Trends and Developments

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Recent Trends That Are Shaping the Alternative Energy Narrative in India

Energy storage devices

Battery storage systems (BSS) are emerging as a potential solution for integrating solar and wind renewables in power systems across the globe, including India. Such systems have the unique capability to quickly absorb, hold, and then re-inject electricity, which provides an instantaneous response to transmission-distribution network systems to manage any variability caused by generation from renewable energy sources. According to the International Energy Agency, India will be the country with the greatest need for additional flexibility in the coming decades and BSS are ideally suited to meet those requirements.

The National Institution for Transforming India (NITI Aayog), a government of India agency involved in policy making on various issues, has listed the key challenges for the growth of BSS business in India, namely:

- low mineral reserves required for lithium-ion (Li-ion) batteries;
- lack of expertise in manufacturing BSS leading to dependence on imported storage systems which may not be cost effective;
- lack of co-ordination between key stakeholders of BSS which include material suppliers, battery manufacturers, vehicle manufacturers, local and central governments, research institutes and think tanks; and
- lack of clearly defined long-term policies acting as a deterrent for investors and technology providers.

In this context it is pertinent to note that the Solar Energy Corporation of India, the nodal agency for conducting renewable energy tenders in India, recently concluded the world's largest renewables-plus-storage energy procurement tender pursuant to which 1.2 GW of capacity were awarded to Hyderabad based Greenko Energy and Gurugram based ReNew Power. This trend is likely to see sustained traction in the foreseeable future.

Financing trends in renewable energy

India's ambition of generating 175 GW of renewable energy by 2022 creates a need for massive funding. The Ministry of New and Renewable Energy (MNRE) received a major boost with budgetary allocation going up by 48% in comparison to the revised allocation in the last fiscal. Although the financing structure of renewable energy in India has traditionally been dominated by banks, other investors have demonstrated a keen interest of late. These investors range from commercial banks to private equity investors, institutional investors and development banks. The 100% tax exemption granted to sovereign wealth funds in respect of their interest, dividend and capital gains income from investments in infrastructure and other notified sectors before 21 March 2024 (with the only condition on such an exemption being a minimum lock-in period of three years) has led to a significant increase in investment interest in renewable projects.

In another positive development, the government of India (GOI) has set up a non-banking, dedicated financial institution, called the Indian Renewable Energy Development Agency Limited (IREDA), to support renewable energy projects by offering soft loans, counter guarantees, securitisation of future cash flows, etc. IREDA often sources funds from international agencies and banks to provide such loans for renewable energy projects. In addition to IREDA, organisations such as the Power Finance Corporation (PFC), Rural Electrification Corporation (REC), and the National Bank for Agricultural and Rural Development (NABARD), are the key government agencies providing required finance for the renewable energy sector. Further, the National Clean Energy and Environment Fund (NCEEF) and Infrastructure Debt Funds (IDFs) are funding mechanisms available to support, inter alia, renewable energy financing in India. IREDA also uses NCEEF to provide subsidised debt to renewable energy projects through select banks.

Blockchain technology for peer-to-peer solar power trading

Historically, the power sector in India has been plagued with challenges that have hampered investment, innovation and growth. One of the primary concerns voiced by a range of industry stakeholders pertains to the weak enforcement of contracts, which creates financial and operational distress that often leads to litigation. Blockchain-based smart contracts are increasingly being seen as a potential solution to help alleviate these concerns, especially as they are self-executable, immutable, and transparent.

While blockchain-based smart contracts are being experimented for automation of peer-to-peer transactions in select microgrids, the potential of blockchain technology can also be explored for automating and enforcing traditional power pro-

curement arrangements between procuring utilities and power generating companies. Pilot programmes employing the use of blockchain technology are already being tested in India to develop peer-to-peer solar power trading platforms. One such instance is BSES Rajdhani Power and Power Ledger partnering with each other to enable residents of a gated community with rooftop solar plants to sell excess solar power to their neighbours, instead of letting it spill into the grid. Another example is Uttar Pradesh Power Corporation and Uttar Pradesh New & Renewable Energy Development Agency partnering with Power Ledger to enable certain government buildings and prosumers to carry out peer-to-peer transactions for the trading of surplus solar rooftop power. Notably, this appears to be India's first blockchain-based power venture to have received regulatory approval as it has been approved by the Uttar Pradesh Electricity Regulatory Commission.

