



# “Sharing is caring”

Cable pooling as a new opportunity  
to secure grid connection for RES in Poland

09.11.2023







## **Radosław Biernat**

**Project Manager – UKA Polska sp. z o.o.**



**State of grid in Poland**

**New regulatory solutions**

**The potential**



# State of grid in Poland

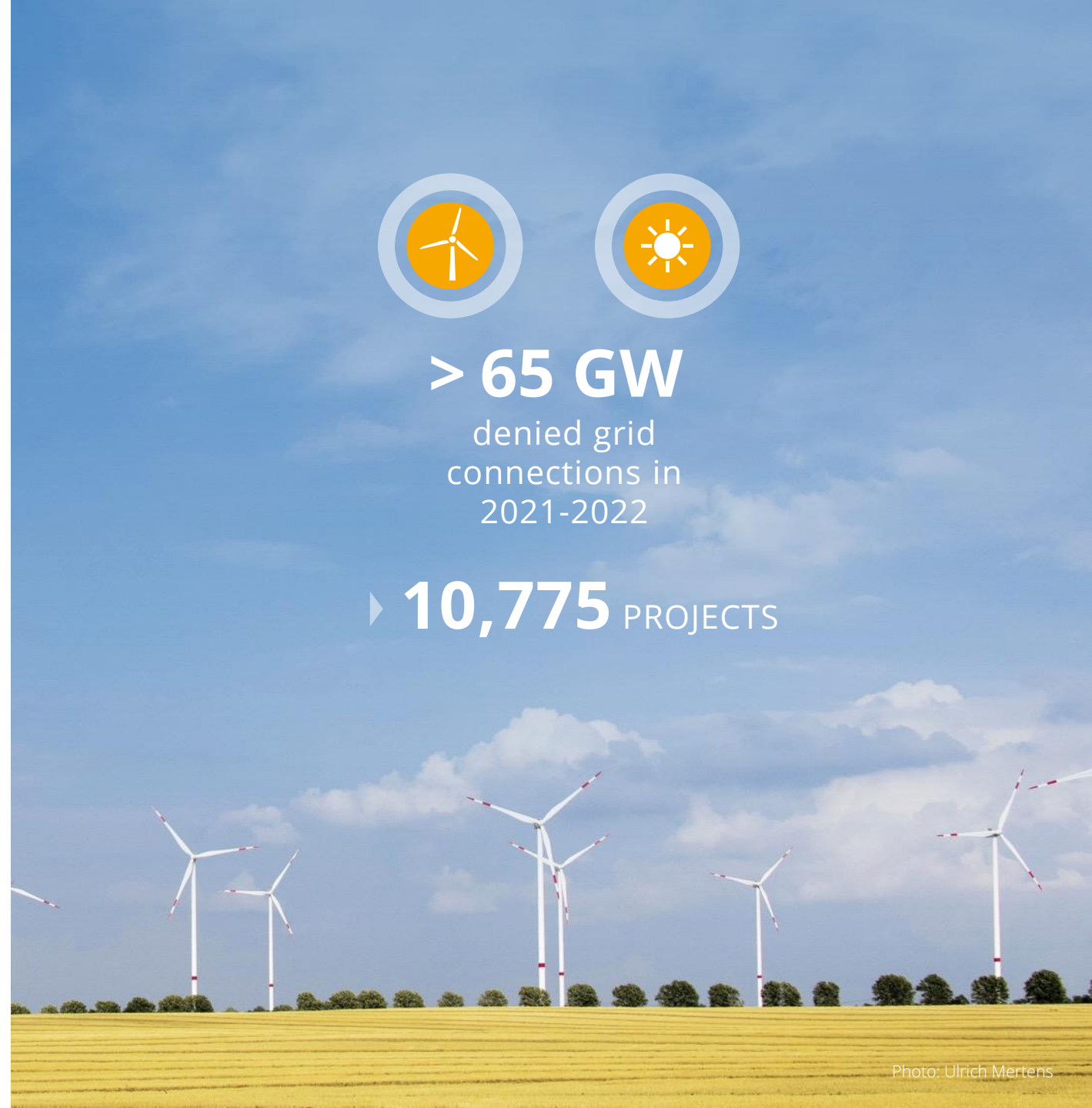
According to the report of URE (Urząd Regulacji Energetyki - Polish energy authority) in years 2021-2022 the number of grid connection denials has increased 9x compared to previous period.

Grid operators declare 0 available connection capacity at vast majority of the existing substations.



