MINISTÈRE
DE L'ÉCONOMIE,
DES FINANCES
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Liberté
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REVUE DE PRESSE SECTORIELLE
ENERGIE ET DEVELOPPEMENT DURABLE

UNE PUBLICATION DU SERVICE ÉCONOMIQUE REGIONAL
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En bref

Infrastructures

- Reliance Industries Ltd (RIL) s'est vu confier le développement du premier parc logistique multimodal (MMLP) à Mappedu, dans le district de Thiruvallur de l'État du Tamil Nadu.
- La Banque Mondiale souligne que pour répondre aux besoins massifs d'investissement dans les infrastructures (850 Md$ sur les 15 prochaines années), l'Inde doit améliorer les possibilités de financement des organismes locaux urbains, mieux impliquer le secteur privé dans la mise en œuvre des projets et améliorer les flux de revenus.
- Un appel d'offres a récemment été lancé pour la mise en place d'un plan directeur global à horizon 2047 pour les zones portuaires de Mumbai.

Ferroviaire

- Avec 81,51 % du réseau électrifié, Indian Railways progresse dans sa trajectoire de décarbonation à horizon 2030
- Alstom a remporté un contrat d'une valeur de 98 M EUR pour la conception, la fabrication et la mise en service de 78 rames de métro de pointe pour Chennai Metro Rail Limited.
- Pour une commande d'une valeur de 312 M EUR, Alstom fabriquera, fournira, testera et mettra en service 312 rames de métro à écartement standard pour l'extension des lignes rose et magenta du métro de Delhi.

Développement urbain

- Le gouvernement du Gujarat annonce que 100% des foyers de l'État disposent d'un accès à l'eau potable, contre 54 % pour l'ensemble des foyers ruraux d'Inde.

Energies fossiles et biocarburants

- NTPC, le plus grand producteur d'électricité public du pays affirme qu'il donne la plus grande priorité aux énergies renouvelables, mais qu'il est également nécessaire d'augmenter les capacités installées de centrales à charbon.

- Les Ministres de l'Electricité et de l'Environnement envisagent de réduire l'approvisionnement en charbon des centrales à charbon qui ne respectent pas la part minimum de biomasse dans le combustible utilisé (5 %).

Electricité et énergies renouvelables

- New Delhi n'a pas été en mesure de donner son feu vert sur le début des négociations avec le G7 sur un JETP, principalement en raison de l'opposition du Ministre de l'Électricité
- L'accord pour le développement des projets hydroélectriques Wah Umiam Stage-I de 50 mégawatts et Wah Umiam Stage-II de 100 mégawatts a été signé entre le gouvernement du Meghalaya et la North Eastern Electric Power Corporation Ltd.
- Tata Power se concentre sur le marché du solaire résidentiel pour atteindre ses objectifs de 80 % d'énergies propres de sa capacité de production en 2030 et atteindre un bilan carbone net nul d'ici 2045.
- Le ministère indien des énergies nouvelles et renouvelables a publié le premier projet d'appel d'offres pour des concessions de fonds marins dans le Tamil Nadu qui pourraient générer jusqu'à 4 GW d'énergie éolienne en mer.
- La feuille de route indienne pour devenir une économie d'hydrogène vert, en cours de finalisation et qui necessitera des investissements à hauteur de près de 35 Md EUR d'ici 2030, jouera un rôle majeur dans l'atteinte conjointe de ses objectifs climatiques et de développement économique.

Mobilités électriques

- L'administration de Chandigarh a mis en service 60 bus électriques climatisés et prévoit d'électrifier intégralement sa flotte de bus d'ici 2028.
- Alors que l'Inde cherche à renforcer son industrie des véhicules électriques (VE) et que plusieurs entreprises investissent dans ce secteur, les industriels sont partagés sur la pertinence d'un système d'échange de batteries en termes de coût, d'efficacité et d'interopérabilité.

Environnement et qualité de l'air

- Face à un budget contraint, le gouvernement fusionne deux politiques publiques en place pour atteindre les objectifs fixés en termes de restoration des terres dégradées (26 M hectars d'ici 2030) et de lutte contre la désertification dans le pays.
- Un récent rapport du cabinet de conseil McKinsey explique comment les fermes et les usines vertes, les voitures électriques et l'augmentation des terrres agricoles peuvent aider l'Inde à devenir une économie zéro émission nette d'ici 2070.
- L'Inde a soumis sa stratégie long terme de développement à faible taux d'émission à la Convention-cadre des Nations unies sur les changements climatiques (CCNUCC) lors de la COP 27.

Revue de presse

1. Infrastructures

Reliance to develop multi-modal logistics park in Tamil Nadu.

The Economic Times, 11/11/2022

Synopsis
Reliance Industries Ltd (RIL) has been awarded the work to develop the first multi-modal logistics park (MMLP) at Mappedu in Thiruvallur district of Tamil Nadu, the government said on Friday. MMLP Chennai at Mappedu is being developed in an area of 184.27 acres. The estimated project cost is Rs 1,424 crore. Total concession period is 45 years.

Reliance Industries Limited (RIL) has bagged India's first multi modal logistics park (MMLP) that has been awarded by the Ministry of Road, Transport, and Highways. It is estimated to a cater to 7.17 Million Metric Tonne (MMT) cargo in horizon period of 45 years.

An official statement said this 184.27 acres park award to RIL is in Chennai. This will be developed in three phases with estimated developer investment of Rs 783 crores. The Phase-1 development is targeted within 2 years (by 2025) leading to commercial operations. The total estimated project cost is Rs 1424 crores while the total concession period is 45 years.

Under the PM Gati Shakti National Master Plan (NMP), the Transport Ministry is developing 35 MMLPs, out of which 15 are prioritized in the next three years.

These MMLPs lay the foundation of development of large-scale infrastructure projects in Public Private Partnership (PPP) mode for which both the Central Government and State Government have come together. A government special purpose vehicle (SPV) was formed for the same amongst National Highways Logistics Management Limited, Rail Vikas Nigam Limited, Chennai Port Authority, and Tamil Nadu Industrial Development Corporation.

The SPV will provide 4 lane NH connectivity of 5.4 kilometres (km) at an estimated cost of Rs 104 crores and a new rail siding to the MMLP of 10.5 km, costing of Rs 217 crores.

India needs to invest nearly $55 billion a year in urban infra: World Bank report

The Economic Times, 14/11/2022

Synopsis
The report underlined the need to improve the financing avenues for India's urban local bodies, better involve the private sector in project implementation, and improve revenue streams by leveraging more private and commercial investments.

India will need to invest $840 billion over the next 15 years to upgrade its urban infrastructure if it is to effectively meet the needs of its fast-growing population in cities, a World Bank report said Monday.

The report, titled 'Financing India's Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action', pitched a host of policy actions including switching to a more stable, formula-based, and unconditional fiscal transfer regime at both state and central

levels for urban local bodies and creation of a dedicated structure such as a Cities Investment Support Unit. The unit can focus on infrastructure finance to assist specific states and cities with regulatory reform, transaction preparation and implementation for private financing including borrowing and private-public partnership transactions, it said.

The report underlined the need to improve the financing avenues for India's urban local bodies, better involve the private sector in project implementation, and improve revenue streams by leveraging more private and commercial investments.

"Only 5% of the infrastructure needs of Indian cities are currently being financed through private sources," it said, adding that with the government's annual urban infrastructure investments only topping $16 billion (2018), much of the gap would require private financing.

Currently, the central and state governments finance more than 75% of city infrastructure, while urban local bodies (ULB) finance 15% through their own surplus revenues.

"Cities in India need large amounts of financing to promote green, smart, inclusive, and sustainable urbanisation. Creating a conducive environment for ULBs, especially large and creditworthy ones, to borrow more from private sources will therefore be critical to ensuring that cities are able to improve living standards of their growing populations in a sustainable manner," said Auguste Tano Kouame, country director, World Bank, India.

By 2036, as many as 600 million people will be living in cities in India, representing 40% of the population, the report highlighted, observing that it was likely to put additional pressure on the already stretched urban infrastructure and services of cities.

It said investment in urban infrastructure and services remained significantly short of needs across India and that private financing through borrowing and public private partnership (PPP) had not attained anywhere near the desired scale and volume.

Push for policy reforms

Over the medium term, the report suggested a series of structural reforms including those in the taxation policy and fiscal transfer system - which can allow cities to leverage more private financing. In the short term, it identified a set of large high-potential cities that have the ability to raise higher volumes of private financing.

Mumbai: Port Authority eyes for development of port and traffic areas

Financial Express, 28/11/2022

A tender was recently floated to look for a professional consultant who could take care of the proposed comprehensive master plan 2047 for the port areas

In what could boost the state's infrastructural orientation, the Mumbai Port Authority is set to devise a 25-year master

plan for development of its ports and traffic scenarios.

According to a report published by The Indian Express, a tender was recently floated to look for a professional consultant who could take care of the proposed comprehensive master plan 2047 for the port areas.

In order to achieve efficient logistics for zooming out the economy, the master plan also includes cargo (future industrialisation in the hinterland), land use planning and optimisation, hinterland multimodal connectivity etc. IE quoted an official as saying that the proposed master plan will follow the Union Budget 2022, which made a blueprint to achieve the Prime Minister Office's vision of India in its 100th Year of Independence, which has been christened 'Amrit Kaal'.

