

TIF Takes Surety Bonds and Sustainability Ratings to Industry Audience in Bangalore

TIF made its presence felt at the second meeting of the CII Infrastructure Council in Bangalore on December 13, making presentations on its papers on surety bonds and sustainability ratings.

TIF's roundtable discussions on surety bonds in Delhi had participation from all stakeholders, led by IRDAI. The idea for the presentation in Bangalore was to apprise industry members and seek their buy-in. TIF Distinguished Fellow and former Executive VP SBI Caps Supratim Sarkar made a presentation on the key recommendations for effective implementation of surety bonds at the Infrastructure Council meeting.

Editor's Note

Happy New Year everyone. 2024 is expected to be transformative for Indian infrastructure with many long-pending dreams such as the Delhi-Srinagar direct train and the Dedicated Freight Corridors in the East and West finally taking off. Five new major expressways, including the Delhi-Dehradun Expressway, will be inaugurated in 2024. The Mumbai Trans Harbour Link, Navi Mumbai International Airport, Noida International Airport, and Mumbai Coastal Road Project are also scheduled to be operational in 2024. There will be lots of action and we're ready for it.

TIF Co-Founder Rumjhum Chatterjee also gave a brief overview of the proposal to introduce sustainability ratings for infrastructure projects. With Net Zero targets on the anvil, such ratings will be a helpful tool for infrastructure developers in raising finances. This issue has been flagged by India's Central Banker – RBI – as well. Anand Krishnamurthy, Envint Global, also made a presentation on the rating system proposed in the TIF study. Industry members asked many questions and agreed that the time was right for the introduction of such a system.



MAKING A MARK: Members of the CII Infrastructure Council



AMPLIFYING THE IMPACT: Krishnamurthy, Sarkar and Chatterjee at the Infrastructure Council Meeting

More on Surety Bonds

TIF's work on surety bonds is gaining more traction. The General Insurance Council and the Indian Banks Association have been meeting to streamline security-related issues and the flow of information. Principals can request the banks to facilitate the flow of information as may be required by the insurer to provide surety bonds.

TIF Insight

TIF Founder Vinayak Chatterjee wrote in Business Standard about the challenges to renewable energy in India. At a time when renewables account for a remarkable 83 per cent of the world's power generation capacity addition, as of 2022, spearheaded by wind and solar, some inherent challenges have also emerged. The solution is energy storage, which is set to grow at 23 per cent per annum. While China and the US are expected to drive around 60 per cent of these additions, India presents an intriguing scenario. Despite being projected to have the world's third-largest renewable energy capacity by 2030, India is likely to only be fifth in terms of energy storage.

Storage: New challenge for renewables

Renewables accounted for a remarkable 83 per cent of the world's power generation capacity addition in 2022, spearheaded by wind and solar. However, the mainstreaming of renewables has cast the spotlight on their inherent challenges — that they are intermittent and variable. The solution is energy "storage", which is set to grow at 23 per cent per annum. While China and the US are expected to drive around 60 per cent of these additions, India presents an intriguing scenario. Despite being projected to have the world's third-largest renewable energy capacity by 2030, India is likely to be fifth in terms of energy-storage installation.

In May 2021, the Indian government announced a ₹18,000 crore PLI (production-linked incentive) scheme for advanced cell chemistry battery manufacturing, hoping to draw in foreign and domestic investment of ₹45,000 crore.

In August 2023, the Ministry of Power issued the National Framework for Promoting "Energy Storage Systems" (ESS). This framework addresses in detail procedures and incentives across five sub-sectors of ESS. They are (i) storage with generation of renewable energy; (ii) storage with transmission; (iii) storage with distribution; (iv) standalone ESS operating independently as "merchant units"; and (v) storage for ancillary and balancing services.

Following this framework, in September 2023, India approved a ₹3,760 crore viability gap fund aimed to encourage the production of "Battery Energy Storage Systems" (BESS) for renewable energy storage. Under the scheme, the government committed itself to providing financial support of up to 40 per cent of the capital cost of BESS projects totalling 4,000 MW hours (MWh) till 2030-31. The government reiterated that this was in keeping with its desire to reduce the levelised cost of storage to ₹5.50-6.60 per kWh.

Further, the Ministry of Power has indicated the directive could be expected anytime now to have renewable projects with more than 5 MW install energy storage system (ESS) for minimum 5 per cent of their capacity.

