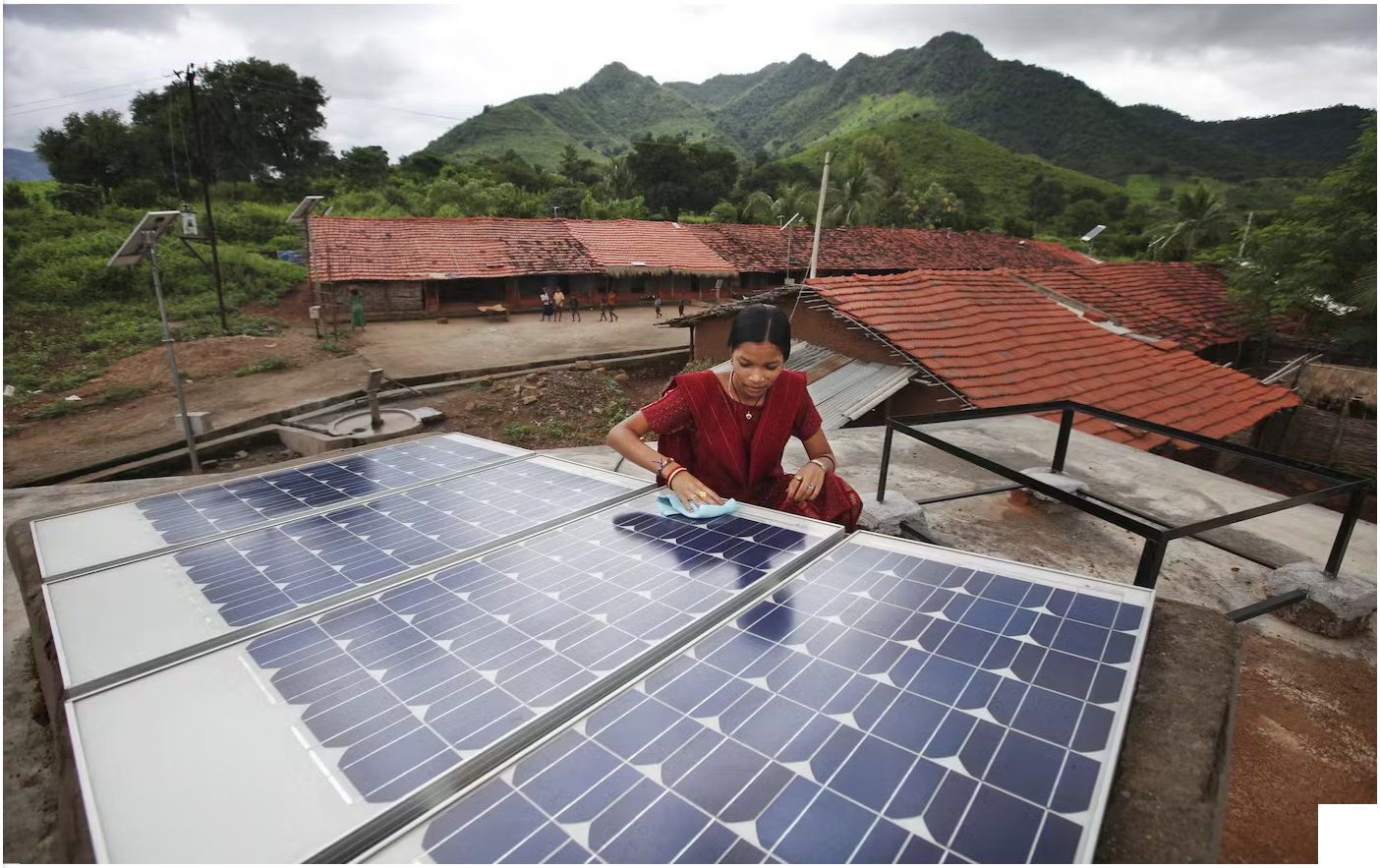

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Improvising power trade in South Asia can ease renewable energy access in the region

India envisions to have an interconnected power grid in the South Asian region with many participating countries.

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Despite impressive macroeconomic growth, South Asia is plagued by numerous challenges that make the transition to renewable energy difficult.

High energy prices, energy deficit, lack of reliable and sustainable energy supply, energy security concerns, last mile energy access issues and funding issues for a sustainable and affordable clean energy transition are just some of them.

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Increasing population, rising energy demand, extreme weather/climate conditions such as heatwaves in India and Pakistan, climate change vulnerabilities, regional geopolitics and global geopolitical events such as the Russia-Ukraine war have intensified regional energy problems.

Volatility and instability in global energy markets increased the vulnerabilities of South Asian countries in their endeavours to provide reliable and affordable energy. South Asian nations heavily rely on fossil fuel sources for their domestic energy needs such as cooking and basic lighting, as well as for their regular electricity supply (63.6 per cent of their electricity capacity is based on fossil fuels), according to a report on One Sun, One World, One Grid 2021.