2. Ferroviaire

Moving towards achieving Net Zero Carbon Emission: Indian Railways achieves 81.51% electrification of total Broad Gauge network

Financial Express, 15/10/2022

It is pertinent to mention here that on many occasions Prime Minister Narendra Modi has stressed the need for Net Zero Carbon Emission in the country.

Adding another feather to its cap, Indian Railways (IR) achieved 81.51% electrification of the total Broad Gauge (BG) network in India. With this, it is one step closer to achieving Net Zero Carbon Emission by 2030.

"Indian Railways achieves 81.51% electrification of the total Broad Gauge network. With this, Indian Railways is steadily moving towards achieving Net Zero Carbon Emission by 2030," tweeted Darshana Jardosh, Minister of State for Railways and Textiles, Government of India (GOI), on Friday,

IR has embarked upon an ambitious plan for the electrification of its complete Broad Gauge network. It would not only result in better fuel energy usage resulting in increased throughput, and reduced fuel expenditure but also savings in precious foreign exchange.

During the financial year (FY) 2022-23, till September 2022, IR has achieved 851 Route Kilometers (RKMs) as compared to 562 RKMs during the corresponding period of FY 2021-22. It is 51.4% more than the previous year's figures for the corresponding period. The target set for electrification during this Financial Year is 6500 RKMs, informed the Ministry of Railways.

It is worth mentioning here that during 2021-22 record electrification of 6,366 RKMs was achieved in Indian Railways' history. Earlier, the highest electrification was 6,015 RKM (during 2020-21). As on 30 September 2022, out of 65,141 RKM of the BG network of IR (including KRCL), 53,098 BG RKM have been electrified, which is 81.51% of the total BG network.

It is pertinent to mention here that on many occasions Prime Minister Narendra Modi has stressed the need for Net Zero Carbon Emission in the country.

Alstom wins Rs 798 crore order to manufacture 78 coaches for Chennai Metro

Financial Express, 11/11/2022

These new metro cars will operate on the 26 km corridor, a part of Phase-II, between Poonamallee Bypass and Light House through 28 (18 elevated and 10 underground) stations.

French rolling stock manufacturer Alstom on Friday said it has bagged a contract worth 98 million euro (about Rs 798 crore) to design, manufacture and commission 78 advanced metro coaches from Chennai Metro Rail Limited (CMRL). These new metro cars will operate on the 26 km corridor, a part of Phase-II, between Poonamallee Bypass and Light House through 28 (18 elevated and 10 underground) stations.

The scope of the contract includes manufacturing 26 metro trains (three-car configuration) that can operate at a top speed of 80 kmph as well as training personnel. With a 25 KV power supply for optimal energy efficiency, Alstom's Metropolis metros will ensure safe and reliable passenger transport for over 11 million citizens of the city. Additionally, the overall project will significantly contribute towards socio-economic development by connecting key zones.

The metro trains are designed and engineered to run driverless enabled with Unattended Train Operations (UTO). These trains can completely run-on signals and their operations will be monitored from the Operations Control Centre (OCC). In line with the government's 'Make in India' vision, these metro cars will be 100 per cent indigenous and manufactured at one of Alstom's largest urban rolling stock manufacturing facilities in Sricity, Andhra Pradesh.

This facility has an annual capacity of producing 480 cars and a strong portfolio of catering to several domestic and international metro projects."Our manufacturing journey in India began with the trains for Chennai Metro Phase-I in 2014, which was also the first Rolling Stock order win for us in the country. This new win brings us immense pride and we are honoured to be reliable partners in improving Chennai's urban transportation network," said Olivier Loison, Managing Director – of Alstom India.

Previously, Alstom has manufactured and delivered 208 metro cars for the 54 km of the first phase and extension of Corridor-I from the Airport to Wimco Nagar and Corridor-II from Chennai Central to St Thomas Mount. "The advanced trains delivered by Alstom have been operating on our metro lines for many years now, proving their strong capability to cater to the Indian market.

"We are confident that the Phase II project will provide better connectivity with minimal impact on the environment and benefit the lives of millions of people living in the city," said Rajesh Chaturvedi, Director – Systems & Operations of Chennai Metro Rail Limited. Alstom has successfully delivered metro trains for the cities of Delhi, Chennai, Lucknow, and Kochi, and is currently manufacturing for Mumbai Metro Line 3, Agra-Kanpur metro, and Indore-Bhopal projects.

Alstom wins bid to supply 312 metrp cars for Delhi metro.

The Economic Times, 17/11/2022

Synopsis

Alstom will be manufacturing, supplying, testing, and commissioning 312 standard gauge metro cars for the fourth phase expansion of the Delhi Metro. A statement from Alstom said that the order, worth €312

million includes Design and manufacturing of 234 standard gauge metro cars for plying on the extension of Delhi metro's Pink, and Magenta Lines.

Alstom will be manufacturing, supplying, testing, and commissioning 312 standard gauge metro cars for the fourth phase expansion of the Delhi Metro. A statement from Alstom said that the order, worth €312 million includes Design and manufacturing of 234 standard gauge metro cars for plying on the extension of Delhi metro's Pink, and Magenta Lines.

As part of this order, Alstom also said that it will also undertake maintenance for 15 years of 78 standard gauge metro cars, which it will manufacture, for the Silver Line between Aerocity and Tughlakabad.

Alstom will be supplying its Metropolis trainsets for this order and has till date delivered more than 800 metro cars that are in service for the Delhi Metro network.
The new trains will be built at Alstom's Urban Rolling Stock manufacturing site in Sricity (Andhra Pradesh).

Commenting on the development, Olivier Loison, Managing Director, Alstom India Cluster said, "Delhi NCR is amongst the largest urban clusters in the world. Faced with the realities of climate change, such megacities need reliable and sustainable public transport solutions. Our trains have a high recyclability of all materials and low-weight design to reduce energy consumption that will greatly contribute to minimising environmental impact in the region."

Presently, the Delhi Metro network consists of about 391 kilometres with 286 stations. The network now reaches Noida, Greater Noida and Ghaziabad in Uttar Pradesh, Gurgaon, Faridabad, Bahadurgarh and Ballabhgarh in Haryana.

The company has earlier delivered metro trains for Delhi, Chennai, Lucknow, Kochi and is currently delivering trains and signalling for Bhopal–Indore Metro project, Kanpur-Agra Metro project, Mumbai Metro Line 3 and for India's first semi-high-speed rail network, NCRTC-RRTS that connects Delhi – Ghaziabad – Meerut.

3. Développement urbain

Gujarat: Govt says state achieved 100% household water connections; All India rural household tap connections percentage-54

Financial Express, 28/10/2022

As per the government, all 18,187 villages of the state are now connected to the tap water supply. As a result of this 92 lakh rural households are covered.

The Jal Jeevan Mission of the Government of India touched a new milestone on Friday. Gujarat, the home state of Prime Minister Narendra Modi is declared a "100 per cent Har Ghar Jal" state.

"Yet another milestone in providing 24×7 piped water supply to every corner of the country! Congratulations to Gujarat for becoming a 100% #HarGharJal State," tweeted MyGovIndia on Friday.

As per the government, all 18,187 villages of the state are now connected to the tap water supply. As a result of this 92 lakh rural households are covered.

Interestingly, 70% of the state's area is classified as semi-arid to arid climatically. Thus the demand for water from various

households and the economy puts a pressure on the supply. Due to tremendous demand, Gujarat has faced problems with groundwater depletion, especially after the water demand increased in the 1960s.

About Jal Jeevan Mission
Jal Jeevan Mission is aimed to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India. The programme gives a push to mandatory elements, such as recharge and reuse through greywater management, water conservation, and rainwater harvesting.

It is a community approach-based mission and depends on education and communication as key components of the mission.

What is the status all over India?
According to the Jal Jeevan Mission website, as of 20/10/2022, there are in total 19,14,84,145 rural households. Out of these, 10,41,68,891 rural households have tap connections (on 20/10/2022). This translates to 54.40 per cent.

Gujarat is the fifth-largest Indian state by area (covering some 196,024 km2). It is the ninth-most populous state and has a population of 60.4 million. It has a border with Rajasthan in the northeast, Dadra and Nagar Haveli and Daman and Diu to the south, Madhya Pradesh to the east, Maharashtra to the southeast, and the Arabian Sea and Pakistan to the west. In India, the economy of Gujarat is the fourth-largest (a gross state domestic product (GSDP) of ₹19.44 trillion).

4. Energies fossiles et biocarburants

As power demand peaks, NTPC goes back to burning coal amid its focus on green energy.

The Economic Times, 03/10/2022

Synopsis
In 2022, power demand in India has been growing at the fastest pace in nearly four decades. The country's largest state-owned power producer says it is giving utmost thrust to renewable energy, but there is a need for adding coal-based capacity as well. Is NTPC making the right move?

The flight path of a public-sector enterprise in India, even if it is listed in the stock market, is mostly decided by the government. Considering the Centre wants renewable power to have a 50% share in the country's energy mix by 2030, it didn't come as a surprise when NTPC announced two years ago that it would make a serious bid to increase its green-energy footprint. In October 2020, it set up a fully owned subsidiary, NTPC Renewable Energy Ltd.

So, how far has NTPC progressed in its green-energy drive?
Well, it has covered some distance, but looks like bidding adieu to thermal plants is easier said than done for the country's largest state-owned power generator. In fact, NTPC now plans to add more coal-based power plants.

