

VASYL DORONIN, President  
UKRAINIAN HYDROGEN ASSOCIATION  
[HydrogenUkraine.org](http://HydrogenUkraine.org)

## UKRAINIAN HYDROGEN STRATEGY

“ACCELERATING HYDROGEN ECOSYSTEM”



UKRAINIAN HYDROGEN  
ASSOCIATION

**BSP**

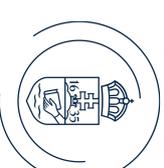
BUSINESS & SCIENCE  
POLAND



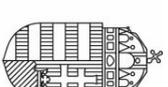
Slovenian Business & Research Association

**NCBR**

National Centre for Research  
and Development



**ELTE**  
EÖTVÖS LORÁND  
UNIVERSITY



NATIONAL RESEARCH, DEVELOPMENT  
AND INNOVATION OFFICE  
**HUNGARY**

**LINO**

Lithuanian RDI Liaison Office



UKRAINIAN HYDROGEN  
ASSOCIATION



WITH OUR PARTNERS, WE ESTABLISHED PRODUCTION OF HYDROGEN BUSES/TROLLEYBUSES AND PROPULSION SYSTEMS IN UKRAINE. DECEMBER 2021



**PTS** BALLARD®



**WORTHINGTON**  
INDUSTRIES

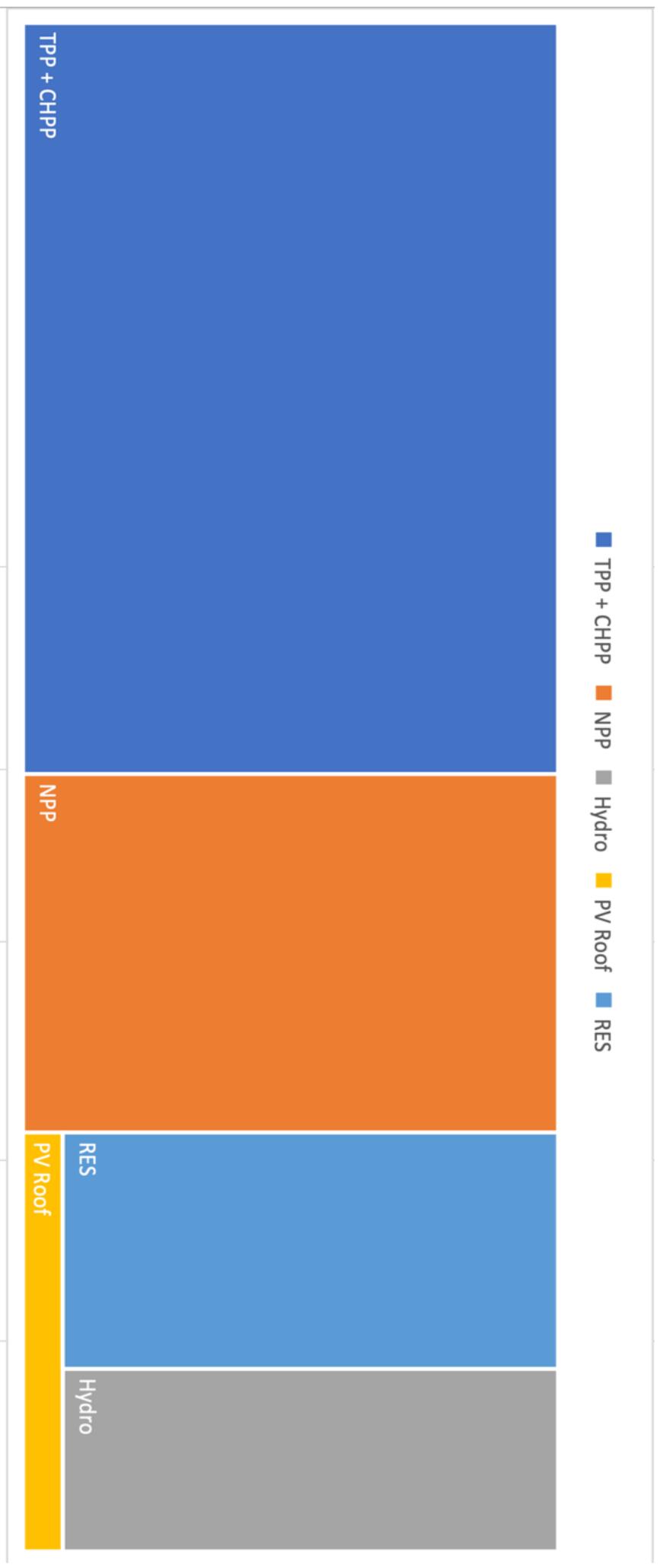


**Hydrogen**  
Europe



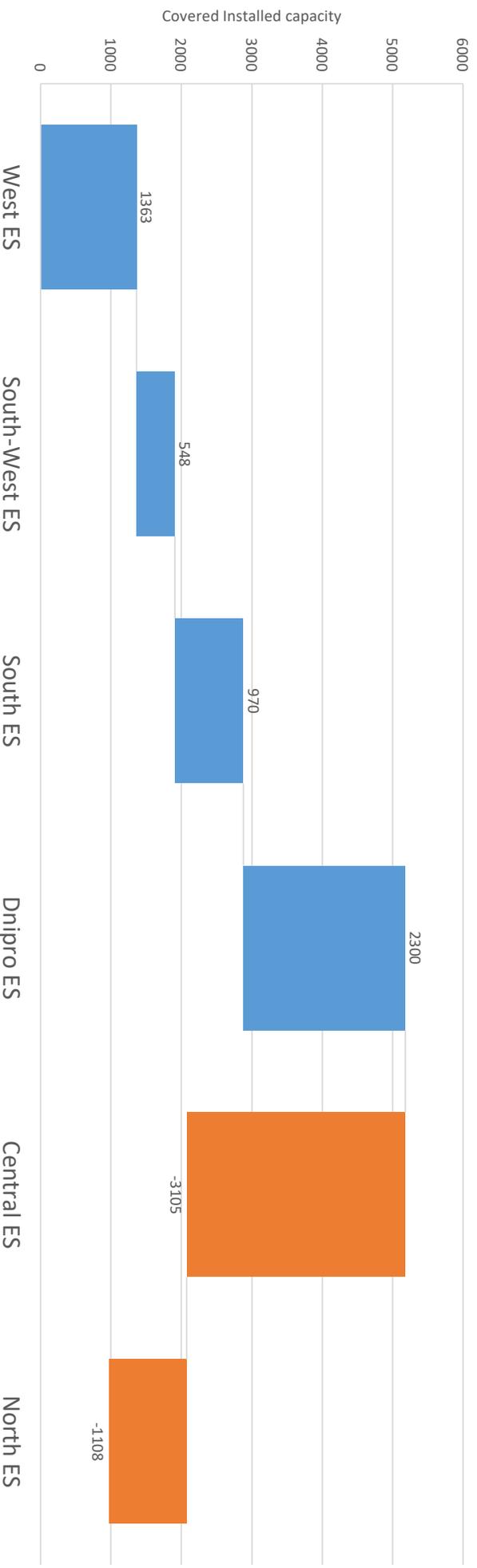
**UKRAINIAN HYDROGEN**  
ASSOCIATION

Pilot Project Partners



The Ukrainian power system with installed capacity 59 GW with electricity production 156 000 GWh per year, was designed and built in the middle of the last century, according to the obsolete principles of centralized and direct dispatchable control. Near 50% of generation installed capacity is coal/gas power plants, but most of the power was generated by nuclear plants (55%), and coal and gas plants were used to balance the system (up to 30% of total generated power).

