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DE L'ÉCONOMIE,
DES FINANCES
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ENERGIE ET DEVELOPPEMENT DURABLE

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En bref

Infrastructure

- Le plan de mise en concession d'autoroutes du gouvernement indien permettrait de lever près de 300 Mds INR (3,5 Md€) sur l'année fiscale 2022.
- Le programme *Gatishakti* doté d'un budget de 100 000 Mds INR (1 149 Md€) donnera le cadre de réalisation des projets du *National Infrastructure Pipeline*.

Ferroviaire

- Le plan de mise en concession d'actifs du gouvernement prévoit la levée de 1 500 Mds INR (17,2 Md€) grâce aux actifs ferroviaires d'ici à 2025.
- Les *Indian Railways* publient un appel d'offre pour la construction de 58 trains à semi-grande-vitesse *Vande Bharat*, en ligne avec l'objectif de 100 trains d'ici 2024.
- Une analyse menée par *Business Standard* met en lumière certaines pratiques de comptabilité visant à masquer la mauvaise santé financière des Indian Railways.

Développement et transports urbains

- L'Inde signe un accord avec la Banque Asiatique de Développement pour le financement à hauteur de 500 M USD de l'extension du métro de Bangalore.

Pétrole, gaz et biocarburants

- L'Inde prévoit d'imposer aux constructeurs automobiles de proposer à la vente des véhicules alimentés aux biocarburants d'ici 6 mois.

Electricité et énergies renouvelables

- Selon une étude indépendante, l'Inde devrait atteindre son objectif de 175 GW de capacités renouvelables installées avec quatre ans de retard, en 2026.
- Le projet de réglementation sur l'électricité publié par le gouvernement vise à encourager l'achat et la consommation d'énergie verte.
- Les capacités solaires installées ont augmenté de 2 488 MW entre avril et juin 2021, la plus forte croissante trimestrielle depuis trois ans.
- Le PDG de Reliance Industries Mukesh Ambani estime que l'Inde sera en mesure de produire de l'hydrogène pour un prix inférieur à 1 USD / kg d'ici 2030.
- L'Inde et le Royaume-Uni investiront à hauteur de 1,2 Mds USD pour financer des projets d'énergies renouvelables et d'infrastructures durables en Inde.
- Le gouvernement indien annonce plusieurs mesures pour encourager l'utilisation de l'hydrogène vert et la fabrication domestique d'électrolyseurs.

Mobilités électriques

- Le Ministre des Transports invite les constructeurs automobiles à encourager financièrement la mise au rebut de véhicules thermiques au profit de l'achat de véhicules électriques.
- Jio-bp, co-entreprise de BP et Reliance Industries, s'associe à BluSmart, service de VTC électrique, pour construire un réseau de bornes de recharge en Inde .

Environnement et qualité de l'air

- L'Inde lance une plateforme dédiée à l'analyse de la qualité de l'eau dans les villes indiennes.
- Delhi inaugure sa première tour filtrante dédiée à la lutte contre la pollution de l'air.
- La part des ménages ruraux connectés à un réseau d'eau atteint désormais 42,2%.
- Selon une étude du think tank E3G, l'Inde est sur la voie de la sortie du charbon, malgré des disparités fortes entre Etats.



Revue de presse

1. Infrastructure

Monetisation: Rs 30,000 cr to be mobilised from highway assets in FY22

Financial Express, 25/08/2021

Monetisation of operational highway stretches, which has the largest share of Rs 1.6 lakh crore, or 27%, in the national monetisation pipeline (NMP), includes offering 26,700 km of highways of four lanes and above to investors in four years through FY25.

Of these, 5,000 km of highways are expected to be monetised in FY22 to mobilise about Rs 30,000 crore. The National Highways Authority of India's (NHAI) first tranche of InvIT in FY22 is expected to consist of 586 km of assets in Rajasthan, Gujarat, West Bengal, and Bihar to raise about Rs 5,000 crore. NHAI is also exploring a second tranche of a follow-on issue of the InvIT. The InvIT issue is envisaged to be privately placed.

Since 2017, NHAI has been successfully monetising its brownfield road assets through toll-operate-transfer (TOT)-based PPP concessions. The TOT model has since matured and is now an established model with a model concession framework already in place. Another method of monetisation that has seen traction in the recent past is the InvIT model. A number of road assets have been monetised through InvITs by private sector players.

Based on past trend in pace of award and construction, it is estimated that NHAI is incrementally adding minimum of 2,000-3,000 km of monetisable toll roads to its asset base every year. The proceeds from monetisation will be invested in new road projects, reducing the burden on the exchequer. The Centre is providing budget support of about Rs 57,000 crore to NHAI for road projects in FY22.

The total length of highway assets considered for monetisation (26,700 km) constitutes around 22% of the total national highways (estimated to be about 1,21,155 km), excluding the network operated by private sector under BOT-based PPP concessions.

The operational national highways constructed under EPC and HAM modes, especially in the four-lane and above category, have been considered for monetisation. This includes both the existing toll roads and potential toll roads to be added over the NMP period.

The total indicative monetisation value of assets considered for monetisation is estimated at Rs 1.6 lakh crore from FY22-25. It includes 29 stretches of 1,361 km in the north region, 22 stretches of 1,478 km in the east region, 25 stretches of 2,031 km in the west region and 28 stretches of 1,931 km in the south region.

The government on Monday unveiled the NMP, seeking to generate upfront revenue of Rs 6 lakh crore in the four years starting FY22, out of operational infrastructure projects, under long-term lease plans that involve minimal ceding of the government's ownership of the assets.

PM Modi's Gatishakti programme to ensure timely implementation of NIP projects; minimal cost overruns

Financial Express, 31/08/2021

The ambitious Gatishakti programme worth Rs 100 lakh crore will provide the framework for the National Infrastructure Pipeline (NIP) initiative's timely implementation with minimal cost overruns, said Road Transport Secretary Giridhar Aramane.

On August 15, PM Narendra Modi announced Gatishakti, an infrastructure development programme which is expected to boost employment opportunities as well as productivity of industries. According to a PTI report, the initiative is set to be launched in the month of September. The National Infrastructure Pipeline was launched with as many as 6,835 projects and since then the numbers have expanded. During FY 2020-25 period, the projects identified under this programme are estimated to need Rs 111 lakh crore investment.

Both these initiatives will play a major role in giving a boost to infra development activities amid the nation striving to become a USD 5 trillion economy in the coming future. So NIP implementation will be a huge problem without Gatishakti. Thus, it is essential that Gatishakti is implemented along with the NIP so that full efficiency is harvested, the Road Transport Secretary said.

