this direction as it has already achieved the target of 10 per cent ethanol blending in petrol with the country's ethanol production increasing to 400 crore litre.

"This plant will also utilise maize and sugarcane waste besides paddy straw to produce ethanol. Even farmers who were being criticised for burning crop waste will also feel proud by helping the country to meet its need for biofuel," he added.

The Prime Minister attacked the previous governments for their "failure" to solve the problems of stubble burning saying, "Some people adopted shortcuts for their political interests and evaded the problems for several years. Those adopting shortcuts may get applause for some time and may gain political advantage, but that does not solve the problem. But our government is working on a permanent solution to the problem. That is why such plants are being set up," he added.

4. Electricité et énergies renouvelables

Coal crunch hastens Indian metal makers' switch to green energy

The Indian Express, 30/08/2022

India's metal producers are speeding up their transition to renewable power after a coal crisis led to a supply crunch and sky-high prices of the fossil fuel, according to Greenko Energy Holdings.

GIC Pte.-backed Greenko, one of India's largest renewable energy companies, signed an agreement earlier this month with Hindalco Industries Ltd. to provide carbon-free electricity to the aluminum producer's Odisha smelter for 25 years, following a similar deal with ArcelorMittal Nippon Steel India Ltd.

Greenko is now in talks with two to three other metal producers for round-the-clock power supply, co-founder Mahesh Kolli said, declining to name the firms.

The coal crisis is "a big factor that accelerated this transition" to renewable power from coal-based energy usage, Kolli said in an interview. The metals industry in India is willing to invest in renewable energy and build solar plants, adding a big funding source for clean energy, he said.

The country is emerging from an acute power crisis after a blistering summer and a post-pandemic industrial revival, which spurred electricity demand and overwhelmed domestic coal output. That

prompted some metal producers to scour global markets for supplies, where prices are trading near record levels.

The increased expenses slashed profits of some of the biggest mills in India at a time when commodity prices were rallying to multi-year highs. They are now exploring ways to minimize their dependence on coal, with renewable energy looking more attractive.

"In this carbon-free energy that we are giving, this price is fixed for the next 25 years," Kolli said. "So now at least when the price goes up, they benefit a lot."

Founded in 2004, Hyderabad-based Greenko develops solar, wind and hydro power projects with 7.5 gigawatts of operating capacity across 15 states in India. Aside from GIC, it counts Abu Dhabi Investment Authority and Japan's Orix Corp. as investors.

Greenko uses hydro-pumped storage technology to ensure round-the-clock power to the mills. Unlike Europe and the US, where storage costs are high, developers in India have been following a similar model to China and have managed to control the expenses using this cheaper technology, Kolli said.

Greenko expects to benefit as India's renewable market opens up due to rapid industrial decarbonization. Currently, India's renewable energy market is dominated by state-run power utilities as the government has ordered them to buy a certain percentage of clean electricity. To spur industrial carbon reduction efforts, India's power ministry has changed rules to allow large power consumers to buy green electricity directly from a supplier of their choice without having to pay heavy charges to the state distribution utilities.

"The industrial decarbonization, without putting obligations on utilities, is a four to five times bigger opportunity for renewables," Kolli said.

Larsen & Toubro builds green hydrogen plant in India

PV Magazine, 22/08/2022

Larsen & Toubro has commissioned 380 kW of an 800 kW green hydrogen plant at its AM Naik Heavy Engineering Complex in Hazira, in the Indian state of Gujarat.

The Indian multinational said the green hydrogen plant, which is spread across 3,000 square meters, will produce 45 kilograms of green hydrogen per day for self-consumption by its Hazira manufacturing complex. It said the operational 380 kW capacity uses an alkaline electrolysis process. The remaining 420 kW capacity will be based on PEM electrolysis technology.

"The green hydrogen plant is designed for an electrolyzer capacity of 800 kW comprising both alkaline (380 kW) and PEM (420 kW) technologies," said Larsen & Toubro. "It will be powered by a rooftop solar plant of 990 kW peak DC capacity and a 500kWh battery energy storage system. The 420 kW PEM electrolyzer, along with solar plant capacity augmentation to 1.6 MW peak DC, will be part of future expansion."