In mid-December 2023, India's Ministry of Environment categorically stated at COP28, Dubai, that until storage (and related "abatement" technologies) became viable, the country could not commit itself to definitive time-lines to phase out fossil fuels, particularly coal.

Demonstrating its commitment to the global climate action agenda, India has set a target to achieve a 500 GW

renewable energy generation capacity by 2030, primarily supported by 292 GW of solar power. With anticipated misalignment between solar peak hours and demand peak hours, ESS will be critical.

The most common types of storage are BESS and PSP (pumped storage projects). Green hydrogen and ammonia are also considered alternative forms of storage, currently at various stages of development. Coupling ESS with solar and wind generation is paramount not just for ensuring energy supply reliability but also for providing a variety of required interventions for frequency response and voltage support towards grid quality improvement.

The Central Electricity Authority has projected a requirement of 60 GW of energy storage capacity by 2030; ie 12 per cent of the projected 500 GW of renewable capacity planned to be set up in the same period. This is to consist of BESS of 42 GW and PSP of 18 GW. Against this projection of 60 GW, the current visibility is about 30 GW.

Lithium is the key mineral ingredient for BESS. At a global level, Chile, Australia, China, Argentina and Brazil are reckoned to be the largest producers of lithium. India's lithium reserves were recently discovered in Jammu & Kashmir, and Rajasthan. Together, these two discoveries are estimated to take care of 90 per cent of India's demand. In spite of this, there is serious concern about lithium availability for batteries, volatility in other material components, high capex requirements for manufacture et al. In spite of various impediments, the power minister, R K Singh, informed Parliament recently that with the supporting environment in place, the cost of BESS was anticipated to be in the range of ₹2.20-2.40 crore per MWh in 2023-26.

The October 28 issue of *The Economist* has a detailed article on how cheap and abundant "sodium" could replace, or at least rival, lithium-based batteries with its version of sodium-ion (Na-ion) technology gaining traction alongside lithium-ion (Li-ion) batteries. If this sodium-based technology can be commercialised soon, it would be a big boost for India, with its vast availability of this salt.

As a viable alternative, India's familiarity with PSP makes it a compelling option for electricity storage, given its mature and proven technology. In essence, PSP harnesses surplus renewable electricity to pump water up and then release it down to hydropower plants, generating electricity as and when demand arises. Thus, the policy

focus in the short term is, rightfully, to rapidly operationalise PHS, bolstered by the fact that India has already identified 119 GW of PSP potential.

While the discovered "standalone" storage tariff has been ₹9-11/kWh, the integrated tenders have seen tariffs of ₹3-7/kWh. It may be clearly inferred that integrated tenders enjoy the advantage of combining and optimising solar and wind capacity with storage capacity to match demand on a round-the-clock basis, or in accordance with the dispatch requirements.

With various aspects of the energy storage ecosystem demanding attention, implementing a supportive framework is pivotal. Some of the suggestions are:

(i) Scheme of waiver of inter-state transmission charges to be extended till 2030 for electricity generated by ESS. This is currently applicable only for BESS/PHS projects commissioned up to June 30, 2025.

(ii) Rectifying the double-charging framework which treats ESS as a consumer while charging, and as a generator during discharging, incurring network charges twice. Globally, countries like the UK, Japan, and the US have tried resolving this by recognising storage as a generator. In India, the National Framework document labels energy storage as an intermediary element, advocating exemption of input charging power from various network charges. However, a crucial step forward will need a gazette notification to make it binding for states.

(iii) Exemption from open access charges and transmission charges needs to be done by states to promote storage installation.

(iv) Concessional goods and services tax of 5 per cent on grid-scale BESS vis-à-vis 18 per cent currently.

The Central Electricity Authority has projected that by 2047, the requirement of energy storage is expected to increase to 320 GW (90 GW PSP and 230 GW BESS) due to the addition of a larger amount of renewable energy vis-à-vis the net zero emissions targets set for 2070. Thus, the implementation of storage for India's green transition clearly emerges as the new challenge for the renewables vision.

The writer is an infrastructure expert. He is founder and managing trustee of The Infravision Foundation. The author acknowledges technical inputs from Vivek Sharma, an energy-sector specialist.

Disclaimer: Vinayak Chatterjee's earlier piece published on this page on November 22, titled Mundra Port @25: Trailblazing entrepreneurship, did not make the disclosure that Mr Chatterjee is a part-time advisor to the chairman of Adani Group, Mr Gautam Adani, on strategic issues. The omission of that disclosure is regretted.