Aramane, while replying to a question, said the entire procedure of launching the InvIT has been completed, the National Highways Authority of India (NHAI) has also discussed with various investors and there is a very good response. He further said that Canadian pension funds have shown interest in NHAI InvIT. Besides, some other investors

from abroad are also interested, he mentioned. Domestic FIIs as well as other firms who are involved in the tolling contracts will be interested in taking the stake as well, Aramane, who is also NHAI's Chairman, stated. In terms of the investments, there shall not be any problems, according to him.

As per a recent Niti Aayog document, the issue of NHAI InvIT is envisaged to be privately placed and the fundraising's indicative value from the current tranche underway is approximately Rs 5,000 crore. It is expected that the fundraise as well as issue listing will be completed during FY22, subject to market conditions and toll revenues' stabilisation in wake of the COVID-19 pandemic, the document had said.

The InvIT's first tranche is likely to consist of 586 kilometres of National Highway assets in the states of Gujarat, Rajasthan, West Bengal, and Bihar. The NHAI is also exploring the second tranche of follow-on-issue of the InvIT, it noted. On the award of new projects by NHAI in the year 2021-22, the achievement of this year has been better than the previous year, Aramane said.

2. Ferroviaire

Railways plans to monetise assets worth Rs 1.52 cr

Financial Express, 24/08/2021

The Railways is looking at asset monetisation of Rs 1,52,496 crore under the national monetisation pipeline of Central ministries and public sector entities unveiled by finance minister Nirmala Sitharaman on Monday.

The asset monetisation plan aims at tapping into private sector investment for new infrastructure creation and estimates a monetisation potential of Rs 6 lakh crore through core assets of the Central government over a four-year period from FY22 to FY25. The Railways is among the top five sectors, comprising 83% of the aggregate pipeline value.

Asked about the prospects of monetising passenger trains to usher in private players, Suneet Sharma, chairman and CEO of the Indian Railway Board, told FE that while the initial response of the private sector for passenger trains had been robust, there has been a slowdown due to the pandemic. **"Most of the concerns have been taken care of and the station development programme is drawing a strong interest,"** Sharma said.

The national transporter will target monetising assets worth Rs 17,810 crore in FY22, Rs 57,222 in FY23, Rs 44,907 in FY24 and Rs 32,557 crore in FY25. The monetisation plan includes projects like redevelopment of 400 railway stations, 90 passenger train operations, 1400 km of track-OHE InvIT, 265 good sheds, 741 km of Konkan Railway, four Hill Railways, 674 km of dedicated freight corridor and 15 railway stadiums.

The objective of the programme is to unlock the value of investments in brownfield public sector assets in the Railways and in other sectors by tapping into institutional and long-term patient capital, which can thereafter be leveraged for further public investments. New models like infrastructure investment trusts and real estate investment trusts will be used to unlock the value, which in turn will enable not just financial and strategic investors but also common people to participate in this asset class.

100 Vande Bharat trains by 2024; Indian Railways sets ball rolling for new train sets

Times of India, 29/08/2021

Indian Railways has set the ball rolling for manufacturing 100 Vande Bharat Express train sets by March 2024. PM Narendra Modi had in his Independence Day speech announced that 75 Vande Bharat trains will connect major towns by 15 August 2023. **The national transporter has now issued the tender for propulsion systems and other equipment of 58 Vande Bharat rakes, learns TOI. A contract for equipment of 44 Vande Bharat rakes was already awarded to Medha Servo earlier this year. With this, Indian Railways aims to roll out 102 Vande Bharat trains by early 2024, a source told TOI.**

Vande Bharat is a luxury air-conditioned chair-car service which looks similar to high-speed trains. Designed for speeds of up to 160 kmph, and tested at 180 kmph, Vande Bharat trains are self-propelled "engineless" train sets. Its faster acceleration and deceleration results in reduced train travel time. Some of its passenger friendly features include; European-style seats, aircraft-style personalised reading lights, diffused LED lighting, GPS-based infotainment systems, modular bio-toilets, fully sealed gangways for dust-free environment, centrally controlled entry/exit doors with sliding footsteps, mini pantry, cushioned luggage racks, 360 degree rotating seats in Executive class, divyang friendly toilet and automatic sliding cabin doors.

The tender, accessed by TOI, is for design, development, manufacture, supply, integration, testing and commissioning of IGBT-based 3-phase propulsion, control and other equipment of the Vande Bharat rakes. It will be closed in October this year. The

pre-bid conference for this will be held in September.

According to the tender, tentatively, 30 rakes will be manufactured at ICF Chennai and 14 each at MCF Raebareli and RCF Kapurthala. The first two Vande Bharat trains running on the Delhi-Varanasi and Delhi-Katra routes have been manufactured at ICF, Chennai.

As part of the tender for 44 rakes awarded earlier, the first prototype Vande Bharat rake will be manufactured at ICF Chennai by March 2022 and tested extensively by RDSO. Indian Railways hopes to start putting the new Vande Bharat trains into service by the second half of 2022.

As reported by TOI, the new Vande Bharat trains will have several improvements over the existing two trains. Some of them are; push back feature for reclining seats, emergency windows for evacuation, protection for underslung equipment from floods, four instead of 2 emergency push buttons per coach, centralised coach monitoring system, bacteria-free AC system, disaster lights in case of failure of lights, ventilation up to 3 hours in case of power failure etc.

Off track: Declining operating ratio shows Railways' poor financial health

Business Standard, 14/09/2021

Railways' accounts reveal it spent Rs 98 to earn Rs 100 in 2019-20. Business Standard analysis shows accounting practices mask the actual operating ratio

In 2019-20, the capital expenditure of Indian Railways (IR) increased 60 per cent over 2016-17. The draft National

Railways plan envisages a further increase in IR's capital expenditure, but an analysis by Business Standard shows that IR has come to depend more on borrowings and budgetary support. In 2016-17, while 11 per cent of its capital expenditure (capex) was funded by internal sources, in 2019-20 the ratio dropped to less than 1 per cent. A 2015 Committee on Restructuring Railways had flagged that over-reliance on borrowings could exacerbate the financial situation of Railways.

Although staff costs and increasing pension liabilities are a significant source of drain for IR—staff costs account for over 70 per cent of the expenses—on the revenue side, the national carrier hasn't performed too well either. Freight earnings are down, and passenger services have suffered. A report by the Comptroller and Auditor General (CAG), released in September 2020, showed that freight profits could barely catch up with passenger losses.

The Railways has also failed to capitalise on its assets. Sundry earnings, which account for revenues from advertising and lease of space and land, have also fallen.

Amid all this, the Business Standard analysis found that Railways' spending on subsidies had increased manifold. In 2004-05, Railways spent Rs 5,738 crore towards its net social sector obligations—revenue forgone due to transporting essential commodities, passenger concessions and fare subsidies. Last year (2019-20), Railways' obligations had ballooned nine times to Rs 45,542 crore.

Revenues did not grow proportionately. While net social sector obligations accounted for 16.6 per cent of the total revenues in 2004-05, their share had risen to 26.6 per cent in 2019-20.