Larsen & Toubro set up the green hydrogen generation plant and integrated it with the existing manufacturing facilities to use the high-purity green hydrogen (99.99%) and oxygen that is produced. The manufacturing

facility will use a blend of 15% hydrogen with natural gas as a fuel. Oxygen will supplement the existing usage in cutting and welding applications.

The plant design incorporates both active and passive safety systems to ensure safe operation and production. It will be operated through control systems with remote monitoring functionality, the company said. In addition, an integrated data analytics platform designed by Larsen & Toubro will provide insight into the performance of the electrolyzers and the overall plant.

Larsen & Toubro said it aims to play a significant role in accelerating the ecosystem around green hydrogen, with its thrust in both the EPC and build-own-operate models, coupled with the backward integration of manufacturing electrolyzers and grid battery energy storage systems.

In the works – PLI scheme for offshore wind turbines

Mint, 08/08/2022

The Union government plans to introduce a production-linked incentive (PLI) scheme to promote the manufacturing of offshore wind turbines, two officials aware of the matter said.

The development comes when the government is chasing a target to achieve 30GW offshore wind energy capacity by 2030. "Talks are underway among the relevant departments, including the ministry of new and renewable energy and NITI Aayog (for a PLI for offshore wind turbine). However, no decision has been taken yet," one of the two officials cited above said.

India already has a ₹24,000 crore PLI scheme for solar photovoltaic cells and modules, aimed to boost their domestic manufacturing and reduce the country's dependence on imports from China. The wind industry has repeatedly sought a PLI scheme for itself along the same lines.

Queries sent to the ministry of new and renewable energy, power and NITI Aayog remained unanswered.

In an April interview, Mahesh Palashikar, president of GE South Asia, suggested the government could provide an incentive scheme to boost the wind energy segment.

Despite having a 7,600-km coastline, India has no offshore energy project. Although the Centre notified the national offshore wind energy policy in 2015, the sector has not taken off as anticipated.

Of late, the Centre has renewed its efforts to boost the wind energy segment to achieve 500GW of renewable energy by 2030.

In June, the renewable energy ministry said it would issue the first bid for leasing out offshore wind energy blocks equivalent to 4GW capacity off the coast of Tamil Nadu in a few months. The ministry also announced that evacuation and transmission of power from offshore pooling substations to onshore transmission would be provided free of cost for all offshore wind capacities that will be bid out by FY30.

The ministry recently came up with a strategy paper suggesting incentives to companies in the offshore wind energy space, including the waiver of transmission charges, renewable energy credits, carbon

credits benefits and viability-gap funding. The paper said 16 zones were identified off the coasts of Gujarat and Tamil Nadu for harnessing offshore wind energy.

In April, Union minister for new and renewable energy R.K. Singh said the government would soon invite bids for the 2GW of offshore wind power.

"Our journey is incomplete without offshore wind energy. We will bring bids for 1,000MW in Gujarat and then 1,000MW in Tamil Nadu," he said.

The government's emphasis on renewable energy has increased after Prime Minister Narendra Modi committed at the COP-26 meeting to achieve net-zero carbon emission by 2070.

India has good prospects of harnessing offshore wind energy, given its long coastline. An assessment conducted by the National Institute of Wind Energy (NIWE) said India has a total wind energy potential of 302GW at 100 metre and 695.50GW at 120-metre hub height.

Out of the total estimated potential, more than 95% of commercially exploitable wind resources are concentrated in seven states—Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu.

According to the government, offshore wind power offers a plausible alternative in such a scenario. The absence of any obstruction in the sea offers a much better quality of wind and its conversion to electrical energy. Offshore wind turbines are much larger in size (in the range of 5-10MW per turbine) than 2-3MW of an onshore wind turbine.

