

# Scaling Up Renewable Energy Investment in India in the Wake of COVID-19



## Actions to scale up renewable energy investment in India:

1. Factor the socio-economic benefits of renewables into economic recovery stimulus funding
2. Accelerate the coal phaseout in the power sector to unlock further investment in renewables
3. Ensure long-term policy certainty and clarity on permitting and consenting projects
4. Ensure predictable timelines and transparent tendering processes for auctions
5. Upgrade the capacity of transmission and distribution systems
6. Strengthen policy frameworks for storage, green hydrogen and system flexibility solutions
7. Foster dialogue between investors and policy makers

As the third largest economy and the second most populous country in the world, India has a significant role in determining the pace and scale of the global energy transition. Although domestic coal and imported gas continue to dominate India's power mix – comprising over 60% of its installed capacity – the country has high ambitions to decarbonise its electricity system. With an adopted target to install 175 gigawatts (GW) of renewable electricity capacity by 2022 and a vision for 450 GW by 2030, the Indian government reaffirmed its commitment to renewable energy at the Leaders Summit on Climate in April 2021. In its nationally determined contribution (NDC) under the Paris Agreement, India aims to achieve 40% of installed power capacity from non-fossil fuels by 2030. The country's broader energy transition targets include ambitious energy efficiency programmes and electrification of end uses, including large-scale uptake of electric vehicles. The government has also placed a stronger emphasis on creating an innovation and manufacturing ecosystem with production-linked incentives approved for certain renewable energy technologies.

By the end of 2020, installed renewable energy capacity in India reached 136 GW, making up approximately 36% of the country's overall power capacity according to the Ministry of New and Renewable Energy (MNRE). Hydropower comprises the largest share, with 50.5 GW of installed capacity, while wind and solar power currently stand at 38.5 GW and 36.9 GW, respectively.

Capital access, technology advancements and a maturing enabling framework allowed renewables to reach high cost-competitiveness across India and record-breaking volumes of installations for years. However, from 2018 onward, renewable energy growth has slowed due to challenges including policy inconsistency on the federal and state levels, limitations on grid capacity, unclarity around land permitting, stringent tender conditions, as well as the COVID-19 pandemic.



As a result, government renewable energy tenders have been hampered, with nearly one-third of wind auctions going unsubscribed or cancelled in the last three years and some delays to solar tenders. Addressing these challenges could rapidly accelerate progress towards India's 2030 renewable energy target and maximise its potential to unlock significant socio-economic benefits, including increased employment, gross domestic product (GDP) and welfare gains. Targeted “push and pull” measures and further removal of market and regulatory barriers are required to restore the renewable energy sector's pace of growth, reduce the cost of capital and attract substantial investment for new projects, including through corporate sourcing.

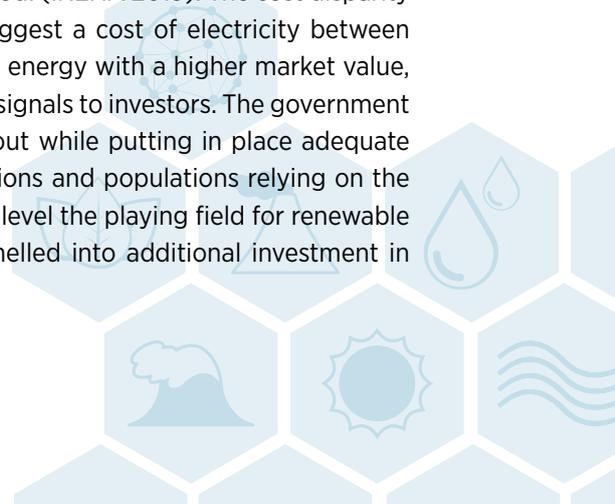
The IRENA Coalition for Action Business and Investors Group, which brings together leading renewable energy players, sees tremendous potential for further investments in India. The group represents a significant portfolio of renewable energy assets worldwide and is planning to further contribute substantial additional investments needed for a green economic recovery post-COVID-19 and to reach global climate objectives. From an industry point of view and based on its engagement in the Indian market, the Business and Investors Group has put together the following key recommendations that the government may wish to consider to further accelerate renewable energy deployment:

## **1. Factor the socio-economic benefits of renewable energy into economic recovery stimulus funding**

Renewable energy can play a vital role in advancing a green post-COVID recovery and local development. While the government introduced policy measures at an early stage to mitigate COVID-19 impacts on the renewable energy industry and the power sector broadly, much of the stimulus funding continues to be directed towards the fossil fuel sector. Steering investment away from fossil fuels and towards renewables has the potential to bring massive socio-economic benefits to the country and avoid stranded assets. Under the IRENA Transforming Energy Scenario, India's GDP could grow by an average of 1.4% per year from now until 2030 and by an average of 1.7% per year from 2030 until 2050 compared to the Planned Energy Scenario. More importantly, a large number of energy transition-related jobs would be created, outnumbering jobs lost in the fossil fuel sector. According to IRENA, jobs in renewables would reach up to 2.4 million in 2030 and 3.4 million in 2050. With the addition of energy efficiency and system flexibility jobs, the numbers would amount to 4.7 million in 2030 and 6.4 million in 2050.

## **2. Accelerate the coal phaseout in the power sector to unlock further investment in renewables**

Excess capacity and already-stressed fossil fuel assets make it less economical than ever to invest in new conventional power generation. Renewables are already the most affordable energy resources on India's grid. For example, at USD 0.045/kWh, the weighted average of newly commissioned utility-scale solar PV projects was the most competitive globally in 2019. This represented a decline of 85% from its value in 2010, driven by total installed costs reduction of 88% during the period. (IRENA 2019). The cost disparity with coal will continue to widen, as auction and tender results suggest a cost of electricity between USD 0.03 and 0.04/kWh in 2021. Although this provides renewable energy with a higher market value, the current blended approach to coal and renewables sends unclear signals to investors. The government may consider committing to an ambitious timeline for coal phaseout while putting in place adequate policy and financing instruments to ensure a just transition for regions and populations relying on the formal and informal coal economy. Removing subsidies for coal will level the playing field for renewable energy and enable substantial public savings that could be channelled into additional investment in energy transition-related technologies and infrastructure.





### **3. Ensure long-term policy certainty and clarity on permitting and consenting for renewable energy projects**

India's renewable energy sector has attracted significant interest from public and private investors, both domestic and foreign. However, investor appetite – including for corporate sourcing – has been impacted by policy and regulatory uncertainties in recent years.

The main areas of concern in this regard are delayed/cancelled tendering schemes, renegotiated power purchase agreements (PPAs), delayed payments, delayed grid connectivity and retrospective changes in land acquisition. In the wind sector, changes in land policies have impacted the timelines and costs of many projects awarded under central auctions. A long-term and stable policy framework, as well as clarity on land availability, allotment and permitting, is key to investors' confidence in India's renewable energy sector and to prevent project delays. In light of limited land availability, the government may want to further explore the possibility for offshore wind and floating solar PV already trending in some states. The policy framework for deploying renewables in non-electricity sectors such as the heating/cooling and transport sectors also needs to be strengthened. With transport sector electrification being supported through national schemes, such as the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME), and state-level dedicated electric vehicle policies, coupling with renewable power should be actively pursued to maximise economic and environmental benefits.

### **4. Ensure predictable timelines and transparent tendering processes for renewable energy auctions**

Due to the slowdown in renewable electricity deployment in recent years, risk perceptions for investors in new renewable energy assets have increased in India. A clear and long-term schedule/trajectory for upcoming auctions would allow developers to better plan their participation, adjust their expectations and quote sustainable tariffs in their proposals. Additionally, introducing a long-term plan and steady stream of new projects helps the government promote the development of a local industry. Currently, aggressive tariff setting to win tenders at any price leads to developers not being able to build the plants. There are a variety of auction design elements that could address this problem, such as bid bonds, project completion bonds, floor prices, etc. On other occasions, tenders have been undersubscribed and cancelled because bid prices were deemed to be too high, even when they were below the ceiling price.