Of the total working expenditure, social sector obligations account for 22.2 per cent. It is not surprising then that the operating ratio—the amount IR spends to earn Rs 100—has increased drastically over the years. In 2012-13, it spent Rs 90 to earn Rs 100; in 2019-20, it had to spend Rs 98 to earn Rs 100.

This figure, too, is fallacious. For the last two years, CAG has been highlighting how Railways is adjusting advance payments to manage its operating ratio. In 2017-18, for instance, Railways took advance payment for freight from NTPC and IRCON, which helped decrease its operating ratio from 102.7 to Rs 98. Similarly, in 2018-19, it took an advance from NTPC and CONCOR to improve its operating ratio from Rs 101.8 to 97.3.

However, CAG's calculations only explain part of the problem. Our analysis showed that the actual operating ratio for Railways in 2018-19 ought to be higher. And, this trend holds for the last few years.

Innovative accounting

Besides its net ordinary working expenses, the Railways appropriates two major funds each year—the pension fund and the depreciation reserve fund. The purpose of the pension fund is to service the growing pension corpus. The depreciation reserve fund is used by IR for renewals and replacement of fixed assets.

The appropriation under this head has reduced by over 90 per cent in the past five years. Instead, the Railways has been carrying out track renewal and repairs using the Rashtriya Rail Sanraksha Kosh. The RRSK fund with a corpus of Rs 1 trillion was started

in 2017-18; repairs have been diverted from DRF to RRSK.

RRSK does not feature in the operating ratio calculations for Railways and is instead appropriated from profits. While the Railways was to contribute Rs 15,000 crore for the last three years towards RRSK corpus, it has been able to make provisions for only Rs 5,225 crore.

If RRSK calculations are moved back to DRF, then operating ratios go haywire.

Railways has also not been paying dividend on its borrowings from the government since 2015-16. While the loan from the government to the Railways is considered a loan in perpetuity, up until 2014-15 the carrier was paying a dividend of 4 per cent on it. But given its dwindling finances, a Parliamentary Committee discontinued this practice until 2020-21.

The CAG report further highlights that even the calculations for appropriation to depreciation reserve fund may not be based on fundamentals. Last year, in a valiant effort, the government included off-Budget borrowings to reflect in the fiscal deficit to present a better picture of government finances.

Railways may need to do the same, especially when it is embarking on an ambitious national rail plan for 2030.

3. Développement et transports urbains

India-ADB sign USD 500 million loan agreement to expand metro rail network in Bengaluru

The Economic Times, 01/09/2021

The Asian Development Bank will provide USD 500 million loans to expand the metro rail network in Bengaluru with the construction of two new metro lines totaling 56 kilometers. An agreement in this regard was signed between the Government of India and the ADB on Thursday.

The signatories to an agreement for the Bengaluru Metro Rail Project were Rajat Kumar Mishra, Additional Secretary, Department of Economic Affairs, and Takeo Konishi, Country Director of ADB's India Resident Mission who signed for ADB.

The project will construct two new metro lines, mostly elevated, along Outer Ring Road and National Highway 44 between Central Silk Board and Kempegowda International Airport with 30 stations, ADB said in a release. "This will help decongest traffic in the city area and provide seamless connectivity to the airport," it said.

The needs of vulnerable groups, such as the elderly, women, children, and differently-abled persons, will be reflected on the metro facilities, it added. "The project supports the urban transformation of Bengaluru city into a more livable and sustainable city through support to urban public transport and urban development with concepts of transit-oriented development (TOD) and multimodal integration (MMI)," said Konishi.

As per the ADB, the TOD-based urban development model will target realigning growth and increase the city's economic productivity by creating higher density, compact, mixed-use, mixed-income, safe, and resource-efficient, and inclusive neighborhoods. TOD also aims to raise land values along these corridors, generating

capital revenues for the state government to meet the city's long-term investment needs.

The project, it said will construct two new metro lines, mostly elevated, along Outer Ring Road and National Highway 44 between Central Silk Board and Kempegowda International Airport with 30 stations. "This will help decongest traffic in the city area and provide seamless connectivity to the airport," the multilateral lending agency said.

It further said that an additional USD 2 million technical assistance grant from ADB will help the state government formulate urban development plans and their implementing frameworks, focusing on TOD and multimodal integration. The grant will also be used to strengthen the capacity of the Bangalore Metro Rail Corporation Limited and other state agencies to implement these initiatives.

4. Pétrole, gaz et biocarburants

India to make it mandatory for auto makers to offer biofuel vehicles in 6 months, says Gadkari

The Economic Times, 01/09/2021

Union Minister Nitin Gadkari on Tuesday said India will make it mandatory for auto manufacturers to offer vehicles running 100 per cent on bio-fuels in the next six months.

Such a move will be cost-effective for consumers, who are hassled by the high petrol prices, the minister said, pointing out that a litre of bioethanol costs Rs 65 as against Rs 110 paid for petrol.

The alternative fuel is also less polluting and saves forex. "We are committed to delivering vehicles with flex engine norms. We have taken a decision, we will make it mandatory by which there will be a flex-engine," Gadkari said at an event hosted by domestic brokerage Elara Capital.

"Within six months, we will give orders for making flex engines (mandatory)," he said, adding that state-run oil marketing companies have already been ordered to offer bio-fuels at the same facilities as the one selling petrol and diesel.

The minister said consumers will have a choice between petrol and bioethanol and a switch to the alternative is also essential for the country because of the surplus production of crops like rice, maize, corn and sugar, from which bioethanol is made.

He added that in many of the crops, the minimum support price offered to the farmers is higher than the commercial price or the one in international prices, making it essential for diverting the harvest for the overall betterment of the country.

Gadkari said manufacturing of electronic vehicles is also on at a fast pace across categories and estimated that there will be a flood of such automobiles on the roads in a year. He also said that in the next five years, he wants India to be the leading auto manufacturing hub in the world offering vehicles with all the fuels for the world. The recently launched vehicle scrappage policy will help in sourcing of raw materials, he said.

Efforts are also underway on using hydrogen as a fuel, and to tap the gas from sea water and sewage water, Gadkari said, without sharing specifics. Meanwhile, Gadkari said the National Highways Authority of India has already been undertaking monetisation efforts through which it has raised over Rs

40,000 crore, and sounded confident about achieving the incremental target of raising Rs 1.60 lakh crore from the roads sector included in the national monetization plan announced earlier this month. He said NHAI will raise the money either through the 'toll-operate-transfer' model that has been used previously or also through the infrastructure investment trust (InvITs) which is to be floated soon by the NHAI.

The minister asked long-term money managers like pension and insurance funds to come forward and invest in the issues floated by NHAI for better returns, pointing out that the overall toll collections are likely to shoot up to Rs 1.40 lakh crore per year in five years from the present Rs 40,000 crore per year.