Govt open to giving non-tax incentives on solar modules

Mint, 31/08/2022

The government is open to giving incentives to the domestic solar industry to help ease the impact of high import duties on solar modules and cells.

While the government is not in favour of giving tax relief to importers of solar modules, it is open to examining any "workable plans" presented by the industry for support, said a person aware of the matter.

The government is of the view that incentives could be given directly to the industry where needed, but tweaking taxes could prove to be counter-productive, add to litigation and set a precedent to more sectors asking for tax breaks.

Businesses had sought relief for projects that were bid out prior to the announcement of the customs duty. But the government believes such exemptions can create practical difficulties, said the official, who spoke on the condition of anonymity.

The reluctance to provide tax exemption also gains emphasis from the fact that the government is looking at creating an exemption-free tax regime.

In March 2021, the government announced a 40% basic customs duty (BCD) on solar modules and 25% on solar cells with effect from 1 April 2022 in a bid to cut imports, most of which come from China, along with encouraging domestic solar module production to cater to local demand. The

social welfare surcharge (SWS) takes the customs duty on solar modules to 44%.

Among several steps to curtail import dependence, the Centre also announced a production linked incentive (PLI) scheme for solar modules. In the union budget for FY23, finance minister Nirmala Sitharaman allocated ₹19,500 crore in PLI incentives for local manufacturing of solar modules, bringing the total to ₹24,000 crore. Initially, the government had announced an incentive of ₹4,500 crore under the scheme. According to industry participants, the increased import duty could derail the installation of solar projects awarded prior to the imposition of the duty, which has increased the cost of building solar projects as solar modules make up as much as 60% of the total project cost.

People aware of the developments said the industry has submitted several representations to the ministry of new and renewable energy seeking grandfathering of the projects awarded till 9 March, when the announcement was made. However, the government does not intend to provide any such exemption.

Queries sent to the department of revenue and the ministry of new and renewable energy remained unanswered.

A few solar power developers have also tried ways to avoid paying the duty. On 4 June, Mint reported that certain developers were declaring entire solar plants as a "customs bonded warehouse" to avoid paying duty.
On 11 July, the Central Board of Indirect Taxes and Customs revoked the concessions it had granted under the bonded warehouse scheme, which had allowed solar developers to defer payment of the steep import duties. The matter has now reached the courts.

India aims to achieve 500 GW of installed renewable energy capacity by 2030 out of which 280 GW is expected to be solar.

As of 30 June, the total solar power capacity installed in the country stood at 57.706 GW, according to data from the power ministry. A report by Mercom showed that India added 3.9 GW of solar capacity in the June quarter, an increase of 15% compared to 3.3 GW installed in the previous quarter.

Shell India partners Ohmium for green hydrogen energy solutions

Financial Express, 25/08/2022

Ohmium International has collaborated with Shell India to evaluate hydrogen applications, markets, and project opportunities in India and globally. As part of the collaboration, both parties intend to launch joint working groups to assess opportunities from the technical, commercial, and safety perspectives.

While Ohmium International is a green hydrogen company that designs, manufactures, and deploys PEM Electrolyzers, Shell is a diversified international energy company with a presence across upstream, integrated gas, downstream, renewable energy, and deep capabilities in R&D, digitalization, and business operations.

Ohmium's unique interlocking modular PEM electrolyzers is claimed to provide a safer, modular, flexible, easy-to-install and maintain alternative to customized electrolyzers.

The collaboration is positioned at elevating Shell's ambition to help build a global hydrogen economy by developing the most competitive opportunities in the production, storage, transport, and delivery of hydrogen to end customers.

Nitin Prasad, Chairman, Shell Group of Companies in India, said, "We have set an ambitious goal of becoming a net-zero emissions business by 2050 with a target to reduce absolute emissions by 50% by 2030. Green hydrogen has a critical role in helping the world reach zero emissions. We plan to develop integrated hydrogen hubs to serve the industry and heavy-duty transport to be a leading player in this space."

