Ukraine solar energy

Ukraine solar energy

Russia has consistently targeted Ukraine"s energy facilities, forcing companies to constantly rebuild and go weeks without power. Clean energy has begun to replace damaged coal and gas power plants, and it is proving more reliable and harder to destroy.

Maxim Timchenko, CEO of DTEK, the largest private energy company in Ukraine, pulls out a piece of paper with bar charts showing how much new electricity his company has brought online this year in the country versus how much Russian bombs have destroyed.

Total electricity goes up, then down, then up, then down - capturing the company"s constant rebuilding each time Russian missile attacks take out a facility, which include wind and solar farms and thermal (coal or gas-fired) generating stations. The Russian strikes are part of a campaign to target energy infrastructure to reduce power in Ukraine as winter looms.

"What other choice do we have?" said Mr. Timchenko during an interview on the sidelines of this year"s U.N. climate talks, taking place in Azerbaijan. "Sit and wait and pray that they don"t hit us, or do our job and bring lights back to our people?"

The nearly three-year-long Russia-Ukraine war, which has left large swaths of Ukraine destroyed, has accelerated a transition to clean energy. At Ukraine"s pavilion at COP29, on display is a large smashed solar panel, destroyed in an attack this year.

Russian forces continue to make small but steady gains in capturing Ukrainian territory at a time when there are questions about how much the United States, which has been providing weapons and money, will continue to support the country once President-elect Donald Trump assumes office in January. During the campaign, Mr. Trump repeatedly said he could quickly end the war if elected, although he hasn"t said how.

Whatever the future, the decentralized nature of some clean energies, in particular wind and solar, has allowed Ukraine to quickly restore power in ways that would be impossible with Ukraine"s more traditional energy sources, such as coal-fired power plants.

In centralized systems, all power is generated and sent to the grid over transmission lines from the same area. That means if the plant goes down, say in an attack, a large section of grid, or even the entire grid, comes to a halt. By contrast, wind and solar installations are usually more scattered, so less of the system goes down with one hit, and if the solar is on rooftops, the impact can be even more limited.

Attacks on two DTEK solar farms last spring is a good example. They destroyed many solar panels and some of the transformers, which step up voltage for long distances or step it down for use in homes. Replacing the

transformers and swapping out destroyed panels allowed the farms, which generate 400 megawatts, to be back up in seven days.

Mr. Timchenko said an attack on a thermal generating station, which experienced a similar amount of damage, took three to four months to rebuild.

"That"s the difference between centralized and so-called decentralized generation. It"s much more resistant and difficult to destroy," said Mr. Timchenko.

Geoffrey Pyatt, assistant secretary of the U.S. State Department"s Bureau of Energy Resources, said that Russian attacks on energy infrastructure have evolved. In 2022 and 2023, they focused on transformers.