NHAI is giving smaller bundles for monetization, which will entail commitments of around Rs 500 crore as against Rs 5,000 crore earlier, Gadkari said, reasoning that such smaller bundles attract smaller investors and also increase the returns for the authority. He said regular monetization efforts through diverse instruments will also help the NHAI continue with its ambitious plans on road building, which includes constructing 26 express highways across the country.

Gadkari assured that in the next three years, Indian roads will be at par with the ones seen in the US or Europe from a quality perspective. The government is also targeting to lower fatalities through a variety of interventions over time and take the number to zero deaths on highways by 2030, Gadkari said, adding that engineering, enforcement, education and emergency care services can be of help.

5. Electricité et énergies renouvelables

Renewable capacity target of 175 GW to be met by FY26: Icra

Financial Express, 26/08/2021

The target of having 175 giga-watt (GW) of installed renewable energy capacity set by the government will likely be achieved only in FY26 as against the target of meeting it by December 2022, analysts at Icra said.

The key reasons for the delay were cited as issues related to land acquisition and the higher period required to build associated transmission infrastructure to evacuate the electricity generated from solar and wind plants.

Since 40 GW of the 175 GW target capacity was expected to come from rooftop solar plants, limited progress on that front has also thwarted achieving the 175 GW renewables target on time. The "passive resistance" from state-run power distribution companies (discoms) towards installing rooftop solar — in the apprehension of losing revenue from discoms' higher-paying commercial and industrial consumers — is seen as one of the major reasons why rooftop solar did not take off as planned.

On August 12, the government announced that the country's installed renewables capacity has crossed 100 GW. Another 50 GW is currently under installation and 27 GW is under tendering. The country has also set its target of 450 GW renewables by 2030. Icra estimates that the incremental renewables capacity addition between March 2021 and March 2025 to be 65 GW,

comprising 51 GW from solar, 12 GW from wind and 2 GW from other green sources.

The 65 GW capacity addition is expected to entail an investment of Rs 3.5 lakh crore and is seen to increase the share of renewables in the overall power generation base to 34% from the current level of 25%. The pace of capacity addition can be faster if the growth rate of power demand increases significantly, analysts pointed.

"The key challenges constraining the growth remain on execution front, mainly associated with land and transmission infrastructure as well as the slow but improving progress in signing of power purchase agreements and power sale agreements by intermediate procurers with discoms," said Girishkumar Kadam, senior vice president of Icra ratings. Discoms have developed cold feet on buying power from renewable energy projects at tariffs discovered under earlier auctions after much lower prices were discovered in subsequent bids.

More than 6,000 MW of renewable energy projects bid out at auctions before February 2020 have not yet found buyers as rates plummeted to a record low of Rs 1.99/unit in December 2020. With rising prices of solar modules, which comprise about 60% of the total project expenditure for solar plants, tariffs in recent solar auctions have been around Rs 2.34/unit.

Gvt circulates 'Draft Electricity Rules 2021' to provide green energy open access

Mint, 08/09/2021

The Ministry of Power on Monday circulated the "Draft Electricity Rules, 2021". They have

placed the draft rules on the Ministry of Power website - <https://powermin.gov.in/> - and sought comments within 30 days.

These rules are proposed for the purchase and consumption of green energy including the energy from Waste-to-Energy plants, the Ministry of Power said in an official statement.

The draft rules have the following subheads within which details are provided – Renewable Purchase Obligation (RPO); Green energy open access; Nodal Agencies; Procedure for grant of green energy open access; banking; and cross subsidy surcharge.

These draft rules with regard to tariff propose, **"The Tariff for the Green Energy** shall be determined by the Appropriate Commission, which may comprise of the average pooled power purchase cost of the renewable energy, cross-subsidy charges (if any) and service charges covering all prudent cost of the distribution licensee for providing the green energy."

Draft rules on green hydrogen

The draft rules regarding green hydrogen say that **"Green hydrogen" is the hydrogen** produced using electricity from renewable sources. **The obligated entity including the Industries can also meet their Renewable Purchase Obligation by purchasing green hydrogen.**

The quantum of green hydrogen would be computed by considering the equivalence to the Green hydrogen produced from one MWh of electricity from the renewable sources or its multiple. The norms shall be notified by the Central Commission.

These draft rules also propose guidelines for green energy open access saying, **"The Appropriate Commission shall put in place regulations in accordance with this Rule to provide Green Energy Open Access to consumers who are willing to consume the Green energy.** All applications for open access of Green Energy shall be granted within a maximum of 15 days."

Provided that only Consumers who have contracted demand/sanctioned load of hundred kW and above shall be eligible to take power through green energy open access. There shall be no limit of the supply of power for the captive consumers taking power under green energy open access.

Provided further that reasonable conditions such as the minimum number of time blocks for which the consumer shall not change the quantum of power consumed through open access may be imposed so as to avoid high variation in demand to be met by the distribution licensee, the statement added.

India adds 2,488 MW solar capacity in April-June 2021; highest in 3 years: Report

Economic Times, 01/09/2021

Solar capacity addition in India jumped over 12-fold to 2,488 megawatt (MW) during April-June period of 2021 as compared to the year-ago period, according to Mercom India Research. **The solar capacity addition in the quarter under review was 19 per cent higher when compared to 2,090 MW installed in January-March (Q1) 2021,** the research firm said in its report titled 'Q2 2021 India Solar Market Update'.

"India added 2,488 MW of solar in the second quarter or Q2 of the calendar year 2021. The installations were up 1,114 per cent

year-over-year compared to 205 MW added in Q2 2020 when COVID crippled the sector," it said. Solar capacity addition in the period under review is the highest in a quarter since Q2 of 2018, the report said.

In January-June 2021, India added 4,578 MW (approximately 4.5 GW) of solar, a 251 per cent increase compared to the same period of last year. Installations exceeded 3.2 GW (gigawatts) of solar installed in all of calendar year 2020. Installations were significantly higher than the previous quarter's despite various state level lockdowns due to COVID, the report said. Raj Prabhu, CEO of Mercom Capital Group said even with a strong quarter, the industry continues to battle uncertainties around higher component costs and logistics issues.

With duties and import restrictions, purchasing quality solar components at the best price will be the biggest challenge for the industry. He further said the demand for building large-scale projects is extremely high, while auctions have slowed down. The government focus has shifted towards building domestic manufacturing capacities. According to the report, at the end of June quarter 2021, cumulative solar installations reached 43.6 GW.

India's large-scale solar project development pipeline stands at 52.8 GW, along with 28 GW of projects tendered and pending auction at the end of Q2 2021.

India could lead hydrogen energy output with price below \$1 a kg in a decade: Mukesh Ambani

Economic Times, 03/09/2021

Billionaire Mukesh Ambani, who is gearing up Reliance Industries for an aggressive foray into clean energy, expects India to emerge

as a leader in green hydrogen technology by becoming the first country to produce it under \$1 per kg.