Green banks

In 2015, the Reserve Bank of India(RBI) included lending to renewable energy projects and social infrastructure projects within its priority sector lending targets. Since then, green banks have emerged as an innovative tool for accelerating clean energy financing. With issuances amounting to USD60 billion in 2018 along with average maturity of over 15 years, green loans are another vibrant instrument supporting clean energy financing.

Green bonds, carbon market instruments and fintech based green funds are now at the forefront of climate change financing. The risk holdings in the case of green bonds are similar to those of other bonds. Green bonds must also acquire the desired credit rating to attract institutional financing. With green bond issuance gaining momentum and totalling about USD7.7 billion between 2012-2018, SEBI set out disclosure requirements for the issuance and listing of green debt securities in India in May 2017.

Given the rationalised norms, external commercial borrowing is playing a vital role in financing renewable energy projects. Recently, the state-run generation utility NTPC raised a Japanese yen loan worth USD750 million, the largest ever debt raised by any Asian corporate from the offshore Samurai loan market, to fund its green push and acquisition of hydel units under the centre's disinvestment plan – it has been raised under the automatic route provided in the RBI guidelines for external commercial borrowing.

Surge in rooftop solar power projects

Rooftop solar power (RSP) projects have seen significant growth across all four major segments (commercial, industrial, residential and public sector buildings). This is in line with India's ambitious target of generating 175 GW of renewable energy by 2022, which includes 100 GW of solar power, 40% of which is expected to be achieved through decentralised and rooftop solar projects.

Aside from being an economical and clean alternative to conventional energy sources, RSP projects help ensure independence from grid-based energy sources and also help consumers become micro-generators of power. The following factors have contributed to the growth of RSP projects in India:

- 15% government subsidy for non-commercial and non-industrial categories for using domestic solar panels;
- 17 state electricity regulatory commissions have announced a regulatory framework on net-metering/feed-in tariff to encourage RSP projects;
- the formulation of rooftop solar scheme SRISTI (Sustainable Rooftop Implementation for Solar Transfiguration of India) by the GOI pursuant to which INR234.5 billion (USD3.1 billion) is proposed to be funded for development of RSP projects;
- the cost of electricity of rooftop solar being lower than the existing average grid rates of tariffs for many states and the decreasing gap between RSP projects and conventional sources of electricity; and
- RSP projects already achieving grid parity in the residential sectors in states such as Uttar Pradesh, Maharashtra and Rajasthan and becoming competitive government sectors in Delhi, Uttar Pradesh, Karnataka, Haryana and Andhra Pradesh.

M&A opportunities in renewable energy

The GOI's ambitious target of generating 175 GW of renewable energy by 2022 – easily the world's largest renewable power programme – has provided immense opportunities for both domestic and international players leading to the scaling up of M&A activities involving both strategic and financial investors.

One of the largest renewable energy sector deals in the country was French oil and gas major Total SA's acquisition of 50% of Adani Group's solar assets for USD510 million, following which both parties formed a 50:50 joint venture company to set up green energy projects. Other large deals are Tata Power's acquisition of 1.1 GW assets from the Welspun Group, Greenko Group's acquisition of SunEdison's India portfolio, and the merger of Orient Green Power and IL&FS Wind Energy.

Multilateral and bilateral agencies as well as sovereign wealth funds have pumped significant foreign direct investment into the Indian green energy sector, spread across solar and wind power generation firms. Several global funds which include Singapore based GIC Holdings, Abu Dhabi Investment Authority, SoftBank, Brookfield, CPPIB and CPDQ from Canada, ORIX (Japan), Sembcorp and APG (Holland), among others, have

invested in the Indian renewables' growth story. The private equity arms of Goldman Sachs, JP Morgan and Morgan Stanley have also made a foray into the sector. We expect the M&A activity to pick up further as India focuses on large infrastructure projects to boost job creation and economic development in the aftermath of the COVID-19 pandemic.

"One Sun One World One Grid"

"One Sun One World One Grid" (OSOWOG) is an initiative which was recently proposed by the GOI to set up a framework to facilitate global co-operation for the building an ecosystem of interconnected renewable energy resources that can be mutually shared. The aim is to build global consensus on the sharing of solar resources among more than 140 countries of West Asia and South-East Asia and, subsequently, the interconnection of the grid with the African power pools at a later stage. The GOI has recently rolled out a request for proposals (RFPs) from consultants for the development of OSOWOG's long-term vision, implementation plan, road map and institutional framework.