He further added, "This MoU with Ohmium is a step in our journey. We would like to work with Ohmium to make this a productive collaboration which would help us make our Hydrogen projects most competitive. We are keen to explore all opportunities to work with all our contract partners to continuously drive competitiveness in our projects."

"We're thrilled to collaborate with Shell to explore green hydrogen opportunities and solutions worldwide. Shell has demonstrated tremendous ambition to become a net zero carbon business by 2050– we believe that green hydrogen is a critical component of that transition. We look forward to working with Shell to explore all the opportunities our electrolyzers enable," said Arne Ballantine, CEO of Ohmium International.

Centre updates ALMM list for solar modules with more Indian players

Mint, 19/08/2022

The ministry of new and renewable energy has updated the approved list of models and manufacturers (ALMM) for solar modules adding more Indian players to the list.

The list now has 66 manufacturers who can supply equipment to solar projects in India, showed a notification from the ministry. The list had 58 manufacturers after its previous update in April. This is the seventh update to the list.

Being on the list is essential to do business in the country for solar equipment manufacturers. Equipment of firms on the list can be sourced for government-supported schemes and projects from where electricity discoms procure electricity. Manufacturers and solar modules are to be approved by the Bureau of Indian Standards (BIS) and the ministry of new and renewable energy (MNRE).

The new additions to the list include Rajasthan Electronics and Instruments Limited (REIL), Neety Euro Asia Solar Energy, Shivam Photovoltaics Pvt Ltd, Sahaj Solar Pvt Ltd, Raajratna Ventures Ltd, Mundra Solar Energy Ltd, Renewsys India Pvt. Ltd and Waaree Energies Ltd.

The ministry came up with the ALMM order in 2019 in a bid to reduce import dependence for solar modules.

The update to the list comes at a time when the cost of solar modules in the country has increased.
A recent report by the Institute for Energy Economics and Financial Analysis (IEEFA) and JMK Research & Analytics solar module prices have risen in the past 18-20 months owing to supply chain constraints and

increasing raw material prices, such as polysilicon.

Akhil Thayillam, Senior Research Associate at JMK Research said that India-specific challenges, such as the imposition of basic customs duty (BCD) of 40% on imported modules and paucity in domestic manufacturing capacity of high-wattage modules, are exacerbating an "already worrying" situation. An added risk is the implementation of the approved list of models and manufacturers (ALMM), he said. The cost of open access solar projects in India has increased by at least 15% because of the global supply chain constriction, the report said. "Module price volatility will persist in the Indian solar landscape for the next 1-2 years. We expect a substantial portion of the high-wattage domestic module capacity will cater to the export market. This would be an added constraint to the supply of such modules for the Indian market," it said.

On 24 June, Mint had reported that the government has kept on hold for a year its decision to grant foreign manufacturers permission to feature in the approved list of solar photovoltaic (PV) models and manufacturers (ALMM).

The non-approval to foreign companies is being viewed as a non-tariff barrier to stop solar equipment imports from Chinese companies, which supply a major chunk of equipment for solar power projects.

In January 2022, the MNRE made amendments extended the scope of the ALMM to open access and net metering projects.

The push for domestic sourcing of equipment comes at a time when the government is looking at boosting the local manufacturing and lower import dependence.

Government has also come up with a production linked incentive (PLI) scheme for solar modules. In the union budget for FY23, finance minister Nirmala Sitharaman allocated ₹19,500 crore in PLI incentives to make solar modules, bringing the total to ₹24,000 crore. Initially the government had announced an incentive of ₹4,500 crore under the scheme.

The policy focus domestic solar module production has also gained momentum with prime minister Narendra Modi's commitment at the COP26 summit at Glasgow to achieve renewable energy target of 500 GW by 2030 out of which 280 GW is expected to be solar power.

As of 30 June, installed solar power capacity in the country was 57.706 GW, which is 14.3% of the total installed capacity of 403.760 GW.