Ambani said that while the world is making efforts to make green hydrogen the most affordable fuel option by bringing down its cost to initially under \$2 per kg, India can set an "aggressive target" for breaching the \$1 mark.

"Efforts are on globally to make green hydrogen the most affordable fuel option by bringing down its cost to initially under \$2 per kg. Let me assure you all that Reliance will aggressively pursue this target and achieve it well before the turn of this decade," Ambani said at the International Climate Summit 2021.

Prime Minister Narendra Modi has announced a National Hydrogen Mission for the country, in an attempt to push energy security for the country. Energy experts believe that clean energy sources like hydrogen technology would be at core for the global effort to move towards net zero carbon. "India has always set and achieved even more audacious goals. Am sure that India can set an even more aggressive target of achieving under \$1 per kg within a decade. This will make India the first country globally to achieve \$1 per 1 kilogram in 1 decade – the 1-1-1 target for green hydrogen," Ambani said.

Earlier this year, Ambani announced RIL's clean energy business plan that will entail three parts — a Rs 60,000-crore investment in four giga-factories that will manufacture and fully integrate all critical components for the business; a Rs 15,000-crore infusion in building the value chain, partnerships and future technologies, including upstream and downstream industries; and repurposing the company's engineering, project

management and construction capabilities toward clean energy.

The company has already started work to build the four giga-factories-- an integrated solar photovoltaic module factory, an advanced energy storage battery factory, an electrolyser factory for the production of green hydrogen, and a fuel cell factory for converting hydrogen into power.

Global energy majors are making a move towards cleaner fuels as climate change concerns are pushing countries to take measures. Pension funds, insurers and other environmentally conscious investors are changing their portfolio in favour of clean energy, pushing companies to scale up their exposure to clean energy.

India, UK agree \$1.2 billion clean energy investment boost at Economic and Financial Dialogue

Economic Times, 02/09/2021

New steps to tackle climate change and boost investment were announced on Thursday at the 11th India-UK Economic and Financial Dialogue (EFD) between Finance Minister Nirmala Sitharaman and UK Chancellor Rishi Sunak, driving forward the bilateral agenda of an Enhanced Trade Partnership.

Sitharaman and Sunak, who met virtually for the annual summit, signed off a USD 1.2-billion package of public and private investment in green projects and renewable energy to boost India's green growth ambitions.

This includes a USD 1 billion investment from CDC, the UK's development finance institution in green projects in India, joint investments by both governments to

support companies working on innovative green tech solutions, and a new USD 200 million private and multilateral investment into the joint Green Growth Equity Fund which invests in Indian renewable energy.

A new Climate Finance Leadership Initiative (CFLI) India partnership has also been agreed to mobilise private capital into sustainable infrastructure in India, including clean energy like wind and solar power and other green technologies.

"The UK and India already have strong ties, and today we've made important new agreements to boost our relationship and deliver for both our countries," said Sunak. "Supporting India's green growth is a shared priority so I'm pleased that we've announced a USD 1.2bn investment package, and launched the new CFLI India partnership, to boost investment in sustainable projects in India as the UK gears up to host COP26," he said.

"With trade negotiations also coming up, our agreement to be ambitious when considering services will create new opportunities in both markets, supporting jobs and investment in the UK and India," he said. At the EFD, both ministers agreed to be ambitious when considering services in the upcoming UK-India trade negotiations and strengthen the financial market collaboration efforts already underway to finance growth.

The UK also welcomed India's recent decision to lift the Foreign Direct Investment (FDI) cap in the insurance sector from 49 per cent to 74 per cent which will help British firms to take greater ownership of their operations in India. According to UK government statistics, UK-India bilateral trade stands at around 18 billion Pounds in

2020 and supports nearly half-a-million jobs in each other's economies.

The countries have set a goal to double trade by 2030, including through negotiating a Free Trade Agreement (FTA) following an Enhanced Trade Partnership (ETP) agreed between Prime Minister Narendra Modi and his UK counterpart Boris Johnson earlier this year.

The joint statement signed at the end of the EFD covers a broad range of areas, including the financial services and opening up new opportunities for UK financial firms and helping more Indian companies access finance in the City of London. According to official figures, over the last five years, Indian firms have raised GBP 13.41 billion in Masala, dollar and green bonds listed on the London Stock Exchange (LSE), with the LSE dubbed the "largest global centre for Masala Bonds".

The two governments also welcomed the launch of the India-UK Global Innovation Partnership under the Trilateral Development Cooperation Framework, wherein India and UK will co-finance equally a fund over 14 years to support the transfer and scale up of climate-smart inclusive innovations from India to third countries.

Progress of the UK-India strategic partnership on GIFT City (Gujarat International Finance Tec-City), India's first International Financial Services Centre (IFSC), to promote links between GIFT City and the UK financial services ecosystem was also highlighted in the EFD joint statement.

"Both countries welcome that UK banks are the first international banks to set up in GIFT City, underlining the strength of UK-India cooperation. Both sides agree to explore facilitating the dual listing of green, social and sustainable bonds on the London Stock

Exchange (LSE) and IFSC exchanges, to enable firms to raise foreign capital," the statement notes.

Green hydrogen: PLI scheme for electrolyser manufacturing on the cards, says Union power minister RK Singh

Financial Express, 09/09/2021

To expedite the uptake of green hydrogen, the government will come up with a production linked incentive (PLI) scheme for investors in electrolyser manufacturing, Union power minister RK Singh said on Wednesday. Electrolysers are used to produce green hydrogen using electricity generated from renewable sources such as solar and wind plants.

While delivering the keynote address at a webinar on green hydrogen organised by the Council on Energy, Environment and Water (CEEW), Singh said that as much as 8,800 mega-watt (MW) of electrolyser capacity is required to meet the demand of the obligated industries, if they are mandated to source even 10% of their requirements through domestic green hydrogen. The purchase obligation will be later increased to 20-25%.

As FE reported earlier, the government intends to put green hydrogen consumption obligations on fertiliser producers and petroleum refiners to create a hydrogen value-chain in the country and bring down the costs of hydrogen production. Though there are sufficient capacities of installed and upcoming renewable energy generation sources in the country, the shortage of electrolysers can become a roadblock for meeting the estimated requirement on green hydrogen.

The PLI scheme can begin with manufacturing capacity of around 10,000 MW. According to experts, such electrolyser manufacturing capacity may require investments between Rs 15,000-20,000 crore. "We are also proposing to come up with viability gap funding (VGF) for green hydrogen in heavy mobility," Singh said, adding that the steel sector may also be roped in to use domestic green hydrogen.

