



**Case Study:**  
**How PV Can Provide Resilience in War Zones  
or Security Against Attacks on Energy Assets**

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## GREEN ENERGY

# RATE OF DEVELOPMENT

**2019**

Ukraine entered the TOP-10 countries in the world in terms of the pace of development of green energy

**2020**

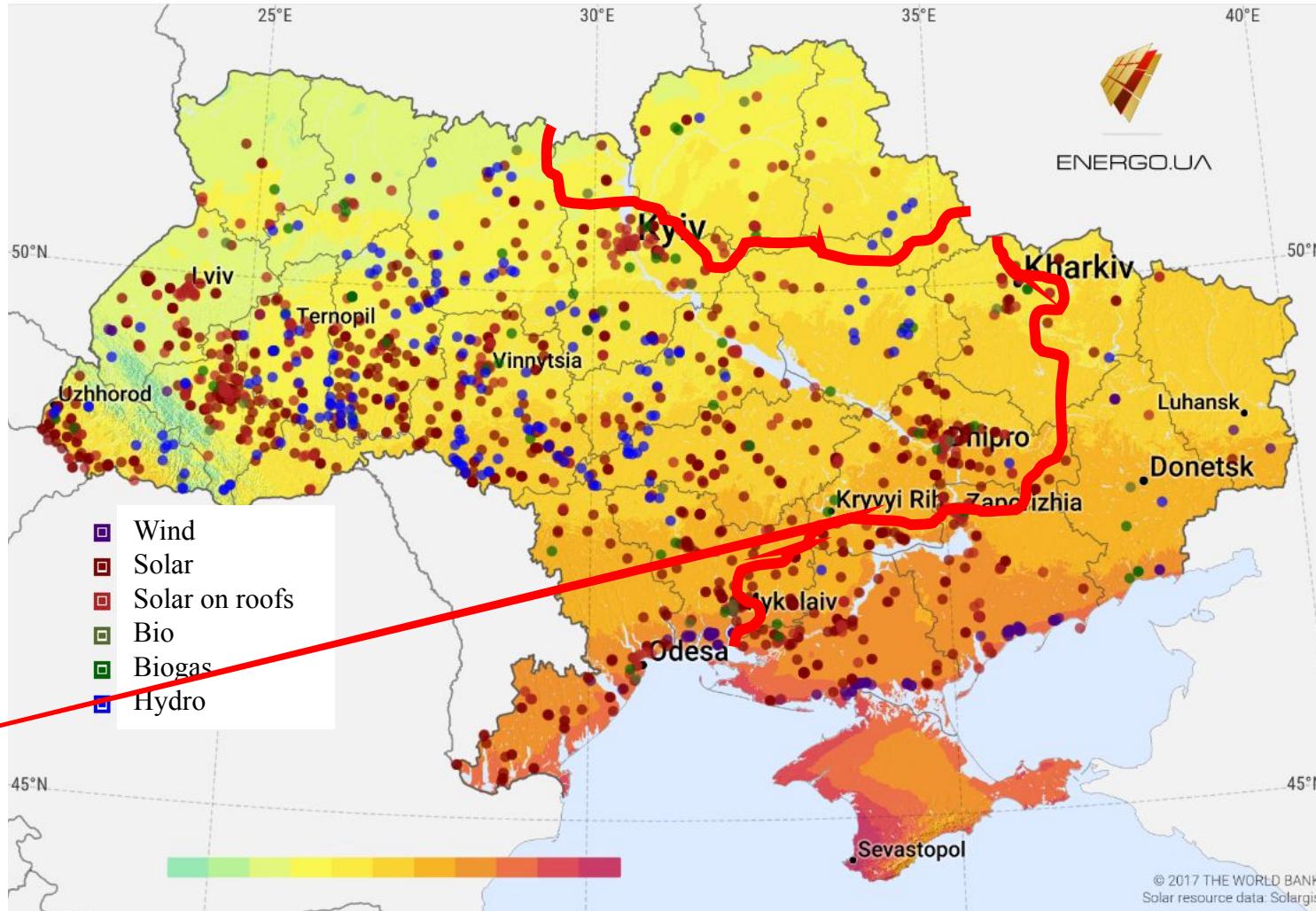
Ukraine is in the TOP-5 European countries in terms of the rate of development of solar energy

**2022**

The total capacity of green energy facilities at the beginning of 2022 reached 9,656 MW

# GREEN ENERGY

## LOCALIZATION



**43% or 3,980 MW** of green energy generating capacities were located in the temporarily occupied territories of Ukraine