5. Mobilités électriques

KPMG report estimates 45-50 million EVs on Indian roads by 2030

The Financial Express, 31/08/2022

India's electric mobility journey is gaining momentum with announcements about a new initiative, practically everyday. EV sales in India have seen a 3 times growth over the past year. That's as per the latest data shared by the Ministry of Road Transport and Highways (MoRTH). The ministry

outlined that currently, 13,92,265 EVs are plying on Indian roads. In fact, a recent KPMG study expects the EV count in the country to breach well north of 40 million by 2030.

However, that said the EV penetration in India is still low, just about 1 percent but that may soon start improving. Rohan Rao, Partner, M&A Consulting, KPMG India is hopeful that with the steady development of a robust charging network will help accelerate EV adoption in India as is seen globally, "we believe a similar trend is expected to play out in India. With an estimated 50 million EVs on Indian roads by 2030, the potential opportunity for a pure play charging business is enormous."

A strong regulatory push towards the expansion of the EV charging infrastructure is also playing an integral role and is attracting existing and upcoming OEMs to jump onto the bandwagon.

With an increase in EV sales over the last fiscal year, two-wheelers are still the dominant segment leaders accounting for the maximum sales numbers followed by the electric three-wheelers.

The electric two-wheeler sales, which, in FY2020 touched the 1,52,000 mark has moderated to some extent in FY2021 to 1,44,000 units but has again picked up momentum. It is currently leading the EV sales chart with over 2,31,000 two-wheelers.

Electric three-wheelers being the second most popular segment where EV adoption is gaining pace accounted for 1,40,000 units in FY2020 and registrations 1,78,000 sold units.

The electric buses have also clocked a steady growth in recent years and the favourable schemes from the respective state governments like Mumbai and Delhi towards electrification of public transportation has also worked wonders in the bid to increase the EV adoption rate.

While the electric buses in FY2020 recorded only 6,000 unit sales, saw a 19 percent growth YoY between FY2021 and FY2022 and currently stand at 2,20,000 units in FY2022. The solid thrust on expanding public infrastructure by India's nine megacities is perhaps the most significant growth contributor in this segment.

Electric cars have also entered the market, though we still have to wait for worthwhile penetration in the four-wheeler segment. Nevertheless, Tata's Nexon EV, MG's ZS EV and a few more e-cars are doing well in the market and consumers have started shifting to the e-versions of their preferred car variants.

Hero Electric set to partner with Jio-bp for 2-wheeler electric vehicle adoption

Mint, 25/08/2022

To boost electric vehicle (EV) adoption and mobility in India, Hero Electric on Thursday decided to partner with Jio-bp to strengthen mobility solutions for electric two-wheelers. Through this tie-up, Hero Electric's customers are expected to get access to the widespread charging and swapping network of Jio-bp, which is also open to other vehicles.

Additionally, both companies will bring the best of their global learnings in electrification and apply them to the

Indian market to create a differentiated customer experience that delights the consumer.

Currently, Jio-bp is operating its EV charging and swapping stations under the brand Jio-bp pulse.

With the Jio-bp pulse app, customers can easily find stations nearby and charge their electric vehicles.

Further, with a vision of being among India's largest EV networks, Jio-bp is creating an electric mobility ecosystem that will benefit all the stakeholders in the EV value chain.

Meanwhile, Hero is committed to delivering the best electric mobility solutions to its consumers and this association will fasten the EV growth in the country while strengthening Hero Electric's vision is to transform the e-mobility sector in India.

Reliance BP Mobility, which is a joint venture of Reliance Industries and bp, is operating under the brand 'Jio-bp'. The JV's EV services operate under the brand Jio-bp pulse, and with the Jio-bp pulse mobile app, customers can easily find charging stations nearby and seamlessly charge their electric vehicles.

The JV leverages Reliance's presence across the country and its millions of consumers through the Jio digital platform. bp brings its extensive global experience in high-quality differentiated fuels, lubricants, retail, and advanced low-carbon mobility solutions.
Also, to market conventional fuels, RBML provides advanced mobility solutions and alternate fueling options to its customers such as Electric Vehicles (EV) charging points, and Battery Swapping Stations (BSS).