### **5. Upgrade the capacity of transmission and distribution systems**

To realise India's ambitious renewable energy targets, there is a need to continue attracting investment into the grid and its modernisation to enable renewable capacity growth, both for the transmission and distribution network. The lack of short and long-term grid visibility has been a growing concern for the renewable energy industry and sometimes is cited as a reason for low participation in auctions. In some areas in India, land availability and high resource potential sites around substations have resulted in grid congestion. Planning timelines for grid connection outpace plans for grid augmentation, resulting in delayed projects. Grid augmentation and construction of additional substations should be prioritised to ensure that renewable energy can be widely integrated across the country. In the process of grid modernisation, the government may also opt to implement technical improvements for forecasting and smart distribution systems, in order to support balancing with a larger share of renewable energy. The introduction of long-term auction schedules, as highlighted above, would further provide better guidance for planning the grid infrastructure and ensure smooth integration of the stream of new projects.



## 6. Strengthen policy frameworks for storage, green hydrogen and system flexibility solutions

India is on its way to transforming its power mix to rely on very large shares of variable renewable energy. This requires building a more flexible and resilient power system, including through large-scale deployment and integration of storage technologies. The Indian government has stated the need for an additional 35 GW of storage capacity by 2030 to support the transition, up from just under 5 GW today. To realise this ambition, a comprehensive regulatory framework for transition-related technologies should be adopted that provides investors with clear price signals, including through the provision of appropriately remunerated ancillary services. In this context, India's recently launched Green Hydrogen Mission was much welcomed by the renewable energy industry. Last year's round-the-clock renewables-plus-energy-storage capacity tenders – involving both pumped storage and battery energy storage – are another positive step to improve renewable energy integration. Further round-the-clock tenders can incentivise the development of hybrid projects by strengthening the requirements for even dispatch on a scheduled basis.

## 7. Foster dialogue between investors and policy makers

Increased dialogue between investors and authorities would help provide further policy clarity and assess investment risks and opportunities across the country. The Coalition for Action Business and Investors Group stands ready to support and engage in such dialogue.

### About the IRENA Coalition for Action

The IRENA Coalition for Action brings together leading renewable energy players from around the world. The Coalition facilitates global dialogues between public and private sectors to develop actions to increase the share of renewables in the global energy mix and accelerate the global energy transition. Within the Coalition, the Business and Investors Working Group is chaired by the Global Wind Energy Council and SolarPower Europe. The Group puts forward analysis and recommendations based on on-the-ground experiences of some of the leading private sector players in the renewable energy field. IRENA acts as the Secretariat of the Coalition. <https://coalition.irena.org>

**Coalition for Action Business and Investors Group Members:** ABB, Abengoa Solar, ACCIONA, Alectris, Alliance for Rural Electrification (ARE), AMEA Power, Boston Consulting Group, Clean Energy Business Council MENA, Confederation of Indian Industry (CII), Dii Desert Energy, Enel Green Power, Energy Watch Group, European Geothermal Energy Council (EGEC), Falck Renewables, Finergreen, First Solar, FTI Consulting, Global Solar Council (GSC), Global Wind Energy Council (GWEC), Graded, Iberdrola SA, International Council for Local Environmental Initiatives (ICLEI), International Geothermal Association (IGA), International Hydropower Association (IHA), International Network for Sustainable Energy (INFORSE), International Renewable Energy Agency (IRENA), kiloWattsol, Lekela Power, Lusophone Renewable Energy Association (ALER), Mainstream Renewable Power, MAKE/Wood Mackenzie, Masdar, Middle East Solar Industry Association (MESIA), National Solar Energy Federation of India (NSEFI), New Energy Nexus, Novozymes, Ocean Energy Europe, Ørsted, Phanes Group, QWAY energy, Rahimafrooz Renewable Energy, Renewable Energies Association of Colombia (SER Colombia), Renewable Energy and Energy Efficiency Partnership (REEEP), Res4Africa Foundation, Ryse Energy, Siemens Gamesa Renewable Energy, SkyPower, SolarCoin Foundation, SolarPower Europe, Syndicat des énergies renouvelables (SER), TCX Fund, TERI School of Advanced Studies, The Climate Group/RE100, The Nature Conservancy, Trina Solar, Vestas Wind Systems, World Bioenergy Association (WBA), World Business Council for Sustainable Development (WBCSD), World Resources Institute (WRI), World Wind Energy Association (WWEA), World Wide Fund for Nature (WWF), Yellow Door Energy.

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