GREEN ENERGY

# SOLAR ENERGY



**The total installed capacity** of industrial solar power plants in Ukraine is **6,226.9 MW**

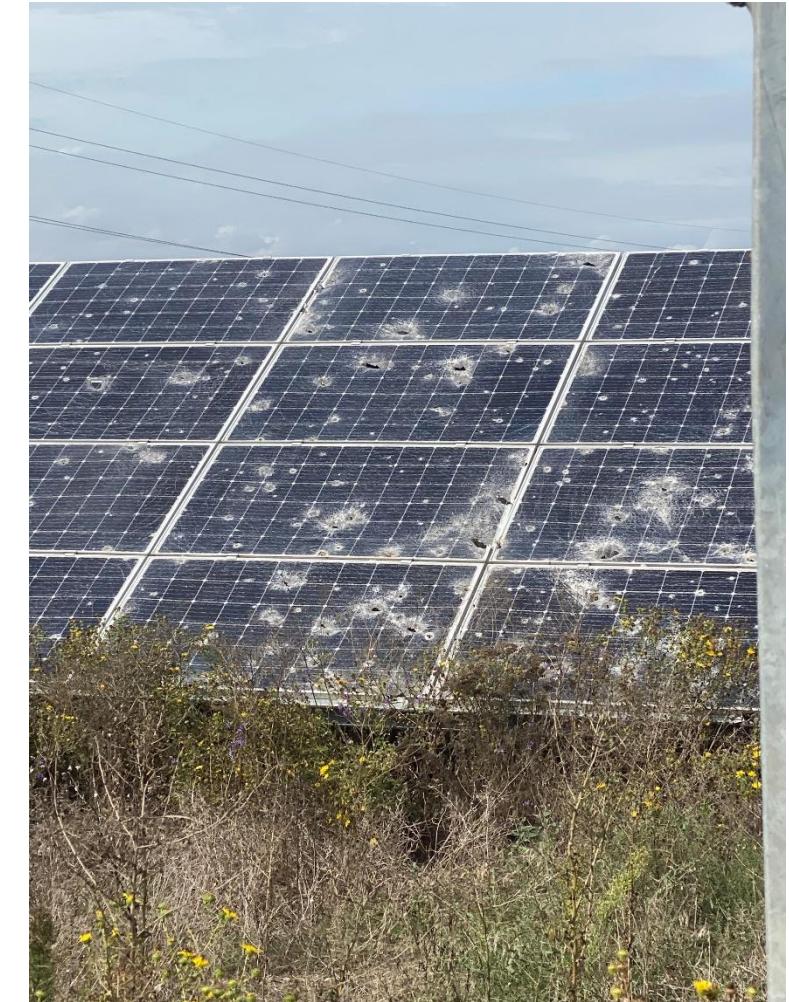
About **60%** of industrial solar power plants are concentrated in the southern and southeastern regions of Ukraine, where active hostilities are taking place, amounting to about **3,700 MW**



**30-40%** of power plants in the regions affected by the Russian invasion **were affected**, **-1,120 - 1,500 MW** of installed capacity

# GREEN ENERGY

## SOLAR ENERGY



GREEN ENERGY

# SOLAR STATIONS of HOUSEHOLDS



in Ukraine, **1.2 GW** of solar power plants of private households were put into operation by the **beginning of 2022**

it is estimated that it was destroyed close to **280 MW (24%)** of the installed capacity

GREEN ENERGY

# SOLAR STATIONS of HOUSEHOLDS



## GREEN ENERGY

# WIND ENERGY



In Ukraine, the total capacity of installed wind power plants is **1,673 MW**

According to the Ukrainian Wind Energy Association, **more than 2/3 of wind generators** in Ukraine **have been stopped** due to Russia's military aggression.



Currently, **1,162.5 MW** of installed capacity is not working, and remains in operation **372.5 MW**, concentrated mainly in Odesa and Lviv regions

# GREEN ENERGY

## BIO ENERGY



Enterprises that generate electricity and thermal energy from biomass in Ukraine have installed capacity **224.5 MW** (of which biomass – **119.1 MW**, biogas – **105.4 MW**)

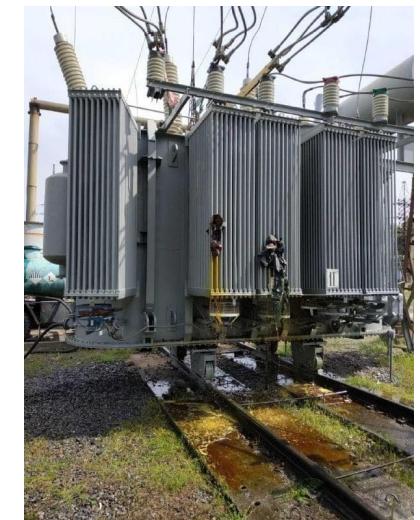
Up to **15%** of capacities were affected



# GREEN ENERGY GRIDS



The average number of damages on high-voltage lines **on a 100-km section reaches 50 cases**. Works are underway to restore **11 high-voltage lines and 17 substations**. At the moment, up to **600 km of 110 and 150 kV** grids, more than **1000 km of 35 kV** networks, more than **20 substations** with a voltage of 110 and 35 kV have been damaged.



GREEN ENERGY

# SUSTAINABLE ENERGY



1. Increasing the share of small solar plants for distributed generation
2. Support of solar stations of private households
3. Construction of solar stations on the roofs of social facilities to ensure energy independence of buildings and communities
4. Combining energy storage systems with solar power plants
5. Application of energy cooperatives to ensure energy sustainability of communities

# GREEN ENERGY

## RECOVERY TOOLS



1. Provide destroyed and damaged green energy facilities with access to the **new Fund for the recovery of war-torn energy infrastructure in Ukraine**, which was created **by the Energy Community**.
2. Support (in the form of tax holidays, **absence for 5 years of rent and land tax, preferential connection to networks**) for the construction of new solar and wind power plants. New construction should be concentrated in regions where there is a real shortage of electricity.

# GREEN ENERGY

## RECOVERY TOOLS



3. **Provision of preferential access** conditions for green energy companies **to the market "one day in advance"** in order to reduce the burden on State Company "Guaranteed Buyer" from payments under the green tariff.
4. Increasing the level of flexibility and decarbonization of the energy system of Ukraine, primarily through the construction of **new energy storage and maneuvering capacities**, in particular, using biomethane.
5. Creation of special **stimulating conditions for the production of renewable gases** by the powers of green energy (green hydrogen and synthetic renewable methane).

# Contacts

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