Gurdeep Singh, chairman and managing director, NTPC says, "Considering the changes happening across the globe, while giving utmost thrust to adding renewable capacity, needs have been felt for raising coal-based capacity as well, as it will provide resilience to the sector to meet the increasing demand."

Singh says NTPC is considering a few expansion projects at existing pithead

plants. "We have awarded a few projects also," he adds. The company has awarded two 660MW thermal projects at Talcher in Odisha. It will also consider awarding contracts for two previously stalled expansion projects in Lara, Chhattisgarh, and Singrauli, Uttar Pradesh.

Currently, the total installed capacity of the power behemoth stands at 69,134MW. Of this, 1,832MW is renewable energy-based plants. Another 2,348MW of renewable energy units are under various stages of construction. NTPC plans to achieve 60GW of renewable-power generation capacity by 2031, which will account for half of its overall power portfolio.

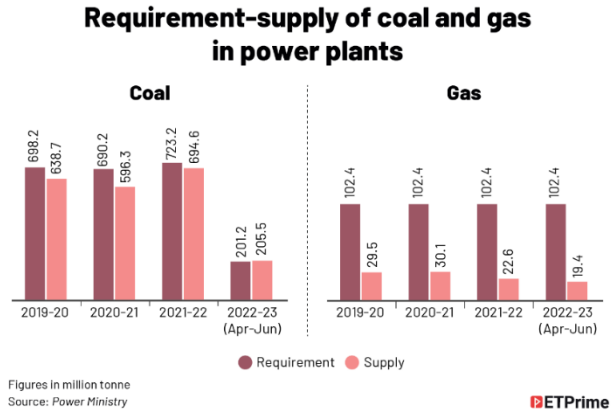
Why the focus on thermal power is back?

One of the major reasons for going back to coal was the sudden increase in demand as the economy gathers steam after the pandemic. Power demand in India this year has been growing at the fastest rate in nearly four decades.

"The demand for power is increasing rapidly. The period of the low dispatch of the power, and the supply overhang in the country seems to be over. We had witnessed for quite some time, in fact six-seven years, that there was a lot of supply overhang. For about a year or so now, this overhang is more or less over, and efforts will have to be made to bring back some of the stranded plants, or we will have to start new construction," Singh says.

In the energy mix, the thermal power plants are expected to play a significant role in balancing power requirements. Globally, the grid is maintained through some of the flexible units of the gas-based plants. But India continues to rely on coal-fired plants for flexibility as well as for meeting grid requirement. Coal-fired power plants generate 75% of India's electricity.

"Coal outweighs renewables by five times in the country's power generation. It is still a long way ahead, and coal will continue to fuel India's energy needs for at least two decades more. Entry of renewables doesn't portend the end of the road for coal. Renewables complement, but can't compete, with coal, at least for now. The switchover will be a gradual and long process. Till then, both these fuel sources must co-exist," says Pramod Agarwal, chairman of Coal India, the country's largest coal producer.



For most of the 135 thermal power plants in the country, the plant load factor (PLF) has been below 50% over the last several years. This year, however, PLF of the coal-based stations improved to 70%. The PLF at NTPC's coal stations are even better at over 80%. Singh says, "We have seen that after few years, we are back to 80% PLF. It is expected that the PLF of coal-based stations may further increase."

While thermal-power plants are nearing their full capacity utilisation, availability of coal remained a talking point.

"While giving utmost thrust for adding renewable capacity, needs have been felt for raising coal-based capacity as well, as it will provide resilience to the sector for meeting the increasing demand."

— Gurdeep Singh, chairman and managing director, NTPC

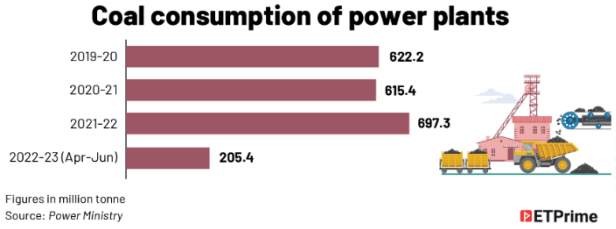
A costly affair

The historic plunge in global energy consumption in the early months of the Covid-19 pandemic drove the prices of many fuels to their lowest levels in decades. But then they rebounded strongly, mainly due to an exceptionally rapid global economic recovery.

India faced an unprecedented coal crisis last year, which continued, to some extent, this year as well. Domestic coal supply has not kept pace with the required demand, leading to the increased need for importing coal. The abnormal increase in the prices of LNG and imported coal have led to decrease in power generation from these sources, which has increased the gap between demand and supply.

But things are looking up now.

Agarwal of Coal India believes a recurrence of the unprecedented coal crisis witnessed earlier is highly unlikely. To avoid any shortage in future, the government has issued revised coal-stocking norms, which mandates power plants to maintain coal stock at a daily requirement of 85% PLF for 12 to 17 days in case of pithead plants, and 20 to 26 days in case of non-pithead plants.



Considering the importance of coal transportation, the Indian Railways has increased the deployment of rakes for coal loading to power plants. During the first quarter of the current financial year (April-June 2022), the coal loading to the power sector has been 434 rakes a day, which is 32% higher than the corresponding period in 2021-22.

India primarily imports coal from Indonesia. The country's total imports of thermal coal and coking coal hit a record high of more than 25 million metric tonne this summer. The spurt was due to the Russia-Ukraine conflict, which heightened fears of a coal shortage, as Russia is the third-largest exporter of non-coking coal, with a nearly 15% share in global exports.

The international coal price at the Indonesia coal index increased from USD25 per tonne in October 2020 to a peak of USD130 per tonne in March 2022. At present, the price is around USD85 per tonne for coal with gross calorific value of 4,200kcal per kg.

On the other hand, natural gas prices have seen a steep increase, with European and Asian benchmark prices hitting record highs – around 10 times their level a year ago. US natural gas prices have more than tripled since October 2020 to reach their highest level since 2008. This also has prompted power producers to switch to coal for generating electricity in key markets, including the United States and Europe.

In India, the story of gas-based power plants has been nightmarish. Of the total 27,123MW of gas-based power generation capacity, 14,305MW has been identified as "stranded", as the plants never received any supply of domestic gas or couldn't afford imported gas. These plants became non-performing or unproductive, and have

INR48,000 crore debt, which has been either declared as NPAs or is undergoing statutory debt restructuring.

Thermal power plants, too, had their share of stress.

The Department of Financial Services had identified 34 coal-based projects with a total capacity of 40,130MW as "stressed" in 2017. Of these, 32 projects were from the private sector, with a total capacity of 3,8540MW and two projects were from the public sector, with a total capacity of 1,590MW. Eight projects, with a total capacity of 8,690MW, have been resolved through change in management.

The green push amid the thermal focus

NTPC is targeting to add renewable generation capacity of 60GW in the next 10 years. Setting up NTPC Renewable Energy was a major step towards that. Thirteen firms, including ArcelorMittal, Petronas, Brookfield, Canada Pension Plan Investment Board, and India's state-backed National Investment & Infrastructure Fund have evinced interest in picking up a minority stake in NTPC's green-energy subsidiary.

"Work at the largest renewable energy park at Khavda in Gujarat has started and it has 4,750MW capacity. We signed an MoU with the Rajasthan government for allocation of land to set up an aggregate renewable capacity of 10GW," Singh says. Three largest floating solar projects of 100MW in Ramagundam, Telangana; 92MW in Kayamkulam, Kerala; and 25MW in Simhadri, Andhra Pradesh have been commissioned.

India has till date installed 152.90GW of renewable energy projects – including 50.78GW solar power, 40.13GW wind power, 10.63GW bio-power, 4.84GW small hydro power, and 46.52GW large hydro power.

With the country's per capita consumption of electricity expected to rise to around 3,000kWh by 2040 and considering the repeated episodes of coal shortages at power plants, NTPC must keep walking on the green-energy path.

Centre plans cutting coal supply to plants that don't comply on biomass co-firing

The Hindu, 04/10/2022

India has been severely lagging in ensuring that at least 5% of coal used in thermal plants was mixed with biomass despite guidelines mandating them to, do so. This recalcitrance by power manufacturers has prompted the Power Ministry to consider cutting coal supply to noncompliant plants, it emerged from the proceedings of an interministerial meeting of the Environment, Agriculture and Power Ministries on Monday.

The Power Ministry in October 2021 had decreed that all thermal power plants ensure 5% compliance by October 2022. Biomass pellets have the same calorific value as coal and mixing them with coal saves consumption as well as reportedly cuts emissions.

The meeting to review progress of biomass co-firing in thermal power plants was held in New Delhi to prepare for the coming post-monsoon season that saw farm fires in north India and worsening air pollution. Biomass from stubble, which is often burned by farmers in open fields, can be used in coal plants to reduce pollution.

The meeting was cochaired by Environment Minister Bhupender Yadav and Power Minister R.K. Singh.

5. Electricité et énergies renouvelables

Power Ministry opposes G7's energy transition plans for India

The Hindu Business Line, 13/10/2022

Officials say talks unfavourable as it would give another country the right to review India's energy transition action.

The G7 nations' plan of persuading India to start negotiations on a Just Energy Transition Partnership (JETP), an initiative of the rich nations to accelerate phasing out of coal and reducing emissions has hit a road-block. JETP makes various funding options available for this purpose in identified developing countries.