Prime Minister Narendra Modi, on August 15, had announced the National Hydrogen Mission as the government explores ways to reduce dependence on imported products such as crude oil and natural gas. Though the current electrolyser capacity globally is around 2,000 MW, given the potential of green hydrogen becoming the emissions-free future fuel, many countries have charted out plans to set up large electrolyser capacities. The European Union plans to install 6,000 MW of electrolyser capacity by 2024 and 40,000 MW by 2030, by when it hopes to produce 10 million tonne of green hydrogen. The cost of electrolyzers has the highest share in the total production cost of green hydrogen, which currently needs a sizeable sum of \$3.6-5.8/kg to manufacture.

Reliance Industries chairman Mukesh Ambani recently said that the company "will aggressively pursue" the target of bringing down the cost of green hydrogen to under \$2 per kg "well before the turn of this decade", and "India can set an even more aggressive target of achieving under \$1 per kg within a decade". An electrolyser manufacturing plant will be a part of the Rs 60,000-crore Dhirubhai Ambani Green Energy Giga Complex which RIL is currently developing in Jamnagar.

State-run Indian Oil recently said it will build the nation's first green hydrogen plant at its Mathura refinery, using electricity from its wind power project in Rajasthan. NTPC also plans to produce green hydrogen on a commercial scale from part of the electricity generated by the solar panels to be installed in its upcoming 4,750 megawatt renewable energy park at Rann of Kutch.

Currently, the power generator is running a pilot project in its Vindhyanchal unit, where the cost of hydrogen is estimated to be around \$2.8-3/kg. JSW Energy said in July its subsidiary JSW Future Energy has entered into a framework agreement with Australian Fortescue Future Industries to collaborate on green hydrogen production. US-headquartered renewable energy start-up Ohmium International has also recently launched a green hydrogen electrolyser gigafactory in Bengaluru.

6. Mobilités électriques

EV makers should give 'significant discount' to buyers who have scrapped old cars, says Gadkari

Economic Times, 01/09/2021

Electric vehicle manufacturers should offer significant discount to buyers who have scrapped their old cars that were powered by internal combustion engines, Union minister Nitin Gadkari said on Tuesday. The Road Transport and Highways Minister also said the government intends to have Electric Vehicle (EV) sales penetration of 30 per cent for private cars and 70 per cent for commercial vehicles by 2030.

Addressing a virtual event, he said the government has planned to shift public transport and logistics to 100 per cent

electric but did not provide specific details in this regard. "EV manufacturers should offer significant discount to EV buyers who scrapped their old IC engine cars," he said.

Recently, an official at the road transport and highways ministry said the Centre will soon ask state governments to provide up to 25 per cent rebate on road tax for vehicles that are purchased after scrapping old vehicles under the new proposed scrappage policy.

Announced in the Union Budget 2021-22, the policy provides for fitness test after 20 years for personal vehicles while commercial vehicles would have to undergo fitness test after completion of 15 years.

"The government intends to have EV sales penetration of 30 per cent for private cars, 70 per cent for commercial vehicles, 40 per cent for buses, and 80 per cent for two and three-wheelers by 2030," Gadkari said.

The minister said both battery electric vehicle and fuel cell vehicle technologies are complementary to each other and are all set to overtake fossil-run automotive by 2050. Noting that the EV market is completely consumer-driven, Gadkari said indigenous low-cost battery technology, localisation of EV components, and huge domestic demand would further make EV the most affordable means of transport in the coming years.

The minister asserted that Indian vehicles will be at par with international standards in terms of crash safety, body designs, fuel efficiency and mass emission norms. Talking about renewable energy, Gadkari said green-hydrogen is the fuel for the future and this will be used as a fuel in heavy long-distance trucks, buses, marine and aviation.

"I am encouraging research in development of low cost electrolyzers and innovative ideas such as utilising municipal sewage water for (energy) generation. Ideas like these can completely transform the energy landscape in India," he noted.

Referring to the recently launched the National Automobile Scrappage Policy, he said India will have a well-established network of vehicle scrapping units to deal with old, unfit and polluting private and commercial vehicles.

Jio-bp partners with BluSmart to set up EV charging infrastructure in India
Mint, 09/09/2021

Jio-bp, the fuels and mobility joint venture between Reliance Industries Limited and bp, announced a partnership with BluSmart, India's first and largest all-electric, ride-hailing platform to set up a network of commercial large scale EV charging stations. As part of the partnership, Jio-bp will set up these stations for passenger electric vehicles and fleets across the country.

BluSmart, through its all-electric fleet, has been disrupting the mobility landscape by providing reliable, zero-surge and zero-tailpipe emission ride-hailing service in Delhi NCR. Running the largest fleet of EVs, BluSmart aims to expand its network into other major cities across India.

"Leveraging bp's learnings from the UK with bp Pulse, where they have the country's largest EV charging network, from Germany through their Aral brand, Jio-bp intends to bring in the latest in EV technology to our consumers," said Harish C. Mehta, chief executive officer, Jio-bp, and added that in line with the New Energy vision of RIL, its advanced mobility teams are working tirelessly to create cleaner and smarter ways

for Indians to travel. "Our partnership with BluSmart is a significant milestone in our vision of offering new age low-carbon emitting, cleaner and more affordable options," he said.

Through the partnership, both companies will collaborate in planning, development and operation of EV charging infrastructure, at suitable locations across cities where BluSmart operates. With the first phase rollout in the National Capital Region, these EV charging stations will be capable of accommodating a minimum of 30 vehicles at each station and will be concentrated in urban areas.

"BluSmart operates large EV charging Superhubs powering the burgeoning EV fleet. EV superhubs are the future of EV charging as it provides seamless charging access to consumers and ride-hailing fleets and we will be jointly building some of the largest EV Superhubs in the world," said Anmol Jaggi, co-founder and CEO, BluSmart.

As an integrated EV infrastructure player, Jio-bp is actively partnering with leading OEMs, technology, and platform players for setting up its EV fixed charging stations with a format-specific approach for all vehicle categories.

7. Environnement et qualité de l'air

India unveils 2200 'life-saving' water-testing labs

Hindustan Times, 01/09/2021

An app-based digitised platform for testing water quality for standard safety parameters, launched under the flagship Jal Jeevan Mission, is now functional in 2,200

water labs across the country, an official said, requesting anonymity.

Public health officials say the new facilities will help improve health outcomes, especially in children, and also help private individuals, public health engineering authorities and panchayats where piped drinking water has been provided, to monitor water quality.

"Anyone can submit a sample and source coordinates of piped water supply will also be captured. The water-quality testing reports thus generated will be delivered online to the person giving the water sample and also feed a central database for continuous monitoring. This can prove to be life-saving in areas with high contamination," the official said.

The digitised platform has been developed with health inputs and safe-water parameters from the Indian Council of Medical Research, the official said. The samples are tested for a range of chemical, bacterial and other pathogenic contamination.

According to estimates from the Indian Council of Medical Research, water-borne rotaviruses cause 8,72,000 hospitalisations of mostly children annually and an estimated 78,000 die from it in India.