The initiative is being planned in three phases as outlined below.

- Phase I – Interconnection of Middle East, South Asia, South-East Asia: The Indian grid will be interconnected with the Middle East, South Asia, and South-East Asia to share solar and other renewable resources for meeting electricity needs, including peak demand.
- Phase II – Interconnection of solar and other renewable-rich regions: Here, the grids under the Phase I grid will be interconnected with the African power pools to share solar and other renewables from the resource-rich countries.
- Phase III – Global interconnection: To achieve the One Sun One World One Grid vision.

Amendments to the Guidelines for tariff-based competitive bidding process for procurement of power from grid-connected solar PV power and wind projects, 2019 ("the Revised Guidelines")

MNRE issued the above-mentioned amendments with several key changes in respect of solar PV power and wind projects.

Solar PV power projects

- Tariff adoption – the distribution licensee is required to approach the appropriate commission for the adoption of tariff. If the commission fails to decide on the tariff within 60 days of submission, the tariff will be deemed to have been adopted by the appropriate commission. Further, if the commission delays the adoption of tariff beyond 60 days, the deadline for financial closure and the scheduled commissioning date will also be extended.

Delays in obtaining approval for tariff adoption from the regulators were creating uncertainty for some of the projects under construction and the lending institutions were reluctant to provide loans to the developers to finance such projects. There have been instances where a few state distribution companies (DISCOMS) were terminating power sale agreements (PSAs) on account of a deemed termination clause in the agreement which stated that if tariff is not adopted by the regulators in a specific duration, power purchase agreement (PPA)/PSA would be automatically terminated. With the amended provision, the appropriate commission will be forced to adopt the tariff in a time bound manner.

- Land acquisition – the solar power developer is required to submit documents and lease agreement to establish 100% possession of the required land for the complete term of PPA on or before the scheduled commissioning of the project. Previously, the guidelines only mentioned that the requisite documents and lease agreements to establish the right to use 100% of the land had to be submitted within 12 months of the execution of the PPA.
- No back-down/curtailment – curtailment has been one of the main contentious issues in the Indian renewable energy industry in spite of it having accorded "must run" status to renewable energy power plants. To address the issue of unreasonable and artificial curtailment by DISCOMS, the Revised Guidelines have increased the compensation provided to solar developers for arbitrary curtailment by DISCOMS. In case of back-down of power for reasons other than grid security, the earlier guidelines considered 50% of average generation per hour during the month to calculate the minimum generation compensation for solar power developers. The Revised Guidelines will consider 100% of the average generation per hour during the month when calculating such compensation. Further, it has also been stipulated that no back-down or curtailment can be ordered without formal or written instruction, and the details of back-down, including justifications for such curtailment, have to be made public by the concerned state load dispatch centre.

Wind power projects

The Guidelines established by MNRE were amended in 2019 with the aim of enhancing the bankability of projects and improving profitability for investors. The key changes for wind power projects are the following.

- Land acquisition – the timeline for land acquisition for wind power projects has been increased to provide sufficient time to developers to acquire the land. According to the earlier guidelines, the requisite documents and lease agreements to establish the right to use 100% of the land had to be

submitted within seven months of the execution of the PPA. As per the Revised Guidelines, the wind power developer is required to submit documents and lease agreements to establish 100% possession of the required land for the complete term of PPA on or before the scheduled commissioning of the project.

- Capacity Utilisation Factor (CUF) – the window for revision of declared CUF of wind power projects has also increased from one year to three years. The Revised Guidelines state that the wind power generator will declare the annual CUF of its project at the time of signing the PPA and will be allowed to revise the same once within first three years of the commissioning date.
- Commissioning – the amendments intended not only to reduce the investment risks related to the land acquisition and CUF but also to provide incentives for early part commissioning of a project. The commissioning schedule of a wind power project has been defined as 18 months from the date of execution of the PPA or PSA, whichever is later. This reduces the risk to wind power developers in case of a delay in the signing of a PSA.