Earlier, in June, Jio-bp inked a deal to provide a battery swapping facility to Electric Vehicles (EVs) run by the partners of the food delivery major Zomato. Also, the company signed a pact with Omaxe to set up EV charging and swapping infrastructure at the latter's various properties across Delhi, Noida, Greater Noida, Faridabad, Ghaziabad, New Chandigarh, Ludhiana, Patiala, Amritsar, Jaipur, Sonipat and Bahadurgarh in a phased manner.

Road ministry amends battery safety norms, to come into effect from October 1

The Economic Times, 31/08/2022

India on Thursday further tightened safety requirements for batteries after a spate of fires in electric two-wheelers. Electric vehicles (EVs) sold in the country will now need to comply with additional safety requirements related to battery cells and thermal propagation due to internal cell short circuit, according to the norms. The road transport ministry said that these new requirements cover electric two-, three- and four-wheelers, passenger as well as goods vehicles.

An official statement said that amendments have been carried out in the automotive industry standards (AIS) for motor vehicles with less than four wheels and with an electric power train. Amendments have also been made to the AIS for electric powertrain of motor vehicles with four vehicles.

"These amendments include additional safety requirements related to battery cells, battery management system (BMS), on-board charger, design of battery pack, thermal propagation due to internal cell short circuit leading to fire, among others,"

the statement added. These stricter standards will be mandatory from October 1.

The transport ministry has also has issued a draft notification for mandating conformity of production (CoP) for traction batteries used in electric power train vehicles. One approved, the proposed regulation will also be applicable with effect from October 1, 2022. This will ensure that EV makers and battery manufacturers stick to making vehicles that have been approved by testing agencies.

These additional requirements are based on recommendations by an expert committee tasked with finding deficiencies in the EVs that caught fire and suggesting remedial measures. The committee comprised members from International Advanced Research Centre for Powder Metallurgy and New Materials, Centre for Fire, Explosive and Environment Safety of the Defence Research and Development Organisation, Indian Institute of Science and Indian Institute of Technology, Chennai.

6. Environnement et qualité de l'air

India submits updated NDC to UNFCCC, says it's a step towards net-zero by 2070

The Economic Times, 31/08/2022

India has submitted its updated Nationally Determined Contribution under the Paris Agreement to the UN Framework Convention on Climate Change, emphasising that it is a step forward towards its long-term goal of reaching net-zero by 2070. In a cover letter accompanying the Nationally Determined Contribution (NDC) document submitted to the UN Framework Convention on Climate Change (UNFCCC) on August 23, Union Environment Minister Bhupender Yadav said India's NDC does not bind it to any sector-specific mitigation action or obligation. On August 3, the Union Cabinet approved the country's updated NDC, incorporating Prime Minister Narendra Modi's 'Panchamrit' (five nectar elements) strategy announced at the Glasgow conference last year into enhanced climate targets.

According to the updated NDC, India now stands committed to reducing emissions intensity of its GDP by 45 per cent by 2030, from the 2005 level, and achieving about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. To further a healthy and sustainable lifestyle, 'LIFE - Lifestyle for Environment' has been added to India's NDC as a key to combating climate change. "India reaffirms its commitment to the UNFCCC and the Paris Agreement on Climate Change.

This update to India's existing NDC is a step forward towards our long-term goal of reaching net-zero by 2070," the updated NDC document read. India's NDC is ambitious and a significant contribution towards achieving the goals of the Paris Agreement. Environmentally sustainable, low-carbon initiatives are underpinning all key sectors of the Indian economy, it said.

"India's goal is to reduce overall emission intensity and improve energy efficiency of its economy over time and at the same time protect the vulnerable sectors of the economy and segments of our society," Environment Minister Yadav said. NDC

means national plans and pledges made by a country to meet the goal of maintaining global temperature increases to well below 2 degrees Celsius above pre-industrial levels, while aiming for 1.5 degrees Celsius to avoid the worst impacts of climate change. India had submitted its first NDC to the UNFCCC on October 2, 2015. It had eight goals, of which three had quantitative targets up to 2030 -- cumulative electric power installed capacity from non-fossil sources to reach 40 per cent, reducing emissions intensity of GDP by 33 to 35 per cent compared to 2005 levels and creating an additional carbon sink of 2.5 to 3 billion tons of CO2 equivalent through additional forest and tree cover.