**> 65 GW**  
denied grid  
connections in  
2021-2022

▶ **10,775** PROJECTS

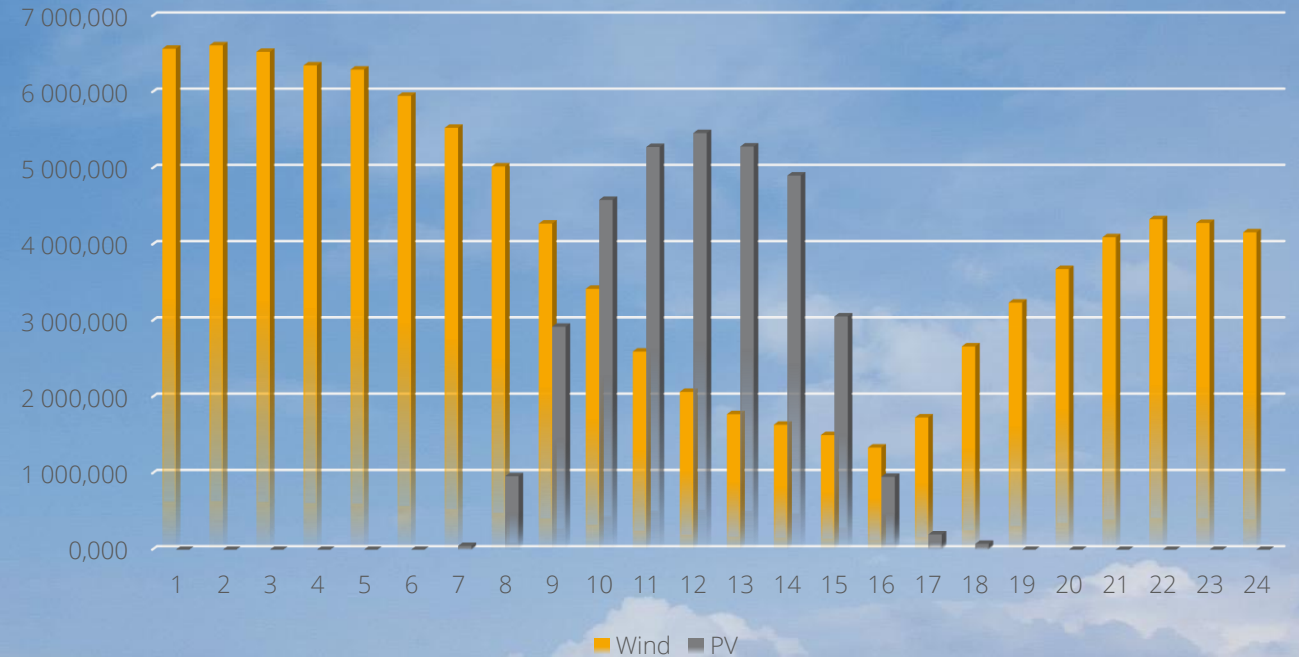


# State of grid in Poland

There are couple of reasons for that, aside of the technical constraints:

- All the connection terms to date were issued with the theoretical assumption of constant full power output of RES;
- The internal rules for connection analyses were very conservative and are being revised by some operators.
- Significant connection capacities are being reserved for the upcoming offshore wind projects, mainly in northern Poland.

ENERGY PRODUCTION IN POLAND ON  
30.10.2023



# New regulatory solutions

- On August 17th, the Renewable Energy Sources Act was amended to include, among other changes introduced this summer, **cable pooling** as a no cost solution to quickly and significantly boost utilization of the existing infrastructure.

**CABLE POOLING**

**HYBRID INSTALATIONS**

**DIRECT LINES**



# Cable pooling

"1f. Two or more renewable energy source installations belonging to one or more entities **may be connected** to the electricity grid with a rated voltage higher than 1 kV, **at a single connection point.**[...]"





# Cable pooling

"1g. For all renewable energy source installations connected to the grid pursuant to paragraph 1f, one connection conditions shall be issued and one grid connection agreement shall be concluded."





# Cable pooling

"2<sup>1</sup>. The grid connection agreement [...] shall specify the requirements for the location and technical parameters for metering and billing systems that allow for the measurement of the amount of electricity fed into the grid and drawn from the grid by each renewable energy source installation connected at a single connection point under this agreement."