The software platform, Drinking Water Quality Monitoring and Surveillance, has been developed by the state-run National Informatics Centre.

Unsafe water is a major drag on the country's public health. "Our healthcare focus has been tilted towards child and maternal health, which also is by no means adequate. Unsafe water is a major cause of child

disease burden,” said health economist Arup Mitra of the Institute of Economic Growth.

The country’s flagship programme to provide rural households with piped drinking water by 2024, the Jal Jeevan Mission, has expanded to cover more than 10 million homes in 61 districts notorious for Japanese Encephalitis-Acute Encephalitis Syndrome, a brain fever in children that needs a multi-pronged approach to tackle, according to health experts.

The Jal Jeevan Mission prioritises the provisioning of tap water supply to water quality-affected habitations. Thus far, of the 27,544 arsenic and fluoride-affected habitations, states have made provisions of potable water supply in 26,492.

Under the mission, local communities are also trained to lead water-quality surveillance. “Locals are being trained on water quality testing using field test kits too,” the official cited in the first instance said.

Nearly 820 million people in 12 major river basins of the country face “high to extreme” water stress. Getting to a water source is a long haul in rural India. According to a National Sample Survey Organisation survey, in Jharkhand, it takes women 40 minutes one way, without taking into account the waiting time. In Bihar, it’s 33 minutes. Rural Maharashtra clocks an average of 24 minutes.

The piped water mission, launched by Prime Minister Narendra Modi in 2019, aims to change this. The programme has entered a critical stage, as officials race to meet the deadline amid a disrupting Covid second wave.

Delhi has got its first smog tower, but why many experts are not impressed

India Today, 26/08/2021

Delhi’s air pollution has been a matter of worry for years now and several attempts have been made by governments to control it. Come October, the pollution begins, and it continues till the end of the winter. Just ahead of this season, the Delhi government has inaugurated its first smog tower at Baba Kharag Singh Marg in Connaught Place, but many environmentalists say this kind of project can’t provide a permanent solution to a complicated problem like air pollution which has many dimensions and might prove to be a costly affair in a resource-hit city like Delhi.

At the same time, the Delhi government is looking forward to successfully starting the smog tower and then monitoring the data for the next two years. If the experiment is successful, authorities will work to get more such towers installed in the capital. There is an ongoing debate on the government’s priority to fight pollution in months to come. India.

Today talked to various environmentalists, both from the government and from private organisations, on the new initiative and its workability in Delhi. There are many contradictory views about how resources can be utilised better to address the problem of bad air quality.

The first smog tower has been portrayed by the Delhi government as one of the new initiatives to control pollution in a specific area. But most environmental scientists working on this problem for years are not very convinced. Anumita Roy Chowdhury, Executive Director, Research and Advocacy,

Centre for Science and Environment (CSE), has a very critical view of the new initiative.

She told India Today, **"We have no data from across the world where smog towers have helped to clean the ambient air. Smog towers across the world are not being installed as regulatory action. What we know in China and in Denmark are more private initiatives and have nothing to do with government policy. We do not have any hard data which shows that it improves the air quality."**

"In Denmark, it was a recreational venture in a park, but we don't have any data. It is now up to Delhi Pollution Control Committee (DPCC) and Central Pollution Control Board (CPCB) to do a proper assessment and validate and show how effective it is. But we are not promoting it as these are expensive devices and this money should be spent to cut emissions at source rather than doing such a job."

Another eminent environmental crusader, Bhavreen Kandhari is not just against such kinds of **"band-aid solutions"**, but she has also worked on a few such towers being installed by East Delhi MP Gautam Gambhir. **Bhavreen said, "I wrote to the Chief Justice of India (CJI) about the pollution issue. The data should be transparent. Even we are monitoring data from the smog tower put up by Gautam Gambhir. From the initial analysis, we found that there is hardly any impact on pollution and these are absolutely ineffective. For the last 10 months, we have been monitoring the data from these smog towers and will come up with details in the next few days."**

But the government has a different point of view about these smog towers. Dr Anwar Ali Khan, a senior environmental scientist with

DPCC, who is in charge of the Smog Tower project, explained the whole technology and why Delhi should wait for the final outcome.

Khan said, **"We have now installed the tower and the impact assessment study will be done by IIT-Delhi and IIT-Bombay in the next two years. The technology which we have adopted is CFD (Computational Fluid Dynamics) developed by the University of Minnesota. The kind of particulate material which will be filtered will be up to 0.3 microns. The particles can be trapped through double filtration technology."**

"There are 8 sensors (2 each from four directions) installed in this tower, half of them will measure the quality of air before it enters, and half will measure the quality after the clean air will be released. The monitoring will be done by SCADA system and the real-time data would be displayed on the surface and website," he said.

The first smog tower project costs almost Rs 24 crore, and he has justification for this as well. **He said, "It's a new foreign technology and hence the cost is higher. But we have used 10 thousand filters in this smog tower to filter out different sizes of pollutants. Secondly, the height of the tower is approximately 24 meters with a 6-meter-high canopy so that aerodynamic flow can be maintained in the tower and the polluted air won't be mixed with the cleaned air. We have also installed 40 big fans which can clean air quantities up to one thousand cubic metres per second. The filters will also be changed regularly keeping the air pressure in mind."**

"We have never claimed that it will clean the air of a very big area, but with these towers, we can develop a clean air-breathing zone/park and we are planning such parks as rejuvenation centres. If this experiment is a success, the same can be replicated at smaller levels in societies and other areas like parks," he added.

Environmental experts advise govt to change strategy

While the government is justifying spending on the projects like smog towers which can clear the air in a vicinity of one square kilometre, environmentalists have a different approach towards the problem. Most said the government should work more seriously to control pollution at source and effort should be seen there, rather than on such kinds of projects.

Anumita Roy Chowdhury said, "Delhi already has a comprehensive clean air action plan, from vehicles, industries and waste management. A few things have happened but they need to do a lot more. For example, we have to completely eliminate waste burning in the city and for doing that the city should have a centralised segregated waste collection mechanism and should ensure that we should have a zero-landfill policy."

"Waste at landfill sites is being reused and reutilised so that it does not catch fire. For demolition and construction waste, these should be collected, recycled and brought back. In industrial areas, although they have started using clean fuel, fuels like coal should be completely closed. Particularly, they should focus on the small and medium industries in the city because these are still using dirty fuel. Enforcement is a big challenge and if you are burning so much

dirty fuel then how will you control the pollution," she said.

Vehicular pollution is also a very important component of air pollution which contributes more than one-third of the pollution in the capital. **The Delhi government has kept a target that 25 per cent of total vehicles should be electrified by 2024. But right now only 1.3 per cent of vehicles are electrified.** To achieve the target of 25 per cent from here in three years will be a big task. More buses and integration of buses and metro trains are also quite important and even cycling infrastructure should be increased.