At the 26th session of the Conference of the Parties (COP26) of the UNFCCC last November, Modi had announced that India's non-fossil energy capacity will reach 500 gigawatts by 2030. He had said India will fulfil 50 per cent of its energy requirements from renewable energy sources by 2030 and reduce its total projected carbon emissions by 1 billion tonnes by that year. India will reduce the carbon intensity of its economy by 45 per cent, over 2005 levels and achieve the target of net zero emissions by 2070, Modi had said. The five promises are called 'Panchamrit'.

Air pollution: India is home to 18 of 20 cities with most severe increase in PM 2.5 pollution, reveals study
DNA, 18/08/2022

An analysis of air pollution and global health effects for over 7,000 cities has revealed that India is home to 18 of the 20 cities with the most severe increase in fine particle pollutants -- PM 2.5 (particulate matter) -- from 2010 to 2019.

The new report also shows that Delhi has the highest average level of fine PM 2.5 among the world's most populated cities. It was published by the US-based research organisation Health Effects Institute (HEI) on Wednesday.

The report - Air Quality and Health in Cities

The report 'Air Quality and Health in Cities', used data from 2010 to 2019 and focused on two of the most harmful pollutants -- fine particulate matter (PM2.5) and nitrogen dioxide (NO2).

It combined ground-based air quality data with satellites and models to produce air quality estimates for cities around the world.

"Of 7,239 cities, India is home to 18 of the 20 cities with the most severe increase in PM2.5 pollution from 2010 to 2019. The other two cities are in Indonesia," the authors of the study noted.

"Of the 50 cities with the most severe increase in PM2.5, 41 are in India and 9 are in Indonesia. On the other hand, of the 20 cities with the greatest decrease in PM2.5 pollution from 2010 to 2019, all are located in China," they said.

India and Indonesia have seen the most severe increase in PM2.5 pollution, whereas China has seen the greatest improvements.

The authors noted that in 2019, 1.7 million deaths linked to PM2.5 exposure occurred in the 7,239 cities included in the analysis, with cities in Asia, Africa, and Eastern and Central Europe seeing the greatest health impacts.

They zoomed in to the most populous cities in each region i.E. A subset of 103 cities across 21 regions. Among the most populous cities in each region, Delhi and Kolkata featured in the top 10 with the highest PM2.5-related disease burden in 2019.

In the 20 cities with highest PM2.5 exposures, residents in cities from India, Nigeria, Peru, and Bangladesh are exposed to PM2.5 levels that are several-fold higher than the global averages, the report said.

Only four of these cities, and none in India, met the WHO annual PM2.5 Air Quality Guideline of 5 microgrammes per cubic metre (g/m3) in 2019, it said.

The report found that while exposures to PM2.5 pollution tend to be higher in cities located in low- and middle-income countries, exposure to NO2, is high across cities in high-income as well as low- and middle-income countries.

"Since most cities around the world have no ground-based air quality monitoring in place, estimates of particulate and gas pollution levels can be used to plan air quality management approaches that ensure the air is clean and safe to breathe," said Susan Anenberg of George Washington University, one of the project collaborators.

The report also highlights data gaps in low- and middle-income nations, a key aspect to understanding and addressing the health effects of air pollution.

Cabinet approves MoU between India, Nepal in field of biodiversity conservation

ThePrint, 31/08/2022

The Union Cabinet, chaired by Prime Minister Narendra Modi, has approved the signing of a Memorandum of Understanding (MoU) between India and Nepal in the field of biodiversity conservation, to promote cooperation between the two countries in the field of forests, wildlife, environment, and climate change.