The Power Ministry has refused to give its consent to the negotiations so far, as it argues that coal cannot be singled out as a polluting fuel, and energy transition talks need to take place on equal terms, an official told businessline.

"While it was decided at the G7 meet in June to move forward in negotiations with Indonesia, India, Senegal and Vietnam on JETPs, New Delhi has not been able to give a go-ahead mainly because of the Power Ministry's opposition," another source said. Approvals from other ministries concerned, such as Environment, may not be as difficult to get, he added.

South Africa model

The JETP model is expected to be on the lines of the JETP programme already launched with South Africa at the UN Climate Change Conference in Glasgow (COP26) last year. The countries announced a shared long-term ambition to support South Africa's decarbonisation efforts to help meet its emission reduction targets set out in its latest Nationally Determined Contributions (NDC), the source said.

The G7 which includes France, Germany, the UK, the US and the EU, proposed financing of $8.5 billion for South Africa through various instruments such as grants, concessional loans and investments, and risk-sharing instruments, including involving the private sector.

"The JETP model to be followed with India and other identified developing countries is likely to be based on the South Africa model but all details including decarbonisation process and funding have to be subject to negotiations," the source said.

Strong opposition

If the Power Ministry continues to resist, India could still get into the negotiations if the PMO decides to intervene, like it did during COP26 when India finally agreed to setting a target for reaching net zero emissions by 2070, the source added. But, the Ministry is determined to put up a fight as long as the agreement remains unequal, said the official.

"If any country wants to get into an agreement on discussing energy transition, then it has to be for discussing the transition of both the signatory countries. We should not give a right to any country to come and review our energy transition action, or to discuss the action we are taking," he said.

Besides, you cannot single out coal, the official added. "We have coal, so we use coal. Countries that have natural gas, burn natural gas. Similarly, countries which have shale, use shale. All these fuels emit carbon

dioxide when burnt. So, the discussion has to be not only on coal but on all fossil fuels, including gas and shale," he said.

According to India's updated NDC, it stands committed to reduce emission intensity of its GDP by 45 per cent by 2030, from 2005 level and achieve about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

Meghalaya govt inks agreement with NEEPCO for 2 hydropower projects.

The Economic Times, 26/10/2022

Synopsis
The agreement for the development of 50-megawatt Wah Umiam Hydro Electric Project Stage-I and 100-MW Wah Umiam Hydro Electric Project Stage-II was signed between the two parties. Deputy Chief Minister Prestone Tynsong, state power department Joint Secretary D D Shira and NEEPCO Director (Personnel) Anil Kumar were present at the programme.

The Meghalaya government has signed an agreement with North Eastern Electric Power Corporation Ltd for development of two hydel projects in the state, an official statement said. The agreement for the development of 50-megawatt Wah Umiam Hydro Electric Project Stage-I and 100-MW Wah Umiam Hydro Electric Project Stage-II was signed between the two parties. Deputy Chief Minister Prestone Tynsong, state power department Joint Secretary D D Shira and NEEPCO Director (Personnel) Anil Kumar were present at the programme.

Tynsong expressed his gratitude to NEEPCO and said that the signing of agreement between the two parties is an "important and meaningful event".

The minister also assured that the state government will extend all support to the executing agency for completion of the project at the earliest.

Tynsong, who is in charge of the state power department, said that generation is the main problem faced by Meghalaya.

The state currently has a capacity to produce only 350 MW of power, while the requirement is 650 MW, he said, adding that such agreement with the CPSU is essential.

According to the deputy chief minister, Meghalaya produces less than 250 MW of power even though it has the potential to generate 3,000 MW.

He urged the power department and NEEPCO to work jointly in making Meghalaya a surplus power producer.

Tynsong also asserted that the government along with NEEPCO is leaving no stone unturned in enhancing the power generation capacity in the state.

Tata Power is creating a solar-energy heavyweight, and your rooftop has got a lot to do with it.

The Economic Times, 11/11/2022

Synopsis

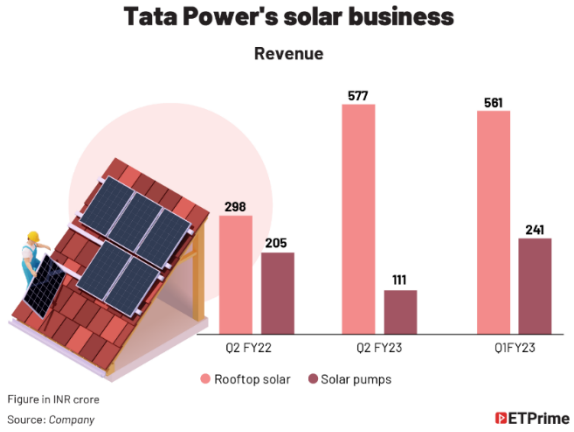
By 2030, Tata Power wants clean energy to account for 80% of its generation capacity as it aims to become net carbon zero by 2045. The residential solar market, which is likely to reach 3.2GW by FY23 from the current 2GW, is one of the key segments it is focusing on. But there are hurdles it needs to cross.

Tata Power, India's largest integrated power company, seems to have well understood where the future of the energy sector lies. It wants renewable energy to account for 60% of its portfolio by 2025 from 30% at present. And it is on course to add 15 gigawatt (GW) green energy capacity by then. The company recorded a 94% year-on-year jump in revenue in the solar rooftop segment alone in FY22. Its stock has risen more than 1,000% in two years.

The growth drivers for Tata Power's clean-energy business have been solar rooftops, solar pumps and electric-vehicle charging stations.

Praveer Sinha, CEO of Tata Power, says, "All our existing operations have been doing very well and some of our new businesses, including renewable, rooftop solar and large utility-scale solar pumps, among others, have started showing results as a good foundation has been laid for them."

Rooftop solar power, especially, has a lot of headroom for growth in India. The total rooftop solar capacity in the country is estimated to have reached 10,221 megawatt (MW), which is still only 17% of the total solar capacity in the country.



Rooftop solar and its untapped potential

Under the Jawaharlal Nehru National Solar Mission, which was launched in 2010, India targets to generate 100GW of solar power by 2022. Of this, 60GW was to come from the utility-scale segment and the rest 40GW from the rooftop solar segment.

Against this 40GW target for rooftop solar, the total installed capacity by July 2022-end stands at only 7.9GW. The residential category accounts for a minuscule 2,010MW.

Last month, the Ministry of New and Renewable Energy (MNRE) extended the deadline for achieving the 40GW target from 2022 to 2026 with no increase in budget outlay. While several initiatives by the central government in the past have failed to boost rooftop solar in India, Tata Power is keeping its focus on the segment.

However, many experts say rooftop solar is not the government's priority anymore. They say the Centre is more focused on large-scale utility and feel that the decentralised solar sector will grow automatically, at its own pace.

Smaller countries like Vietnam installed over 9,000MW of rooftop solar in a year, much ahead of India.

So, what's making Tata Power focus on this segment?

A calculated bet

The new and simplified rooftop solar subsidy scheme, introduced by the Centre in July 2022, has got many takers. Many are now realising the growth potential of the residential solar market in the country.

According to the scheme, a consumer who wishes to install rooftop solar can register in the universal portal and get direct subsidies in their bank accounts.

"The rooftop [solar] business growth is supported by favourable policies such as open access and mandatory solar provision in the model building byelaws. The company [Tata Power] witnessed a major uptick in orders and execution in its rooftop business. The order book stands at 393MW or over INR1,500 crore," Sinha tells ET Prime.

As per an analysis by Council on Energy, Environment and Water, a public-policy think tank, discoms are likely to save INR0.22 per unit from electricity generated from rooftop solar installations. Benefits are maximum in the residential categories and could reach up to INR0.75 per unit. This will also help discoms save on the cross-subsidy paid out to residential consumers.

"The company witnessed major uptick in orders and execution in its rooftop business. The order book stands at 393MW or over INR1,500 crore."

— Praveer Sinha, CEO, Tata Power

The cost of installation of rooftop solar has come down drastically over the years. In 2020, the average cost of a residential rooftop solar system in India was USD658 per kilowatt (kW), down 73% from the 2013 level. In comparison, the residential rooftop solar cost in 2020 in countries such as Japan, the UK, Switzerland and the US was four to seven times higher than that of India.

However, one of the reasons why the rooftop solar segment is yet to reach its potential is that consumers don't want to invest upfront in installation. Also, residential rooftop solar has not really been the priority sector for solar developers in India because commercial and industrial rooftops offer greater economic viability.

India is currently trying to build a strong manufacturing industry with the capacity to produce solar cells and modules which could bring down costs further. Tata Power has joined hands with the Tamil Nadu government to invest around INR3,000 crore for setting up a greenfield 4GW solar cell and 4GW solar module manufacturing plant in Tirunelveli district, Tamil Nadu.

