

Microgrid demo to lend a helping hand in India's green energy transition

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Credit: Kourosch Qaffari from Pexels

A group of energy specialists supported by the EU-funded IELECTRIX project has built a smart grid demonstrator in a district in New Delhi, India. The demonstration will show how innovative solutions involving

local photovoltaic units and self-consumption can enable the creation of local energy communities.

The Shakti demonstration—named after the Hindu goddess associated with the creative energy of the universe—is led by French distribution system operator and IELECTRIX project coordinator Enedis. For this demo, Enedis is joined by four members of the IELECTRIX consortium: Tata Power Delhi Distribution Limited in India, French manufacturer Schneider Electric, French service provider Odit-e, and Danish research and development company GECO Global.

As reported in a news item posted on the "SmartCitiesWorld" website, this is the first full-scale EU-funded smart [grid](#) demonstrator to be set up in India. Through this demo, the project partners are working to build automation at the low-voltage level to ensure better service for consumers. The aim is to improve grid resilience and security of electricity supply and increase the integration of solar renewable energy sources into the network, as a result also reducing greenhouse gas emissions. This is also seen as an opportunity for citizens and communities to become involved in the energy distribution ecosystem and Delhi's green transition.

"As the world leader in smart grids according to Singapore Power Group's Smart Grid Index, Enedis is committed to sharing its expertise and know-how in distribution networks internationally, and particularly in India, where customers are keen to find solutions that will enable the ecological transition while ensuring quality of supply and continuity of power at the highest market standards," states Enedis technical and international director Antoine Jourdain in the same news item. "With this demonstrator, Enedis and its project partners are testing technical solutions and economic models that can be replicated in Europe."

Enhancing network stability and grid resilience

The Shakti demonstrator is being hosted at the substation of Delhi's St. Xavier's School. The demo system includes rooftop [photovoltaic panels](#) with a [maximum power](#) of 200 kilowatts peak and a 200 kilovolt-ampere battery energy storage system. Comprising 42 lithium-ion battery modules, the battery system will help improve network stability by providing a power backup in the event of an outage. An energy management system controls the demo site's [energy](#) resources, connecting to available photovoltaic panels and the battery system to forecast and optimize [energy consumption](#), production and storage. Other components include [smart meters](#), a remote terminal unit for monitoring and controlling the low-voltage grid, and a smart transformer that enables grid resilience by automatically adjusting the voltage to keep it within defined limits.

In addition to the Indian demonstrator, the IELECTRIX (Indian and European Local Energy CommuniTies for Renewable Integration and the Energy Transition) project has another three demo sites in Germany, Hungary and Austria. The results of the Shakti demonstration will be presented at the project's closing ceremony in October 2022.

More information: IELECTRIX project website: ielectrix-h2020.eu/

Provided by CORDIS

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