The Delhi government has also initiated a few projects to control pollution at source, which include tackling industrial pollution, making the clean fuel of PNG mandatory, asking restaurants to run their tandoors and stoves on green fuel rather than coal, and controlling dust pollution from construction sites through sprinklers. But there is still a major concern over the implementation of these policies through a proper vigilance **mechanism and that's why despite all efforts** the results are not showing on the ground.

Now, 42.2% India rural households have water connection

Mint, 07/09/2021

NEW DELHI: **As part of India's push for clean drinking water supply for all, 42.2% rural households have been provided with tap water connections since the launch of marquee Jal Jeevan Mission (JJM) in 2019.**

"Now, out of total 19.23 crore rural households, more than 8.11 crore (42.2%) rural families of the country have assured

potable tap water supply in their homes," the ministry of Jal Shakti said in a statement.

While the Rs3.6 trillion JJM scheme aims to ensure assured tap water supply or 'Har Ghar Jal' to all rural households by 2024, several states have presented their commitment to provide tap water connections to all rural households before 2024. However, the progress in Jharkhand that plans to provide all households with a functional house tap connection by 2023-24 has been slow according to Jal Shakti ministry.

"Jharkhand State is planning 100% FHTCs to all households by 2023-24. Out of 59.24 lakh rural households in the State, 8.60 lakh (14.5%) households tap water connections," the statement said and added, "However, in comparison to national average of 23% increase in providing tap water supply in rural households, the progress made in Jharkhand is very slow."

Jal Shakti minister Gajendra Singh Shekhawat has been tasked with providing tap water connections to all rural households under the JJM by 2024, drawing comparisons with the Ujjwala scheme.

"In 2020-21, Rs572.24 crore central grant was allocated to the State but it could draw only Rs143.06 Crore and surrendered ₹429.18 crore meant for tap water supply in rural areas due to slow pace of implementation. To assist the State to provide tap water supply to every household by 2024, Union Minister, Jal Shakti, Shri Gajendra Singh Shekhawat has increased the Central allocation four-folds to ₹2,479.88 Crore. With this enhanced Central allocation, and matching State's share of ₹2,617.81 Crore, Jharkhand has an assured availability of ₹5,235.62 Crore under Jal Jeevan Mission for water supply works in 2021-22. However, the

State is yet to draw the first tranche of Central allocation due to poor physical and financial progress," the statement added.

In July 2019, the Union government had formed a new ministry, Jal Shakti, to address all water issues in the country. The ministry was formed by integrating it with other existing ministries, such as water resources and the ministry of drinking water and sanitation.

"Total budget for Jal Jeevan Mission in 2021-22 is Rs 50,011 Crore. With states own resources and ₹26,940 Crore as 15th Finance Commission tied grant for water and sanitation to RLBs/ PRIs, this year, more than Rs1 lakh Crore are being invested in rural drinking water supply sector," the statement said.

India moving away from coal slowly, considerable progress by states: Study
Economic Times, 14/09/2021

India alone is home to 7 per cent (21GW) of the global coal project pipeline, which is 56 per cent of South Asia's total, a study showed on Tuesday, with the country moving slowly away from coal at a national level, however considerable progress is being made at the state level.

Four countries in South Asia -- Bangladesh, India, Pakistan and Sri Lanka -- have previously considered or are currently considering coal. Together, they account for 13 per cent of the global pre-construction pipeline (37.4GW), said a new report by climate change think tank E3G that assessed the global pipeline of new coal projects.

It finds there has been a 76 per cent reduction in proposed coal power since the Paris Agreement was signed in 2015, bringing

the end of new coal construction into sight.

The report says Sri Lanka, Bangladesh and Pakistan are showing leadership in cancelling projects and making political statements that they will no longer pursue new coal power.

In India, significant socio-economic headwinds to new coal have led to state-level commitments to no new coal, opening a pathway for national-level progress. Having considered new coal-fired power projects for a number of years, Sri Lanka is now leading the way in South Asia.

The report finds India is moving slowly away from coal at a national level, however considerable progress is being made at the state level. Between 2019 and 2021, public officials from the states of Gujarat, Chhattisgarh, Maharashtra, and Karnataka announced their intention to not build new coal power plants.

According to a 2019 study, many more states have the potential to move away from new coal power due to a combination of socio-economic and environmental factors, particularly the rapidly increasing cost competitiveness of new renewables.

India's pre-construction pipeline of 21GW is the second largest in the world. India is currently constructing 34GW of new coal capacity, more than the next seven countries combined. This is on top of India's considerable existing operating fleet of 233GW (11.3 per cent of the global total).

Yet since 2015, India has seen over 326 GW of projects cancelled, including more than 250GW of shelved capacity. This means almost 7GW has been scrapped for every 1GW that has gone into operation.

Conditions are now ripe for India's remaining pipeline to not continue into construction, says the report. The cost implications of building new coal are starker in India than in many other countries, with clear evidence that even a country with large domestic coal reserves can struggle to make coal-fired power economically viable.

Average coal plant load factors have fallen consistently, from 61 per cent in 2018 to 53 per cent in 2021, making it more expensive to run existing plants and highlighting the folly of building new coal. Meanwhile, renewable tariffs in India are some of the lowest in the world, reaching a record low of Rs 1.99/kWh (\$ 0.026/kWh) in December 2020. This is cheaper than the majority of the existing Indian coal fleet, and all the new coal projects. Renewables backed by storage are also increasingly competitive.

The report finds India's power distribution companies (discoms) are already in dire financial health, with debt expected to touch \$80 billion in FY22.

Even the under-construction pipeline of coal projects (34GW) face major stranded asset risk, according to IEEFA's June 2021 study. Stressed and stranded assets are already a reality, for example the seven-plus coal power units totalling 7410 MW that have either been ordered to be liquidated or are heading for liquidation, six of which were in early stages of construction.

Most private developers have little appetite for coal and are instead pivoting to renewables, making it increasingly hard to fund new coal projects. Recent analysis also suggests that India may not even need additional coal capacity to meet its future electricity demand and could even begin

retiring older coal plants and still meet demand projections.

Collectively, lower than expected power demand growth, cheaper renewables, falling load factors, and difficulty in securing finance highlight the headwinds and risks to continued pursuit of new coal in India, says the report.

While Indian national politics have hesitated to engage in discussion on moving away from coal for multiple reasons, progress is being made at the sub-national level, with several states considering pivoting away from new coal. Senior government officials in Gujarat, Chhattisgarh, Maharashtra and

Karnataka have all signalled their intent to not pursue new coal power projects.

India's pursuit of coal has typically been justified on energy security, affordability, and development arguments, but new coal does not make economic sense for India anymore.

Renewable energy can deliver these outcomes better, quicker and cheaper, and without the negative socio-economic, health, and environmental impacts of coal, concludes the report.

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