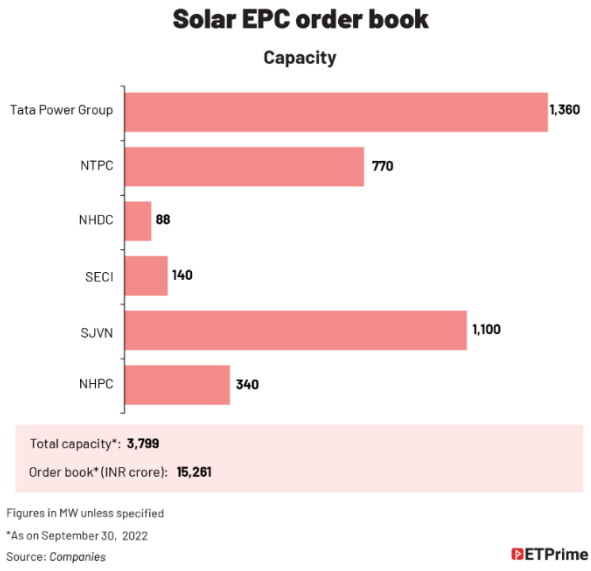
Sinha says the manufacturing plant will help Tata Power support India's aspiration to create a comprehensive ecosystem for solar manufacturing and fulfil the needs of solar projects as well as help the company improve its margins and have better control over the cost of solar cells and modules. "The first phase of the plant of solar module is expected to be commissioned by June next year. And the second phase of cells will get commissioned by November next year," Sinha adds.

At present, China's solar photovoltaic (PV) manufacturing accounts for around 71% of the world's total capacity. It grew to 106GW in 2019 from 10GW in 2010. China is also a

leading producer of silicon wafers with a 97% share in the global market, a 79% share of PV cells, and a 67% share of polysilicon.

"We have tied up with a couple of manufacturers over here and as you know, the customs duty for cells is 25% while for modules it is 40%. So, we have 15% arbitrage if we get it manufactured in India in terms of the customs duties," Sinha explains.

According to the Institute of Energy Economics and Financial Analysis, the residential solar market is likely to reach a size of 3.2GW by FY23 from the current 2GW.



Currently, Tata Power has 1.3GW of owned projects and 2.3GW of external orders, aggregating 3.6GW of total large-scale EPC (engineering, procurement, and construction) contracts worth INR15,000 crore. The company expects to get these EPC contracts completed in the next 12 to 18 months. "Due to higher commodity prices, including solar cells and modules and foreign-exchange movements, we saw a hit on the profitability of the EPC business, but [we] expect that the margins will improve in the coming quarters with newer orders and contract manufacturing, which has been tied up to be done in India," Sinha adds.

The way forward amid challenges

With a fat order book and planned capacity expansion, Tata Power is struggling as the prices of solar modules have increased. **Ramesh Subramanyam**, former chief financial officer of Tata Power, says, "We had some pressure on the module front, but this will ease off as we go. Module prices have tightened all over the world. The new orders will be factoring in the new prices. So, that should take care of the margins." He, however, points out that some of the existing orders may face some headwinds until they are completed.

On a positive side, the company has significantly reduced its net debt by more than INR7,500 crore over the last one year through divestment of various assets and strategic fundraise from the promoters.

Net debt at the end of the first quarter 2022 was around INR 42,000 crore. The net debt-to-equity stands a little higher at 1.55 times compared with 1.53 times in the previous quarter.

The Tata Power stock has been in a downtrend since 2014. It made a low of INR27 in May 2020. It has now broken the downward spiral and has resumed an uptrend. The stock has now given a range breakout after 12 years. It made a high of INR300 in April 2022 and posted a return of more than 1,000% in two years. At present, it is taking support at 230 levels.

In 2015, as much as 84% of Tata Power's generation capacity was coal-based. This year, it went down to 66% and clean energy made up for the rest. By 2030, clean energy

will make 80% of its capacity, as the company is pursuing major expansion in solar and hybrid clean-energy sources. Between 2040 and 2050, Tata Power plans to phase out all coal-based plants. It aims to become net carbon zero by 2045.

"The future is going to be catalysed by the opportunities in renewable energy across the spectrum, be it utility scale or otherwise, as the global shift to clean energy intensifies," Sinha says.

India issues draft tender for first seabed leasing round for offshore wind

Riviera, 16/11/2022

India's Ministry of New and Renewable Energy has released a draft tender for seabed leases that could generate up to 4 GW of offshore wind energy.

As highlighted by OWJ, in June 2022, India's Union Minister for Power and New & Renewable Energy Shri R K Singh unexpectedly **proposed that the country hold a 4-GW offshore wind auction in each of the next three years**, followed by more large-scale auctions in subsequent years.

At a meeting on transmission planning for offshore wind projects, the Minister discussed transmission system infrastructure required for 10 GW of offshore wind off the coasts of Tamil Nadu and Gujarat. A statement issued by the government after the meeting said it had subsequently been decided to issue regular, large-scale tenders for offshore wind, starting with tenders equivalent to 4 GW per year for three years, starting in FY 22-23.

The draft request for selection (RfS) issued on 14 November 2022 will allocate seabed rights to developers for offshore windfarms of the coast of Tamil Nadu. Developers will be expected to take responsibility for the development and installation of the grid connections for the windfarms. Energy generated from offshore wind projects will be consumed in captive mode or sold to third party under open access framework or sold through merchant sale/power exchange.

The areas of the seabed that have been identified include offshore wind sub-blocks B1, B2, B3, B4 and G1 off the coast of Tamil Nadu in the Gulf of Mannar. Developers will have exclusive rights over the allocated areas in order to carry out surveys and project development in accordance with the RfS and lease agreements.

Developers have until 28 November 2022 to respond to the RfS, in which sub-blocks sufficient in size for windfarms ranging from 655 MW to 912 MW of capacity are set out. The blocks are between 10 km and 39 km from the coast of Tamil Nadu and in water depths ranging from 20 m to 50 m.

The Ministry said the objectives of the RfS are to introduce offshore wind as a green energy generation source and contribute towards the country's 'Net Zero by 2070' target; develop offshore wind projects, related port and logistic infrastructure and offshore wind expertise; develop international collaboration for development and implementation of offshore wind projects; and open up new industries for the Indian economy and generate employment.

India's green hydrogen plan will need ₹30 tn funding by 30.

Mint, 25/11/2022

Synopsis
The country's green hydrogen plans would play a major role in achieving its goal of net zero emissions and becoming a developed nation by 2047.

NEW DELHI : India is in the process of finalizing the roadmap to a "green hydrogen economy" which will require an investment of ₹30 trillion by 2030, said Vivek Kumar Dewangan, chairman and managing director, REC.

The country's green hydrogen plans would play a major role in achieving its goal of net zero emissions and becoming a developed nation by 2047.

"India has launched green hydrogen project. Now, we are in the progress of finalizing a roadmap for becoming green hydrogen economy which would require ₹15 trillion and another ₹15 trillion is required to meet our middle-term goal by 2030. So in all, these initiatives would require an investment of ₹30 trillion by 2030," Dewangan said.
He was speaking at a panel discussion on new and old energy sources in turbulent times at Mint Energyscape 2022.

He, however, noted that in terms of per capita consumption of electricity and per capita carbon emission, India was far behind the world average.

"Our per capita emission is likely to increase and by 2070, India has to become net zero. We have about 48 years to become net zero. Our energy peak is yet to happen and we have to reach this peak of energy consumption as well as peak of carbon emission," Dewangan said.

Andre Aranha de Lago, Brazil's Ambassador to India said energy transition is a "gigantic" challenge for India as its first obligation as a country is to ensure energy availability for its population. He, however, said that he is confident India with its "clear intent" would be able to achieve its climate goals.

"You have to bring to your population an increase in the quality of life. India is going to be the third largest economy in the world soon. India now has choice and the choices have been made, they are very clear about that. The world is watching India and there is no doubt about it but I think India will continue to surprise," he said.

Neeraj Menon, Partner and Head - Energy, Infrastructure and Natural Resources Practice at Trilegal said although India has set ambitious targets for energy transition, the traditional sources of energy—fossil fuels, including coal—will continue to be a significant part of the energy mix for the next few years.

"I don't see renewable energy capacity exceeding 40% of our energy mix by 2030. Next 15-20 years, we will see a phase-out. Clearly, it has to be a symbiotic relationship. It has to work together...carbon capture, CCU all these will come in but they will have to stay along base load," Menon said.

6. Mobilités électriques

Chandigarh : 40 new AC electric buses launched, 20 more to run on inter-state routes

Financial Express, 08/11/2022

Chandigarh UT officials say that the new air-conditioned buses follow the latest emission standards, BS-VI, and are equipped with the latest electronically controlled diesel engines.

In a bid to bolster connectivity with neighbouring states and public transport facilities, the Chandigarh administration pressed into service 60 air-conditioned electric buses. Chandigarh Administrator Banwarilal Purohit on Monday flagged off 60 air-conditioned electric buses, out of which 40 will ply within the city and the remaining 20 will be used on long routes, The Indian Express reported.

20 buses chosen for inter-state operations were delivered to Chandigarh as part of an agreement signed in March 2022 with M/s Tata Motors, said Purohit. According to IE, the buses will run from ISBT-43 and ISBT-17 to Pathankot, Batala, Fatehabad, Amritsar, Abohar, Katra, Manali, Ludhiana, Shimla, Jaipur, Jhajjar and Haridwar.

UT officials said that the new air-conditioned buses follow the latest emission standards, BS-VI, and are equipped with the latest electronically controlled diesel engines.