"The Union Cabinet, chaired by Prime Minister Narendra Modi, has approved the proposal of the Ministry of Environment, Forest and Climate Change for signing an MoU with the Government of Nepal on biodiversity conservation, with a view to strengthen and enhance the coordination and cooperation in the field of forests, wildlife, environment, biodiversity conservation and climate change, including restoration of corridors and interlinking areas and share knowledge and best practices, between the two countries," said a press release issued by the Cabinet.

According to the release, the MoU would help in promoting cooperation between the parties in the field of forests, wildlife, environment, biodiversity conservation, and climate change, including restoration of corridors and interlinking areas and sharing knowledge and best practices.

India is one of the 17 mega-diverse countries in the world and it is taking several steps to conserve the wildlife population and biodiversity. Earlier, ex-Minister for Environment, Forests, and Climate Change Prakash Javadekar had said, "India has thriving wildlife and biodiversity."

The Indian government has adopted many laws, policy initiatives, and acts to conserve the vast flora and fauna in the country and across the borders adjoining neighbouring countries

Freshwater shotage triggered by climate change threatens North India by 2060

Mint, 16/08/2022

North India, the most populated belt of the nation is going to face grievous irreversible fresh water scarcity by 2060 since the availability of the vital resource will decline on account of climate change.

Roof of the world, Tibetan Plateau, also known as the "water tower" of Asia, supplies freshwater for nearly 2 billion people who live downstream. As noted by a team of international researchers.

A study, published in the journal 'Nature Climate Change' titled 'Climate change threatens terrestrial water storage over the Tibetan Plateau' on Monday, projects that climate change clubbed with weak climate policy, will cause irreversible declines in freshwater storage in the region. The study predicts a total collapse of the water supply for central Asia and Afghanistan and a near-total collapse for Northern India and Pakistan by the middle of the century.

Michael Mann, distinguished professor of atmospheric science at Penn State in US said, "The prognosis is not good... In a 'business as usual' scenario, where we fail to meaningfully curtail fossil fuel burning in the decades ahead, we can expect a near collapse - that is, nearly 100 per cent loss - of water availability to downstream regions of the Tibetan Plateau."

Researchers stated, the impacts of climate change on past and future terrestrial water storage (TWS) in the Tibetan Plateau have largely been under explored even though they are extremely significant.

"The Tibetan Plateau supplies a substantial portion of the water demand for almost 2 billion people," said Di Long, associate professor of hydrologic engineering, Tsinghua University, China.

Long added, "Terrestrial water storage across this region is crucial in determining water availability, and it is highly sensitive to climate change."

Professor Mann said, the absence of reliable future projections of TWS limits any guidance on policy-making, despite the fact that the Tibetan Plateau has long been considered a climate change hotspot.

Technique used to predict

The researchers used 2 methods to measure the water reserves, "top-down" - or satellite-based - and "bottom-up" or ground-based to measure the water mass in glaciers, lakes and below-ground sources.

They combined the data with machine learning techniques to provide a benchmark of observed TWS changes over the past two decades (2002–2020) and projections over the next four decades (2021–2060).

The researchers combined plethora of factors together and used a novel neural net-based machine learning technique to relate these observed changes in total water storage to key climate variables, including air temperature, precipitation, humidity, cloud cover and incoming sunlight.

The researchers found that climate change in recent decades has led to severe depletion in TWS (15.8 gigatons/year) in certain areas of the Tibetan Plateau and substantial increases in TWS (5.6 gigatons/year) in others, likely due to the competing effects of glacier retreat, degradation of seasonally frozen ground, and lake expansion.

The entire Tibetan Plateau could experience a net loss of about 230 gigatons by the mid-21st century (2031–2060) relative to an early 21st century (2002–2030) baseline, as suggested in the team's projection given that the carbon emissions remain at moderate levels.

Excess water loss projections suggest that the Amu Darya basin - which supplies water to central Asia and Afghanistan - and the Indus basin, which supplies water to Northern India, and Pakistan, will witness decline of 119 per cent and 79 per cent in water-supply capacity, respectively.

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