# Cable pooling

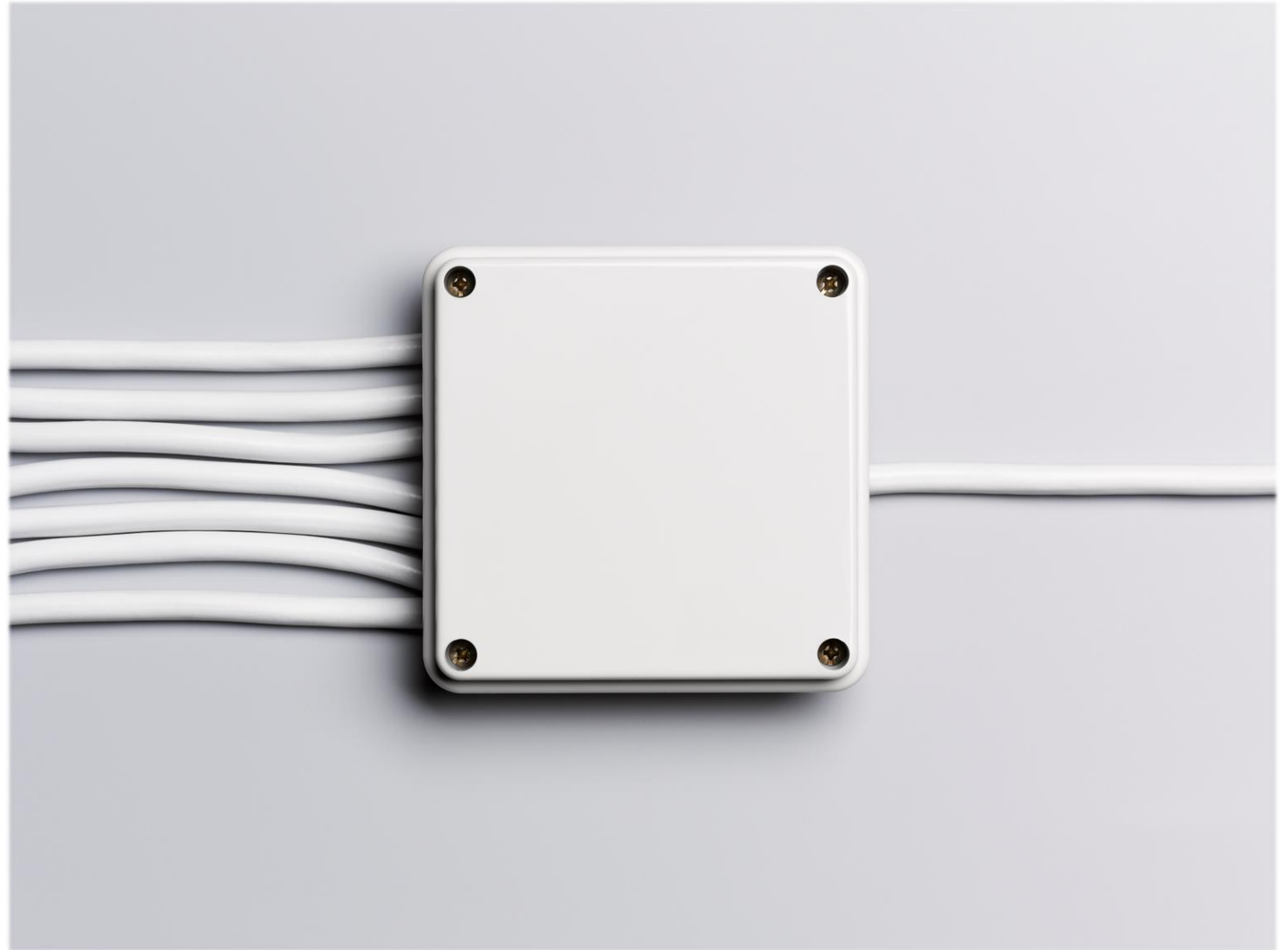
„2<sup>2</sup> In the event that the connection capacity is lower than the sum of the installed electric capacity of the renewable energy source installation, the grid connection agreement [...] shall include a detailed description of the manner of securing the technical capacity not to exceed the connection capacity [...].”





# Cable pooling

Cable pooling can be used both for new installations as well as to connect to existing ones. In both cases owners of the installations need an agreement between them. All parties involved in cable pooling are represented by one of them.



