Home energy storage bhutan

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A 180kW solar plant in Wangduephodrang district has been built next to an existing wind farm. Officials say this is the first of many such projects. (Image: Department of Renewable Energy, MoEA Bhutan)

Households could be powered for a year by the solar plant at Rubesa, given the average household in Bhutan uses 1,567 kWh of electricity per year

The pilot project, a 180-kilowatt solar photovoltaic(PV) plant was built at Rubesa village, in the western district of Wangduephodrang. It has the capacity to generate about 269,000 kilowatt-hours of energy per year, said Rozal Adhikari, an engineer in Bhutan Power Corporation Ltd"s renewable energy division. The project has been integrated with a 600kW wind farm on the same site.

Nearly all electricity generated in the small landlocked Himalayan country currently comes from hydropower. The project in Rubesa is therefore a step towards diversifying Bhutan"s electricity supply. As well as expanding institutional capacity, it demonstrates the feasibility and viability of solar projects in the country.

The project was executed by the Bhutanese government"s Department of Renewable Energy in collaboration with the Bhutan Power Corporation, a public utility. It received funding support from the Japanese government and was supported by the United Nations Development Programme in Bhutan.

"Diversification of energy sources has become significant, as we cannot depend solely on a single source of energy - hydropower," Phuntsho Namgyal, director of the Department of Renewable Energy (DRE), told The Third Pole.

Phuntsho Namgyal said that the solar plant in Rubesa is part of the country"s plan to diversify its energy sources and enhance energy security.

In 2019, the International Renewable Energy Agency carried out a Renewable Readiness Assessment of Bhutan. Its report pointed out the vulnerabilities of hydropower to climate change, as changing river flow affects electricity generation and extreme weather events such as cloudbursts and glacial lake outburst floods can damage dams. In light of the environmental impacts of hydropower and fossil fuels, the authors called for investment in multiple sources of renewable energy.

Rozal Adhikari said that despite being a carbon-negative country, Bhutan is a victim of other countries" actions. It is already experiencing the impacts of global warming and glacial melting. This is a growing threat

to the country"s hydropower projects, Adhikari said, which are currently all run-of-the-river, with no large reservoirs, meaning their output dwindles when water levels are low.

Namgyal said that the renewable energy sector has great potential to provide green jobs, in addition to supplying energy during the winter months or lean seasons, when Bhutan imports energy from India. The country imported electricity worth 180.7 million Bhutanese ngultrum (USD 2.4 million) from India in 2020 - down from BTN 222 million in 2013.

In mid-September, the Department of Renewable Energy inaugurated another project to demonstrate the use of renewable energy. An 11.7-kilowatt-peak solar photovoltaic and 500-litre solar-powered water heating system was installed in the Ministry of Economic Affairs" office compound.