North korea home energy storage

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Kim Jong Un has often highlighted a need to invest more time and resources into natural energy production to counteract its widespread electricity challenges. However, as noted in previous installations of this energy series, North Korea"s recent drive to bolster renewable energy capacity has primarily focused on solar and hydropower, despite its capacity for wind energy generation.

The Nautilus Institute estimates North Korea"s installed wind power capacity in 2020 is around 1.6 megawatts, an increase from 790 kilowatts in 2015. Despite this potential, a concerted effort to further develop wind as a renewable energy source has not taken hold. Instead, there are small wind installations scattered throughout the country--sometimes even paired with solar panels--typically with one of two types of wind turbines.

State newspapers and television point to two types of wind turbines used in North Korea: large three-bladed turbines frequently associated with commercial wind power around the world, and smaller units with more conical blades. Both types are utilized throughout the country. The larger turbines are reportedly manufactured in either 100-kilowatt or 250-kilowatt models.

The following examples represent projects where both smaller and larger types of wind turbines are in use in North Korea. From generating power for military-related purposes, academic facilities, or broader areas, wind power--like solar--is frequently used to supplement power supply for operational use.

According to a Korean Central Television (KCTV) broadcast in 2012, the Korean People"s Army (KPA) had installed a pair of wind turbines on a hilltop near Ongjin in the southern part of the country. Located adjacent to both a Korean People"s Air Force (KPAF) unit and military storage area and nearby to several other KPA units nestled into the terrain, it is likely these turbines are used to support electricity needs at these military facilities.

This was one of the first places with wind power in the country. Three wind turbines were added between 2010 and 2011. In November 2011, Kim Jong Il inspected the unit and reportedly was pleased with the successful installation and ability to provide electricity for "combat preparations while cooking and heating with it."

A few years later, solar panels were installed, increasing the site"s overall power generation capacity. Reinforcing the importance of this project, Kim Jong Un visited the site in 2015 after the installation of solar panels was complete, praising the endeavor for carrying out Kim Jong Il"s legacy and making a contribution to the people.

The grounds of the State Academy of Sciences utilize both the smaller and larger types of wind turbines found

in North Korea. Across the road from the solar power research laboratory, a set of 13 three-bladed wind turbines line the driveway to another building. Nearby, smaller turbines are placed along a courtyard of running tracks and tennis and basketball courts. These turbines are likely used to generate power for lighting around the sporting complex.

North Korea has electric power transmission organizations in provinces and cities throughout the country, responsible for regulating electricity distribution and manufacturing renewable energy generators such as wind turbines, in addition to running other solar and wind installations.

At the particular building where the North Phyongan Provincial Power Distribution is housed, a field with around twenty turbines was installed in the area directly north of the site. An April 2017 KCTV broadcast showed workers installing the small-bladed turbines.

Capturing tidal power is more effective in shallow waters, necessitating a broader difference between high and low tides. DPR Korea"s Second National Communication on Climate Change report in 2012, submitted under the United National Framework Convention on Climate Change, states the West Sea"s tides on the Korean coastline are "over 5m in difference between the ebb and high tides in every spot of the coast," which develops a particularly advantageous condition for developing tidal power resources.

Installed along the West Sea Barrage near Nampho and spanning eight kilometers, North Korea"s sole tidal power project was built in 1986 and is estimated to be a 500-kilowatt unit (0.5 megawatts). The barrage serves a variety of functions apart from energy generation, including facilitation of ship traffic, irrigation of nearby areas, and separation of fresh and seawater at the Taedong River.