INFRATALK

VINAYAK CHATTERJEE

Urban Mobility Studies Take Strides

The urban mobility studies by TIF with IIT Delhi and IIM Ahmedabad got a lot of attention in the media, beginning with reports on the conference held with CII in Delhi.

- CEO Jagan Shah was quoted in the digital platform, The Print, in two articles on urban mobility. While reporting that ridership of most metro rail systems in India is 25-30 per cent of projected ridership, The Print quoted Shah as saying: "The report is a ready reckoner for policy makers. They will understand why integrated public transport systems must account for the network of locations for boarding and alighting from each mode of transport, the different technologies required for travel and the varying investments and operational costs associated with each mode."
- The Economist also quoted the two reports, adding that "transport analysts and urban planners say India is backing the wrong horse. Bus services are far cheaper and more flexible for route-planning than metros. They can also be rolled out quickly. The emergence of electric buses has made them a greenish option, too".
- Two more articles are in the pipeline: in the financial newspaper, Mint, and the website, The Quint.

TIF@OutandAbout



ENERGY EFFICIENCY: Zamre at the conference

TIF COO Nitin Zamre spoke at the Right to Energy conference organised by ET Energy on December 5 in Delhi as part of the panel on Policies Framework for Sustainable Development. He spoke about the existing framework and what more needs to be done, even as he underlined the importance of energy efficiency and pricing in implementing sustainability policies.

Building Diversity



RECOGNISING DIVERSITY: Winners at the second edition of the CII EXCON Women Building India awards

TIF Co-Founder Rumjhum Chatterjee was a member of the jury for CII EXCON 2023: Women Building India – Equal Opportunity Awards. The aim of the awards and panel discussion was to encourage more women to join the male-dominated construction sector. The infrastructure space can only benefit from their inclusion.



Road Safety

TIF started work on a new project on highway road safety with the IIT Delhi team. The report will look at recommending ways to reduce accidents on Indian highways.



Water Bodies Survey

TIF completed the field survey to review and evaluate the first water bodies census in the state of Rajasthan. TIF intends to finalise the action points in the coming weeks.



High-Speed Railways

TIF will soon initiate a review of the need for extending India's high-speed rail network beyond the first corridor. The report will make an economic case for such an expansion, highlighting the priority corridors.

TIF Speaks to Experts

In a fresh episode of the Infravision Conversations, TIF spoke to Sudhanshu Mani, former general manager, Integral Coach Factory. Mani, a lifelong Railwayman, is the man responsible for the Vande Bharat trains, a totally homegrown experiment. Among other things, he spoke about the transformation in Indian Railways, and why well-off travellers need to subsidise the poor who suffer the greatest indignities.



TIF@TheMovies

Joram | Director: Devashish Makhija

Cast: Manoj Bajpayee, Mohd. Zeeshan Ayyub, Smita Tambe

Our proof isn't on paper; it's on our skin and on our palms. As the villagers protest at their land being taken away from them and given to a mining company, ironically named Pragati (Progress), Devashish Makhija casts his uncompromising eye on the price of development. With an agonisingly authentic performance by Manoj Bajpayee, playing a former Maoist rebel who runs away from his Jharkhand village to Mumbai to escape the cycle of violence, the film asks a searing question: who decides which uniform is just and which unjust? A fearsome tribal leader, played by Smita Tambe, hunts down every Maoist rebel in her village, and has her eyes set on Bajpayee. He was part of the Maoist group that killed her son, and she will spare no one in Operation Green Hunt. Like the villagers caught between the rebels and the police, the land too is a prisoner of progress, its trees stripped down to their barks, the riverbed dry, and the farms destroyed. The red earth tells the story of the blood and sweat of the tribals who once nourished it, worshipped it, and lived off it. It's a devastating movie of our apocalyptic times as a man and his baby fight for survival.



How much do you know about infrastructure?

1. Which waterfalls were used as the backdrop for the song, Deerane, in Baahubali 1?
2. When was the Oil and Natural Gas Commission set up?
3. Which are the seven infra sectors covered by the Gatishakti portal?
4. Where and when was Asia's first Export Processing Zone (EPZ) set up?
5. What percentage of rural households in India has electricity connections according to the 2001 Census?



1. Athirappally and Vazhachal Falls in Kerala 2. 1956 3. Roads, ports, mass transport, railways, waterways, airports, and logistics infrastructure 4. Kandla, Gujarat, in 1965 5. 59 per cent.

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