According to the report, 40 intra-city buses, which were flagged off on Monday, were handed over to Chandigarh under a deal inked with M/s Volvo Eicher in February 2022. Out of them, the first fleet of five buses was flagged off by the Union Home Minister on July 30 this year, which have already been used for commercial operations. They will move on routes from New Maloya Colony to Ram Darbar and Manimajra, ISBT-43 to Manimajra and Behlana, and Maloya to Mansa Devi.

Under the Phase-II of the FAME India Scheme, the ruling dispensation at the Centre had sanctioned as many as 80 electric buses for Union Territory Chandigarh. The first fleet of 40 buses had been launched last year, which are commercially operated since November, 2021.

According to the data published by The Indian Express, 50 lakh passengers travelled by electric buses that had been introduced in Chandigarh last year, which led to the saving of 4.28 lakh litres of diesel.

As per the data, the electric buses in Chandigarh together have covered around 21.50 lakh kilometres and diesel was saved to the tune of 4.28 lakh litres till September this year.

Shying away from diesel vehicles, approximately 15,500 passengers in Chandigarh commute by electric buses on a daily basis that were flagged off in September last year.

The transport department is mulling to replace all diesel buses in the Tricity with electric ones by 2027-2028.

Overkill? Govt push for EV battery swapping has takers, but some industry leaders not convinced

The Print, 24/11/2022

While some stakeholders believe battery-swap can be an alternative to conventional charging, others point to higher cost involved and risk of proliferation of low-quality batteries.

New Delhi: As India looks to bolster its electric vehicle (EV) industry, with several companies investing in the sector, a debate has broken out over the sustainability and efficiency of a new battery-swapping system — compared to the conventional charging system — that many believe will define India's paradigm shift in the industry.

Over the last month, a number of companies have announced investments in the battery-swapping, charging station, and electric vehicle space. For example, Taiwan-based electric vehicle start-up Gogoro announced that it plans to run a pilot of its 'six-second battery-swapping stations' in India.

Indian EV manufacturing company Altigreen has said it plans to open five additional factories across India. Yulu Bikes and Bajaj Auto announced this month that they would unveil their third-generation e-bike by the end of this calendar year.

This is just a snapshot of the increasingly energetic activity in the electric vehicle space, and in particular, the battery and charging oriented aspect of this sector.

Battery-swapping — where you can change a drained battery for a full one, instead of having to charge the empty one — is being considered as an alternative to installing charging stations across the country.

The central government has come up with a draft battery-swapping policy, which it released in February. The policy states that the swap alternative to battery charging will enable cost-efficiency along with interoperability.

While some industry leaders have displayed an active interest in swapping batteries instead of investing in charging facilities, there are some who believe there needs to be a healthy balance of both since relying entirely on battery-swapping would be cost-intensive.

The other factor determining which of the two approaches would emerge as the more popular one is the vehicle-type that is increasingly being made electric.

Three-wheelers or e-rickshaws in India are currently leading the shift to electric, according to data by Vahan, an integrated vehicle registration platform. The segment accounts for 93 per cent of the EV market.

"Battery-swapping has no relevance for heavy vehicles in India," Ankit Mittal, Co-founder and CEO of Sheru, an energy storage company, told ThePrint.

"Automotive value chains have been predominantly working in two and three-wheelers through offline dealers," Mittal said. "The primary motive of distribution networks is to focus on two and three-wheelers' OEMs (original equipment manufacturers)."

Currently, the Charge Point Operators Society of India, formed by NITI Aayog, is spearheading policy formation in India's battery infrastructure.

According to data by the Ministry of Heavy Industries, in the first phase of the government's FAME India [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles India] scheme, 479 charging stations were installed out of the 520 sanctioned.

In the second phase, 53 charging stations were installed out of 2,877 sanctioned. All of these were installed till 15 July, 2022.

Fast-charging vs battery-swapping

Usually, an EV takes 60 minutes to 9 hours to charge fully, depending on the type of vehicle and the charging station. A conversation is on about the need for consumers to be given options for both fast-charging facilities as well as battery-swap so that widespread usage of EVs can be encouraged.

"The government is formulating programmes to promote widespread entry of businesses in charge-point and battery-swapping infrastructure," Mittal explained.

"The government is also thinking of allowing more players to participate in this direction. Battery-swapping is essentially like retail-level asset banking. Think of it like ATMs. Anyone can set one up. It could be owned by a certain brand. Everyone could be in the game in their respective capacity. That is the core philosophy of it," he added.

However, one of the key challenges, according to Pankaj Sharma, Co-Founder of Log9 Materials, is that battery-swapping will be cost-intensive.

"I think battery-swapping is an overkill," Sharma said. "Currently, one needs three batteries for a battery-swapping cycle. We have always followed a policy of one-vehicle-one-battery. It would be difficult to introduce three batteries, which means that the consumer will have to incur three times the cost of the battery. This is a costly solution to a temporary problem — the problem being that vehicles take too long to charge."

Instead, he said, the industry should focus on improving the speed of charging batteries rather than maintaining three batteries for one vehicle.

"In a price-sensitive market like India, there won't be many takers for these batteries," Sharma said. "Battery-swapping will work if you go to Malaysia, Indonesia or Singapore. Smaller countries whose per capita income is higher. It is commercially quite strenuous for any company to attempt such a large investment into battery-swapping. It defeats the purpose of moving to electric."

Another risk with such an approach, he further pointed out, is that customers will resort to buying cheap quality batteries if three are needed per vehicle.

This, however, has already been checked by the government. Nitin Gadkari, Minister of Road Transport and Highways, has warned of penalties if substandard products are circulated in the market.

Gadkari's warning came in the aftermath of rising incidents of electric two-wheelers catching fire. It was around the same time when companies like Pure EV had to recall their defective vehicles so that they could be put through additional checks.

Despite the criticism, some industry stakeholders believe that battery-swapping will make a lot of sense if an infrastructure exists to support it, and that swapping instead of charging would increase battery life.

"From an operational point of view, battery-swapping makes a lot of sense," Pankaj Gupta, CEO of Mufin Green Finance, said. "As the swapping will take place in a controlled and high-technology platform, the life of the battery will increase by 20-22 per cent which leads to a higher yield for a charge-point operator. It will give 1.2 to 1.4 times increase in returns —which further increases the life of the battery."

Facilitating interoperability

The Centre, in its battery-swapping policy, defines interoperability as "the compatibility of fixed or swappable EV batteries with different EV models". This means that the industry at large has to collaborate in order to standardise batteries and swapping stations, so that consumers can avail of flexibility.

The policy objectives were to ensure that there are more takers for EVs in the country, and interoperability was one solution mentioned. The guidelines stated that implementation in the ecosystem must be done effectively in order to ensure sales.

However, this has been met with some resistance from the industry leaders who are not comfortable with sharing space with competitors.

"Swapping will work if you have a close-knit network," Sharma said. "Fast-charging and battery-swapping are competing technologies in the market now. The place where the government is struggling big-time in its policy is the interoperability of battery-swapping."

The constraint was also highlighted by Altigreen Propulsion Labs, which is building a fast-charging network on highways.

"Interoperability of battery packs will be one of the constraints against swapping," Amitabh Saran, Founder & CEO of Altigreen Propulsion Labs, said.

"Until all manufacturers agree, swapping will be limited in scale and become captive to an OEM and/or the swapping partner. Even if this constraint was removed, we strongly believe that heavier-duty applications (vehicles which draw more power) need well-balanced battery packs, which may not always be possible in day-to-day scenarios," he added.

7. Environnement et qualité de l'air

MGNREGS to fund work to reverse desertification of land across the States

The Hindu, 4/10/2022

The employment scheme will work in tandem with the Pradhan Mantri Krishi Sinchayee Yojana to help take up treatment of about 30% more land than feasible with the current scheme size

With limited funds to deal with the gargantuan task of restoring degraded land and reversing desertification in the country, the government is now planning to bring convergence between the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).

According to the Desertification and Land Degradation Atlas published by the Environment Ministry in 2021, at least 30% of India's total geographical area is under the category of "degraded land".

Jharkhand, Rajasthan, Delhi, Gujarat and Goa have more than 50% of land area undergoing desertification or degradation, while States with less than 10% land degradation are Kerala, Assam, Mizoram, Haryana, Bihar, Uttar Pradesh, Punjab and Arunachal Pradesh.

In a recent jointly signed advisory, Nagendra Nath Sinha, Secretary, Rural Development, and Ajay Tirkey, Secretary, Department of Land Resources, urged the Chief Secretaries

of the States to ensure that the two schemes work in tandem. Under the latter, activities such as ridge area treatment, drainage line treatment, soil and moisture conservation, rainwater harvesting, nursery raising, afforestation, horticulture and pasture development are done.

The Union government now wants the States to undertake these activities using MGNREGS funds, which go towards both material and wage components.

In 2019, the government raised its target of restoration of degraded land from 21 million hectares to 26 million hectares by 2030 following a commitment made during the UN Convention to Combat Desertification (COP14). Nearly three years on, the government is nowhere near this target.

Though the Ministry has been making efforts to contribute towards meeting the international commitment, the constraints posed on economy by the pandemic restricted the target to 4.95 million hectares by 2025-26. Therefore, there is a compelling reason for the Ministry to explore alternative opportunities to fulfil the commitment, the advisory read.

The Rural Development Ministry is now hoping that by making use of the MGNREGS, which for the financial year 2022-23 has a budget of ₹73,000 crore, the government can scale up the area to be covered.