The countries of South Asia, however, are fortunate to have a wealth of renewable energy resources dispersed throughout the area. Only 18 per cent of the 350 gigawatts combined hydro resources have been used.

South Asian nations share a large amount of the region's wind and solar potential. Cooperation among these countries in the power and energy sector can help mitigate several issues by allowing them to take advantage of the dispersed renewable energy and electricity demand diversity.

Regional energy cooperation

Since the 1950s and 1960s, South Asian nations have partnered and cooperated with one another through energy cooperation and cross-border energy trade (CBET). For developing policy, regulatory and economic mechanisms pertaining to the energy/electricity sector in the region, India has taken on a prime responsibility among the other countries for CBET.

India published the cross-border energy trade guidelines in 2018 to set the context for cross-border energy trade.

In 2019, CBET regulations were released, which included mechanisms for electricity/energy market access, transmission system planning, system operation and dispute resolution. The procedures for approval for electricity import/export were released in 2021.

The guideline and procedure established the electricity developers in neighbouring countries such as Nepal, Bhutan and Bangladesh to trade through India's power exchange. CBET was primarily through non-market mechanisms before this guideline and procedure were promulgated.

According to the Ministry of Foreign Affairs of Bhutan, the country exports nearly 63 per cent of its hydropower to India and earns nearly 44 per cent of its revenue. This makes up around 25 per cent of its gross domestic product (GDP).

This has led to many developments in the hydropower projects of Bhutan. Bhutan has imported around 240 million units of electricity from the Indian power exchange from January 1, 2022 to March 16, 2022.

India-Nepal association includes many advantages, such as the development of the Arun-III (900 MW) project, one of Nepal's largest hydropower projects upon completion, development of the 400-kilovolt Dhalkebar-Muzaffarpur line, through which 1,000 megawatts of electricity can be traded.

If electricity through such routes and other pre-existing mechanisms is tapped to its full potential, it will give Nepal access to reliable and secure electricity at minimal costs. Though in order to realise it, Nepal will have to strengthen its local transmission grid infrastructure and the country is already working in this direction.

In such a scenario, the economies of scale can also be realised in Nepal by exporting power to India, Bangladesh and other neighbouring countries, when excess power is generated at night and during the rainy season.

Recently, Nepal has earned over Nepalese Rs 11 billion (6.87 billion INR) by selling excess power to India from early June 2022 through December 2022, according to the Nepal Electricity Authority. India will benefit through the availability of clean hydroelectric power, which would help achieve its climate change targets.

India-Bangladesh association also has many clean energy and climate benefits, which involve the development of a 1,000 MW high voltage direct current transmission infrastructure.

By participating in the Indian power exchange, Bangladesh would have access to an economical and reliable source of electricity. This would mean lower financial pressure on private power companies utilising fossil fuel-based energy sources to generate energy.

A South Asia Power Summit was recently held in New Delhi and Ajay Tiwari, additional secretary, Union Ministry of Power, spoke about India's vision to have an interconnected power grid in the South Asian region with many participating countries.

Going by the current trend, he said that India is most likely to source nearly 62 per cent of its energy needs from non-conventional sources of energy by 2030, which would be more than the promise of 50 per cent.

At present, India meets 42 per cent of its energy needs through non-conventional sources, he added. In the near future, India would like to establish grid connections with Myanmar and Sri Lanka and further expand to southeast Asian nations in order to merge into a single market.

In the One Sun, One World, One Grid scheme, India envisions having an interconnected grid with the Gulf region, Africa and Europe. He said there are also plans to interconnect the grid from India to Myanmar, Myanmar to Thailand and Thailand to Singapore.

A $100 million credit was given to Sri Lanka for advancing solar power projects in the country and establishing a power interlink between the countries. Such steps can help Sri Lanka alleviate the economic crisis that it is battling.

India-Maldives have joined hands to develop energy cooperation and improve the transmission grid infrastructure for renewable energy transactions that would allow Maldives to achieve its Net Zero target by 2030. India and Maldives are planning to set up a transmission interconnection for the transfer of renewable power between the two countries.

Even though the regional energy cooperation among the countries in the South Asian region is developed, the countries still lag behind in terms of their energy cooperation and cross-border energy trade potential.

Despite witnessing a manyfold increase in CBET, from 1,400 MW in 2012 to 3,900 MW in 2022, an upsurge in cross-border transmission interconnection is expected to increase to about 43.8 GW by 2040 from the current level of around 4 GW, according to a report on One Sun, One World, One Grid.

The prospects for energy/electricity generation through renewable energy sources and the transaction volume among the nations require special focus and attention.

In light of geopolitical turbulence leading to energy market disruptions and the climate-associated risks, collaborations and cooperation in the region for regional energy integration would prove to be beneficial for accelerating renewable energy deployment and fast-tracking clean energy transition.

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