# Installed power at the end of August 2023:



**9,107.8 MW**

WIND FARMS



**14,994.2 MW**

SOLAR FARMS  
(including small installations)



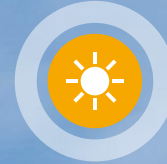


# Cable pooling curtailing as analyzed by Forum Energii:

ca. 6% PV down time



**20MW**  
WIND FARM

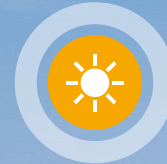


**20MW**  
SOLAR FARM

ca. 2% PV down time



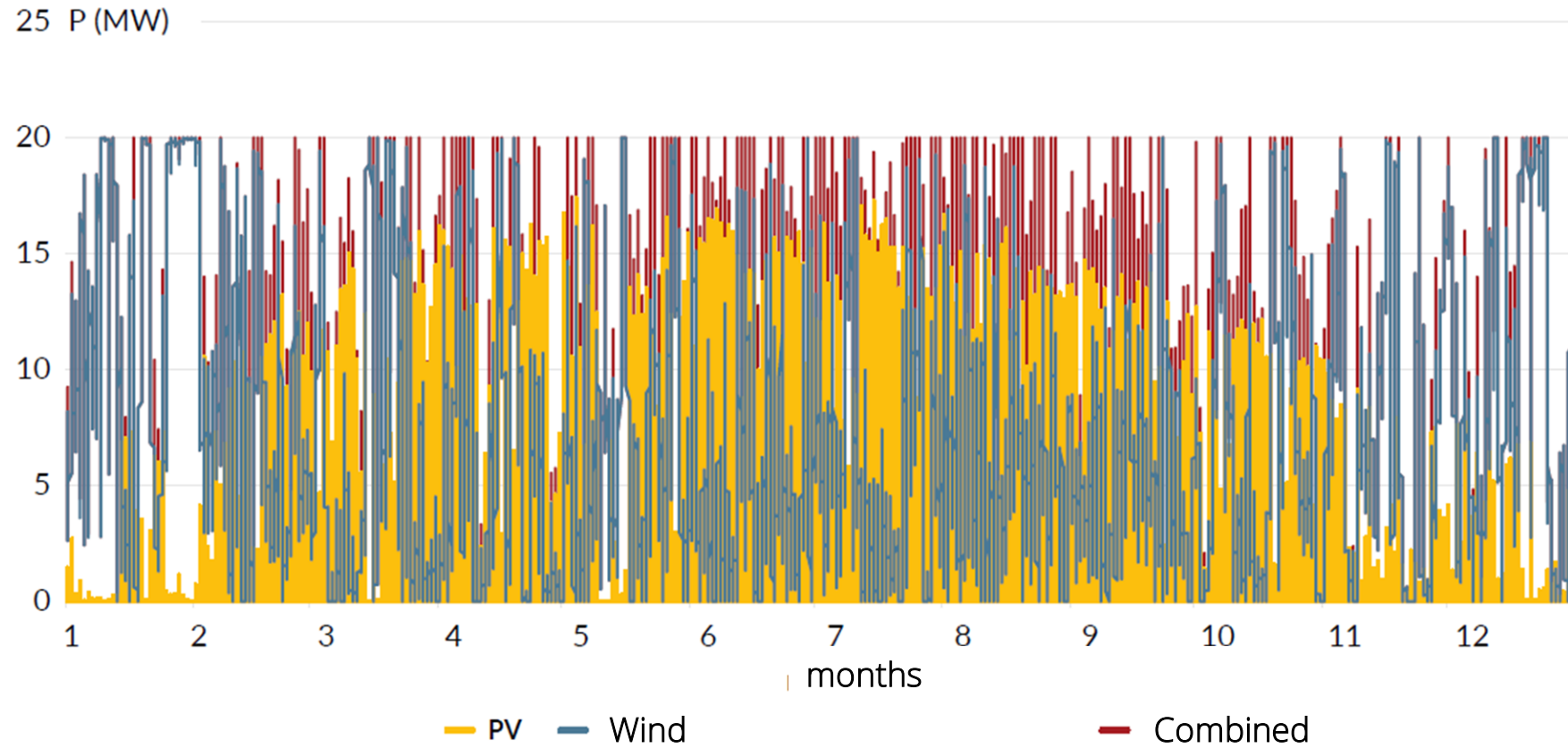
**20MW**  
WIND FARM



**10MW**  
SOLAR FARM



Summarized power output of a combined power park consisting of 20 MW of PV and 20 MW of WTGs, over a 12 month period.



Source: Forum Energij, Łączenie źródeł OZE  
Potencjał cable pooling w Polsce, <https://www.forum-energij.eu/>





**5-7 GW**

Additional connection capacity created with cable pooling

Conservative estimations show that cable pooling can provide opportunities for 5-7 GW of new renewable energy sources, but according to an analysis by the Forum Energii, allowing the interconnection of sources will allow the development of as much as additional 25 gigawatts of renewable capacity without incurring additional costs for the development of grid infrastructure.