As of now, there is Central allocation of ₹8,134 crore for developing 4.95 million hectares.

By the Ministry's own estimate, a convergence with the MGNREGS could help take up treatment of about 30% more land than feasible with the current scheme size.

Decarbonising India: how green farms and factories, electric cars, and land use can help reach goals.

The Economic Times, 03/11/2022

Synopsis

A recent report by consulting firm McKinsey lists out the targets and opportunities on the road that India could take to become a net-zero economy by 2070. Decarbonisation will be the key to this evolution. While most of the goals may appear daunting, proper planning and staying focused can make a big difference.

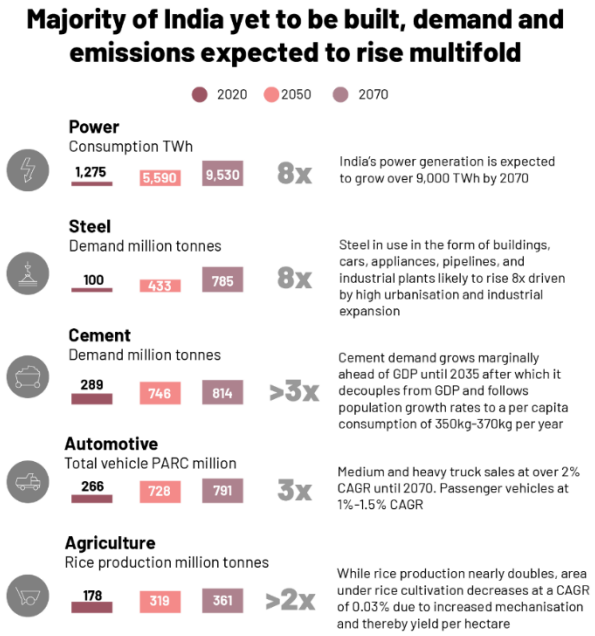
India's transition to a net-zero economy by 2070 depends on the decarbonisation path it takes.

A recent study by consulting firm McKinsey & Co says decarbonising could help India save a cumulative USD1.7 trillion in forex on energy imports by 2070. Besides, an orderly transition could turn the country into a manufacturing and R&D hub for clean technologies such as electric mobility, batteries, and electrolysers. Not only that, adopting sustainable-farming practices and reducing greenhouse-gas emissions could supplement farmers' income by up to INR4,800 per hectare a year, the study says.

The study looks at opportunities and challenges in India's decarbonisation path through two scenarios. The 'line of sight (Los)' scenario is based on current announced policies and foreseeable technology adoption. The accelerated scenario assumes adoption of far-reaching policies and rapid technology adoption.

Here are some of the key takeaways from the report:

Emissions will continue to rise



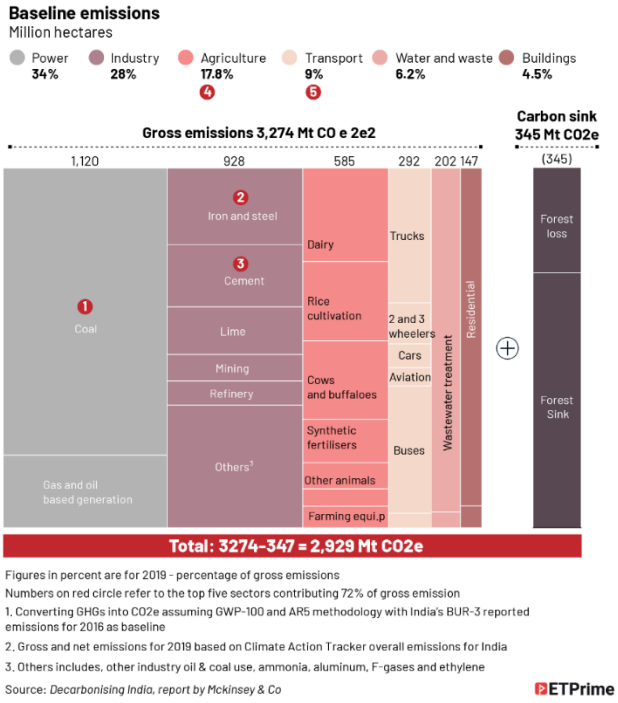
Over three-fourths of the India of 2050 is yet to be built, and this growth could multiply demand across sectors, including some of the major polluters: power (eight-fold), steel (eight-fold), cement (triple), automotive (triple), and food (double). If proper policies are put in place to create the right demand within this decade, the capacities India adds in the two decades thereafter will be low-carbon ones.

The key fight lies in five sectors

Five industries account for around 72% of India's overall emissions: power, iron and steel, cement, transport, and agriculture. Some of these industries will continue to have high emissions and that is where targeted interventions are required. Enablers that can help decarbonise multiple sectors include carbon-capture usage and storage (CCUS), natural climate solutions (NCS), material circularity, and green hydrogen.

India's current carbon emission mix

Five industries contribute 72% of the gross emissions

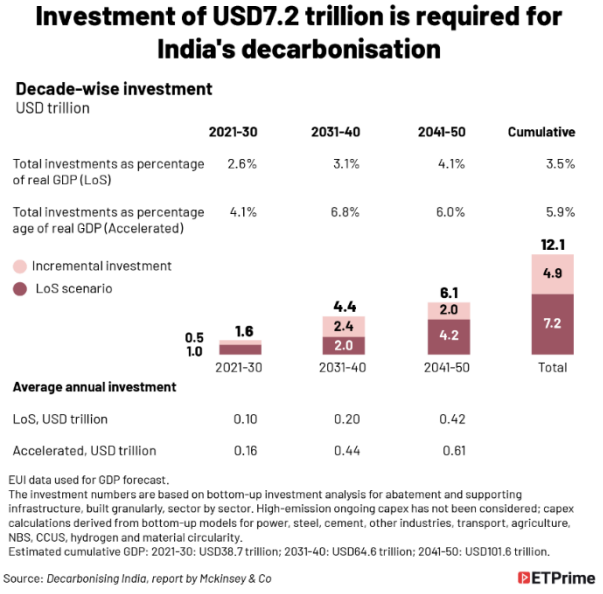


Figures in percent are for 2019 - percentage of gross emissions
Numbers on red circle refer to the top five sectors contributing 72% of gross emission
1. Converting GHGs into CO2e assuming GWP-100 and AR5 methodology with India's BUR-3 reported emissions for 2016 as baseline
2. Gross and net emissions for 2019 based on Climate Action Tracker overall emissions for India
3. Others includes, other industry oil & coal use, ammonia, aluminum, F-gases and ethylene

Source: *Decarbonising India, report by Mckinsey & Co*

ETPrime

The funds required



EUI data used for GDP forecast.
The investment numbers are based on bottom-up investment analysis for abatement and supporting infrastructure, built granularly, sector by sector. High-emission ongoing capex has not been considered; capex calculations derived from bottom-up models for power, steel, cement, other industries, transport, agriculture, NBS, CCUS, hydrogen and material circularity.
Estimated cumulative GDP: 2021-30: USD38.7 trillion; 2031-40: USD64.6 trillion; 2041-50: USD101.6 trillion.

Source: *Decarbonising India, report by Mckinsey & Co*

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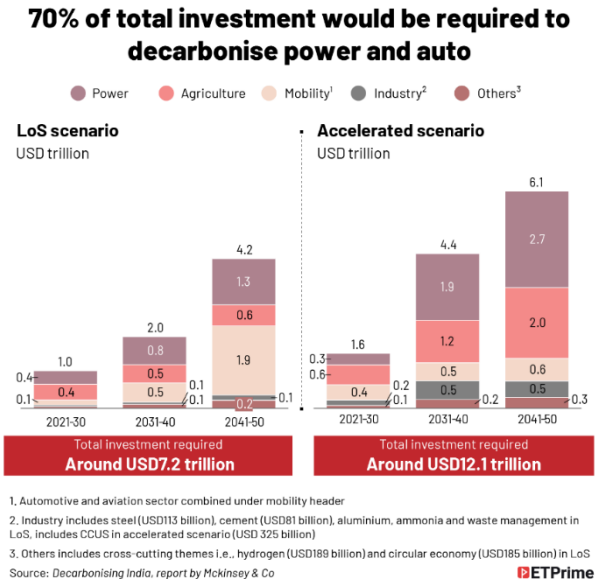
India will require USD7.2 trillion investment by 2050, which is 3.5% of GDP, for decarbonisation in the LoS scenario. This

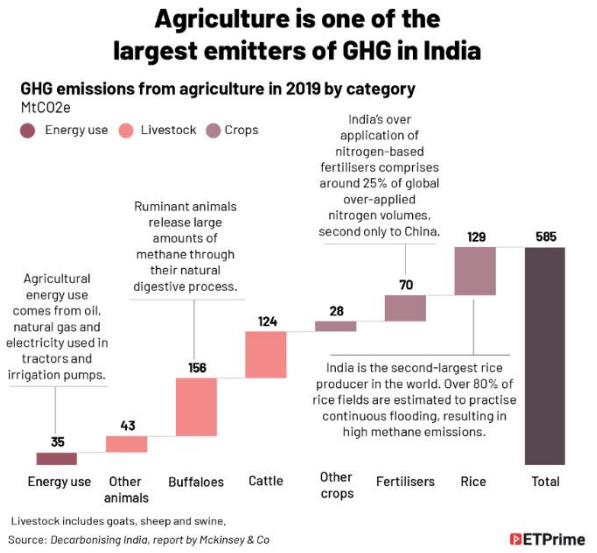
would translate to an average annual investment of USD240 billion in LoS. The current annual investments towards decarbonisation and other green projects are about USD44 billion (heavily skewed towards the power sector), accounting for 10%-12% of the investment required in the future. The cost of decarbonisation is expected to decline as technologies mature — even in a high-growth economy — as innovation and economies of scale lower technology costs over time.

