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OPINION: Why the future of climate action rests on strong renewable energy supply chains

The future of energy security is contingent on building robust, efficient, and standardized supply chains for solar and wind energy, green hydrogen, and battery energy storage systems.



R Rajiv Ranjan Mishra , • ETEnergyWorld
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Three decades is a long time to accomplish any reasonable goal. It is also a long enough time for things to go wrong. According to the International Renewable Energy Agency (IRENA), by the year 2050, almost 90 percent of electricity

generation can and should come from renewable energy (RE) sources to move the needle on the UN-prescribed Sustainable Development Goals. Even as nations around the world look at ways to boost their respective RE capacities to reduce their emissions, global disruptions such as the Covid-19 pandemic, the Russia-Ukraine war, and the fallouts of the US-China Strategic competition have exposed chinks in the global RE supply chain. These supply chains were originally built to support what was then a fledgling industry. Today, however, with RE taking center stage, the vulnerabilities of the old approaches have become apparent. The world needs robust, efficient, standardized RE supply chains not just within but between countries; no country can be left out. The future of energy security is contingent on building such supply chains for solar and wind energy, green hydrogen, and battery energy storage systems.

The need for a far more even spread of supply chain capabilities across countries

RE supply chains involve complex technical processes and depend on multiple factors, including access to critical minerals, rare-earth elements, technology, and capital; availability of skilled workers and uninterrupted, reliable electricity; and the presence of robust infrastructure. Owing to their technology-intensive and capital-intensive nature, the manufacturing capacities of RE technologies and sub-components are currently concentrated in only a handful of countries. For instance, almost 70 percent of the global exports of solar photovoltaic equipment come from just four countries. In wind power equipment, too, four countries have accounted for more than 80 percent of the total exports in the past ten years. The battery component manufacturing ecosystem, meanwhile, is concentrated in China, Japan, and Korea.

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RE deployment simply cannot afford to be dependent on imports from a limited number of equipment providers in a few countries. Should the supply stop for any reason – geopolitical, economic, market-related, pandemics or natural disasters – the RE momentum of the whole world will be at risk. It is essential, therefore, to build new manufacturing capacities across nations, including and especially in developing nations like India, which have the comparative advantages and the vision to contribute to the global movement in an inclusive, equitable manner. India's Production Linked Incentive (PLI) scheme is an example of a positive step towards stimulating innovation and competition in the renewable manufacturing space. However, PLI may not be sufficient to address the deeper structural issues that are limiting India's industrial competitiveness. The government should also continue its focus on improving the overall business environment in India.



The world's biggest economies have led the way in deploying RE and building RE supply chains. They should bear the responsibility of ensuring that these supply chains benefit not just themselves but the entire global community. International forums must serve as platforms to highlight the experiences, concerns, and demands of the governments, regulators, industries, and the consumers of all countries – not just of specific blocs or geographical regions. The G20, for instance, should ensure that smaller economies become equal partners in enabling the global energy transition. This applies particularly to the “Global South”, which has traditionally been more a consumer than a producer of RE technologies.

The importance of multilateralism, global collaborations, and stakeholder involvement

India, which recently assumed the G20 Presidency, is playing a very important role in shaping the global energy landscape. India had proposed, and is a founder-member of, the International Solar Alliance (ISA), which has more than a hundred Member and Signatory countries

working to improve global energy access and energy security. ISA is partnering with multilateral development banks, financial institutions, private and public sector organizations, and other international institutions to deploy cost-effective solar-based solutions, including in the least developed countries and small island developing states. Meanwhile, the One Sun One World One Grid (OSOWOG) initiative, also conceptualized by India, is trying to create a transnational electricity grid that will supply power to nearly 140 countries. When the grid is fully functional, the power generated during the daytime in one part of the world can be transmitted to other parts of the world, where it is night. These initiatives epitomize the kind of ambition and the level of mutual cooperation that the world, today, needs.

Effective multilateralism must be the way forward to reconfigure RE supply chains. An open, global supply chain will support the energy transition far better than the siloed efforts of individual countries with closed borders ever will. It might even address the challenges that countries today face with green hydrogen – a clean energy technology with a lot of promise that hasn't yet taken off. Green hydrogen technology is currently in the nascent stages of development, and the sooner the supply chain for it is established, the faster it will help the world reach its net-zero goals. Presently, the certification systems used by different countries conflict with each other and act as trade barriers, especially in the matter of defining green hydrogen. Global harmonization of standards, regulations, and certification systems will help greatly in scaling up the green hydrogen ecosystem.

RE supply chains for the future must be developed at a rapid pace to avoid a climate catastrophe. However, as we know, supply chains are deeply affected by changes in government policy or by shifts in the needs

of customers, suppliers, and third parties. The RE supply chains that we develop now must therefore be resilient to geopolitical and trade-related upheavals. Approaches for doing so should be developed through consultations with the concerned stakeholders, as well as with domestic and international experts. The focus should be on tracking global RE manufacturing capacities and trade flows; creating new avenues for supply; attracting greater investments across the supply chain; encouraging co-development of technologies; and facilitating the development of globally accepted standards and certification systems for new and emerging RE technologies. If we do all of that, RE supply chains will become a key economic engine for the 21st century.

[This piece was written exclusively for ETEnergyworld by Rajiv Ranjan Mishra, Managing Director, Apraava Energy]

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Apraava Energy bags two green energy inter-state transmission projects in Rajasthan

These are the company's first greenfield transmission projects



[ETEnergyWorld](#)

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New Delhi: [Apraava Energy](#), an integrated energy solutions provider, on Thursday said it has been awarded two inter-state transmission projects in [Rajasthan](#) under the tariff-based competitive bidding process.



According to the official press release, the projects will be developed by the company under the build-own-operate-transfer model and are part of the scheme developed for the evacuation of 20-GW power from renewable energy zones in

Rajasthan under Phase III.

It added that these are the company's first greenfield transmission projects.

“These two wins will further enhance our capabilities in the transmission business and help accelerate our growth strategy. As India witnesses an increasing share of renewable energy, the need for a robust transmission network to evacuate this power is also growing and we are well placed to contribute to this need,” said Rajiv Ranjan Mishra, MD, Apraava Energy.

He said that the company will be working with stakeholders in Rajasthan and the Central Transmission Utility to build the networks.

“These two projects will bring economic opportunities to the region and help create more jobs. We will leverage our years of experience in operating three wind farms namely Bhakrani with 102.4 MW, Tejuva with 100.8 MW, and Sipla with 50.4 MW capacity in Jaisalmer Region in successfully setting up these greenfield transmission projects in the state,” said Naveen Munjal, director – business development and commercial, Apraava Energy.

The company in its official press release said that it will be responsible for the ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the project, and to provide transmission services for a period of 35 years. At the end of the 35 years, the project will be transferred to the Central Transmission Utility.

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