The wind power generator will be permitted for full commissioning as well as part commissioning of the wind power project even before the scheduled commissioning, subject to availability of transmission connectivity and long-term access. In case of early part commissioning, the procurer can purchase the generation at the PPA tariff.

Power producers receive relief under supervisory powers of Appellate Tribunal for Electricity (APTEL)

Three solar power producers, namely, Ayana Renewable, Sprng Energy and SB Energy breathed a sigh of relief after APTEL stepped in to save their projects and investments in the Kadappa Solar Park and Ananthpuramu Solar Park in Andhra Pradesh. As part of a bidding process conducted by NTPC/SECI, these developers invested a substantial amount of money in implementing solar projects in the state of Andhra Pradesh and signed PPAs/PSAs with the Andhra Pradesh DISCOMS (AP DISCOMS) with NTPC/SECI as an intermediary procurer. The solar developers were faced with a peculiar situation, where the PPAs/PSAs had not been formally approved by the Andhra Pradesh Electricity Regulatory Commission (APERC) under Section 63 of the Electricity Act, 2003 (EA, 2003) for over 18 months, creating issues with the lenders. To add to their woes, the PPAs/PSAs incorporated a deemed termination clause if the stated orders were not given by APERC in a time bound manner.

Facing these kind of risks on projects and the regulatory uncertainties in the state of AP, the power producers approached APTEL under Section 121 of the EA, 2003 according to which APTEL has supervisory powers to issue orders/instructions to any appropriate commission for performance of its statutory functions under the EA, 2003. APTEL intervened in the matter and ensured that the investments made by investors were secured and laid down certain principles:

- if tariff is discovered in a bidding process under Section 63 of the EA, the appropriate commission is required to adopt the tariff discovered;
- applicability of Section 86 (1)(b) is limited to consideration of merits of the case with respect to the guidelines ie, were guidelines on the competitive bidding process followed or not; and
- the very initiation of a public hearing is quite contrary to the spirit of Section 63 of the Act.

Unilateral revision in tariff

On 1 July 2019 the state government of Andhra Pradesh issued an order for the setting up a high level negotiation committee to renegotiate tariff of the existing projects; this order was challenged by the renewable energy developers. On 24 September 2019, the Andhra Pradesh High Court (AP High Court) quashed the 1 July 2019 government order, observing that the state government had no power to unilaterally reduce the tariff and held that the state cannot seek changes to an agreement signed between the distribution company and a developer. However, it directed AP DISCOMS to approach APERC to seek any revision of concluded tariffs. It further directed AP DISCOMS to continue to make interim payments at interim rates to solar generating companies (gencos) and wind gencos pending disposal of the petition by APERC.

Many renewable gencos challenged the judgment, including the requirement of approaching the state regulator and suffering financial distress, and sought all pending payments from the state DISCOMS. A division bench of AP High Court headed by the AP Chief Justice directed state DISCOMS to continue payments to renewable gencos in compliance with the single bench order. While AP High Court is ensuring the continuous payments to developers at the interim rate fixed by the single bench, the matter is still pending for final adjudication.

This order provides a semblance of comfort and certainty to investors who had been reeling from regulatory uncertainty, PPA rollbacks, tariff reductions and a host of other constraints. This order will give a boost to the existing renewable gencos, enabling them to continue their operations and safeguard their investments.

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HSA Advocates was established in 2003 and its focus on continuing evolution has enabled it to constantly adapt to emerging market dynamics and deliver consistent value to clients. Its power, energy and infrastructure team, comprising of ten partners and over 30 attorneys, prides itself on combining knowledge, experience and expertise to create outcome-oriented solutions to ensure its clients stay ahead of emerging opportunities and risks. The team has been involved in the tendering, construction, financing and operation of both large-scale and small-scale developments such as wind and solar energy power plants; solar parks; transmission lines; storage facilities; airports and ports; railways and metro-railways; and highways. The firm's other areas of expertise include banking and finance; restructuring and insolvency; corporate and commercial; regulatory and policy; defence and aerospace; dispute resolution; environment, health and safety; real estate; securities and capital markets; technology, media and telecommunications; taxation; and investigations. HSA measures its success by the service it provides to clients, irrespective of the size, scope and scale of the matter at hand. The firm comprises a team of over 30 partners and over 150 professionals based out of four offices across India's major cities – Delhi, Mumbai, Bangalore and Kolkata.

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