Big investment in the power sector



About 70% of funding would be needed for capex investment in the power and automotive sectors, primarily to drive expansion of renewable-energy capacity and electrification of the automotive sector. Transition to renewable sources of electricity would also decrease power generation costs from the current INR3.9 to INR2.9 per kilowatt hour by 2050, with lower-cost renewables and grid stabilising storage. To accelerate renewable energy production, India would have to quadruple the rate of capacity addition, resolve supply-side bottlenecks (land, grid, etc.), accelerate market reforms, and storage buildout (1,200GW by 2050) to integrate renewables and grid reliability, foster innovation, and localise manufacturing.

Solving the agriculture conundrum



The agriculture sector, which is most vulnerable to climate change, is the bedrock of the Indian economy, accounting for 14% of the country's GDP, and 40% of its employment. It is estimated that by 2100, up to USD10 billion of annual losses are expected due to climate change, with yields of major crops decreasing up to 30%. Therefore, a green transition in the agriculture sector becomes all the more important, but perhaps the most difficult one.

Another unique challenge is that agriculture is one of the highest greenhouse gas (GHG) emitting sectors, accounting for nearly 20% of the country's total GHG emissions. The emissions would only grow over the years as food demand increases. Total agricultural emissions in India are expected to increase from 585 MtCo2e in 2019 to 650 MtCo2e by

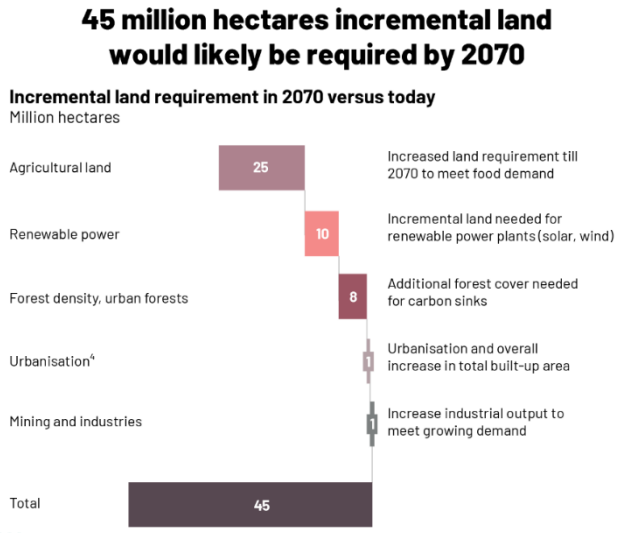
2030, and then gradually decline to around 530 MtCo2e by 2070 (MtCo2e stands for metric tonne of carbon dioxide equivalent).

The biggest transformation challenge in the agriculture sector is engaging with 150 million farmers, 95% of whom hold small farms. Use of sustainable production techniques, increasing use of nano-fertilisers and bio-decomposers are likely to help eliminate over-application of nitrates by 2070.

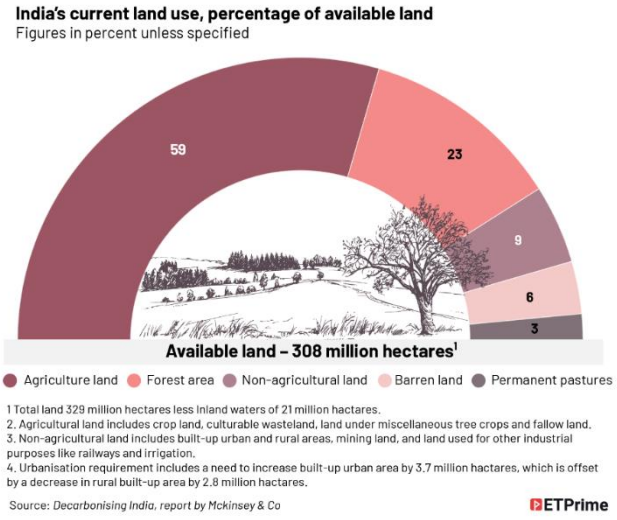
The McKinsey report points out that technological interventions alone could help cut over 75% of agricultural emissions. However, implementing such green interventions may require total capex spending of nearly USD240 billion by 2070.

The upside is that faster decarbonisation of agriculture could lead to additional earnings of USD145 billion by 2070.

Figuring out land-use patterns



Additional land would be needed to meet India's net-zero target. Based on current land-use practices, the McKinsey study estimates that the increased land requirement would be 45 million hectares in 2050. For instance, the agriculture sector would need 12 million hectares by 2040, the demand from solar plants is estimated to be 5 million hectares, while forest densification would require an additional 4 million hectares in the same period.



Clearly, sufficient volumes of suitable land will not be readily available unless efficient land-use practices are implemented. The measures for better land use could include increasing agricultural productivity through sustainable farming, using barren land for installing wind and solar power plants, increasing density of forests to meet carbon-sink goals, and using vertical urbanisation to create higher population densities in towns and cities.

The study estimates that these measures would free up 34 million hectares, leaving a deficit of 11 million hectares.

The road to net zero

While most of the estimates and targets in the report may appear daunting, they are also for the long term, allowing a long runway to achieve them. Proper planning

and staying focused on the goals can make all the difference.

India submits its net zero strategy to UN.

Mint, 15/11/2022

Synopsis

The United Nations Framework Convention on Climate Change (UNFCCC) received India's Long-Term Low Emission Development Strategy on Monday

NEW DELHI : India submitted its Long-Term Low Emission Development Strategy to the United Nations Framework Convention on Climate Change (UNFCCC) at COP 27 on Monday.

"The strategy will focus on rational utilization of national resources with due regard to energy security. The transitions from fossil fuels will be undertaken in a just, smooth, sustainable and all-inclusive manner," said the Ministry of Environment, Forest and Climate Change.

The National Hydrogen Mission launched in 2021 aims to make India a green hydrogen hub. The rapid expansion of green hydrogen production, increasing electrolyser manufacturing capacity in the country, and three-fold increase in nuclear capacity by 2032 are some of the other milestones that are envisaged alongside overall development of the power sector.

"The strategy will promote increased use of biofuels, especially ethanol blending in petrol, the drive to increase electric vehicle penetration, and the increased use of green hydrogen fuel are expected to drive the low carbon development of the transport sector," the ministry added.

India aspires to maximize the use of electric vehicles, ethanol blending to reach 20% by 2025, and a strong modal shift to public transport for passenger and freight.

"Low base, future sustainable and climate resilient urban development will be driven by smart city initiatives, integrated planning of cities for mainstreaming adaptation and enhancing energy and resource efficiency, effective green building codes and rapid developments in innovative solid and liquid waste management," the ministry said.

The industrial sector will continue in the perspective of 'Aatmanirbhar Bharat' and 'Make in India'. "Low carbon development transitions in the sector should not impact energy security, energy access and employment. The focus will be on improving energy efficiency by the Perform, Achieve and Trade (PAT) scheme, National Hydrogen Mission, high level of electrification in all relevant processes and activities, enhancing material efficiency and recycling leading to expansion of circular economy, and exploring options for hard-to-abate sectors,

such as steel, cement, aluminium and others," the ministry added.

The transition to low carbon development pathway will entail several costs for the development of new technologies, new infrastructure and other transitional costs. "While several estimates exist, varying across studies, they all fall in the range of trillions of dollars by 2050. Provision of climate finance by developed countries will play a very significant role and needs to be considerably enhanced, in the form of grants and concessional loans, ensuring scale, scope and speed, predominantly from public sources, in accordance with the principles of the UNFCCC," the ministry said.

The strategy is prepared after extensive consultations held by the Environment ministry with all relevant ministries and departments, state governments, research institutions and civil socity organizations.

The approach is based on four key considerations that underpin India's long-term low-carbon development strategy. They are, India has contributed little to global warming, its historical contribution to cumulative global GHG emissions being minuscule despite having a share of ~17% of the world's population; India has significant energy needs for development; India is committed to pursuing low-carbon strategies for development and is actively pursuing them, as per national circumstances; and India needs to build climate resilience.

The two themes of climate justice and sustainable lifestyles, alongside the principles of Equity and Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), in the light of national circumstances, are at the heart of the low-carbon, low-emissions future.

"The LT-LEDS is prepared in the framework of India's right to an equitable and fair share of the global carbon budget, which is the practical implementation of India's call for climate justice. This is essential to ensure that there are no constraints on realizing India's vision of rapid growth and economic transformation, while protecting the environment," the ministry added.

The LT-LEDS is also informed by the vision of LiFE, Lifestyle for the Environment, that calls for a world-wide paradigm shift from mindless and destructive consumption to mindful and deliberate utilization.

The Long-Term Low Emission Development Strategy was launched by the Union Minister for Environment, Forest and Climate Change, Bhupender Yadav, who is leading the Indian delegation at COP 27.

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