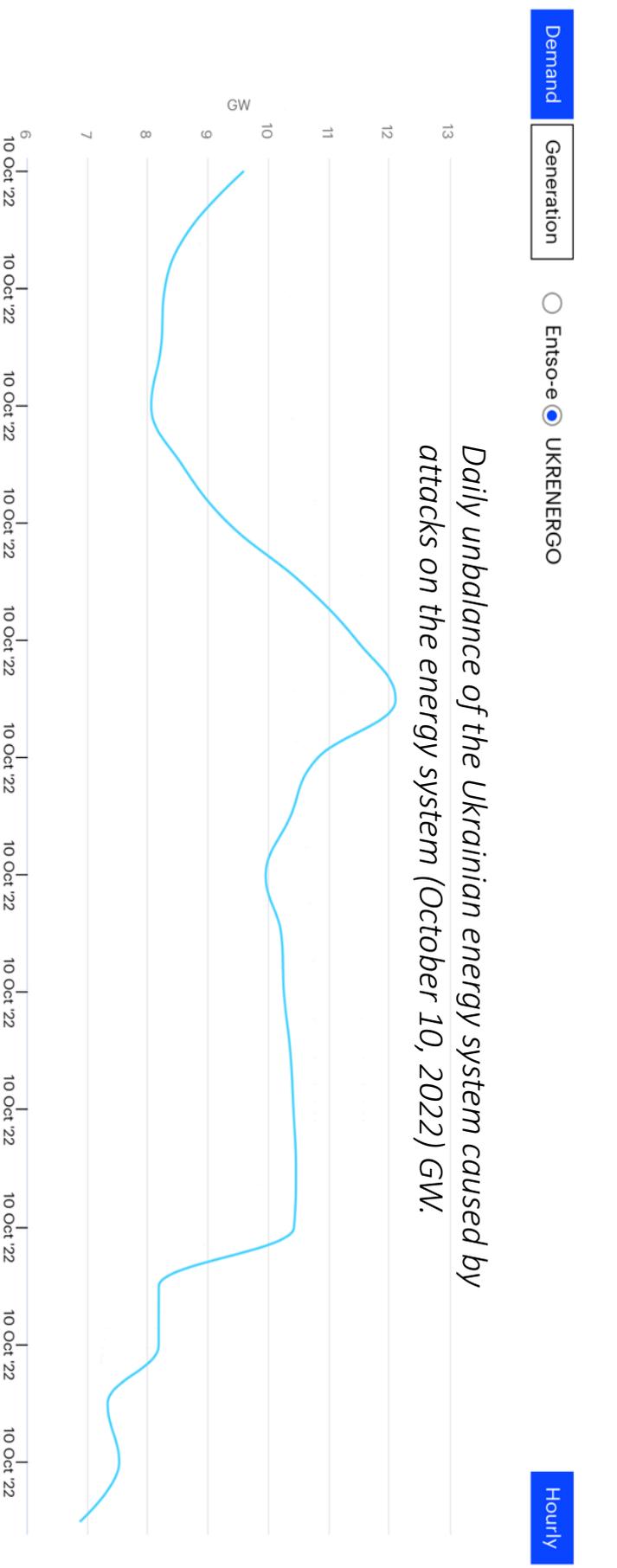
### Unbalancing "Excess and shortage" of regional energetic systems (example of one day in 2021).



- Ukrainian energy system consists of regional energy systems (energy rings-islands), which are interconnected by high-voltage transmission lines.
- These regional energy systems and whole Ukrainian system is not balanced and do not have a decentralized system of energy management and energy storage. In fact, the central regions (Kyiv region was up to 3 gigawatts in deficit in generation) and eastern regions were taking electricity from the surplus southern and western regions.
- Transmission huge amount of electricity through the old grid, with a technological loss of up to 15 %, from the southern regions.

## PROBLEM TO BE FIXED BY HYDROGEN CLUSTERS.

Balancing and energy independence of regional systems, decentralization the main!



The impact of attacks on the energy system, leads to an inability to balance consumption, to the impossibility of transmitting electricity through the grid between energy regions and leads to emergency shutdowns of nuclear power plants. Needs balancing and storage systems around 5 gigawatts installed capacity. For example, in the Kiev region, power is cut off for 12 – 14 hours a day, and the Lviv region is only 30% supplied with electricity



**UKRAINIAN HYDROGEN STRATEGY**  
Government  
**YULIA PIDKOMORNA**

Deputy of Minister of Energy of Ukraine  
Responsible for Energy Efficiency and Energy Saving

Head of the inter-ministerial Working Group on High  
level Hydrogen Strategy Development

Ukrainian Hydrogen Association take a part in creating national  
strategy



**UKRAINIAN HYDROGEN STRATEGY**  
Parliament  
**YURI KAMELCHUK**

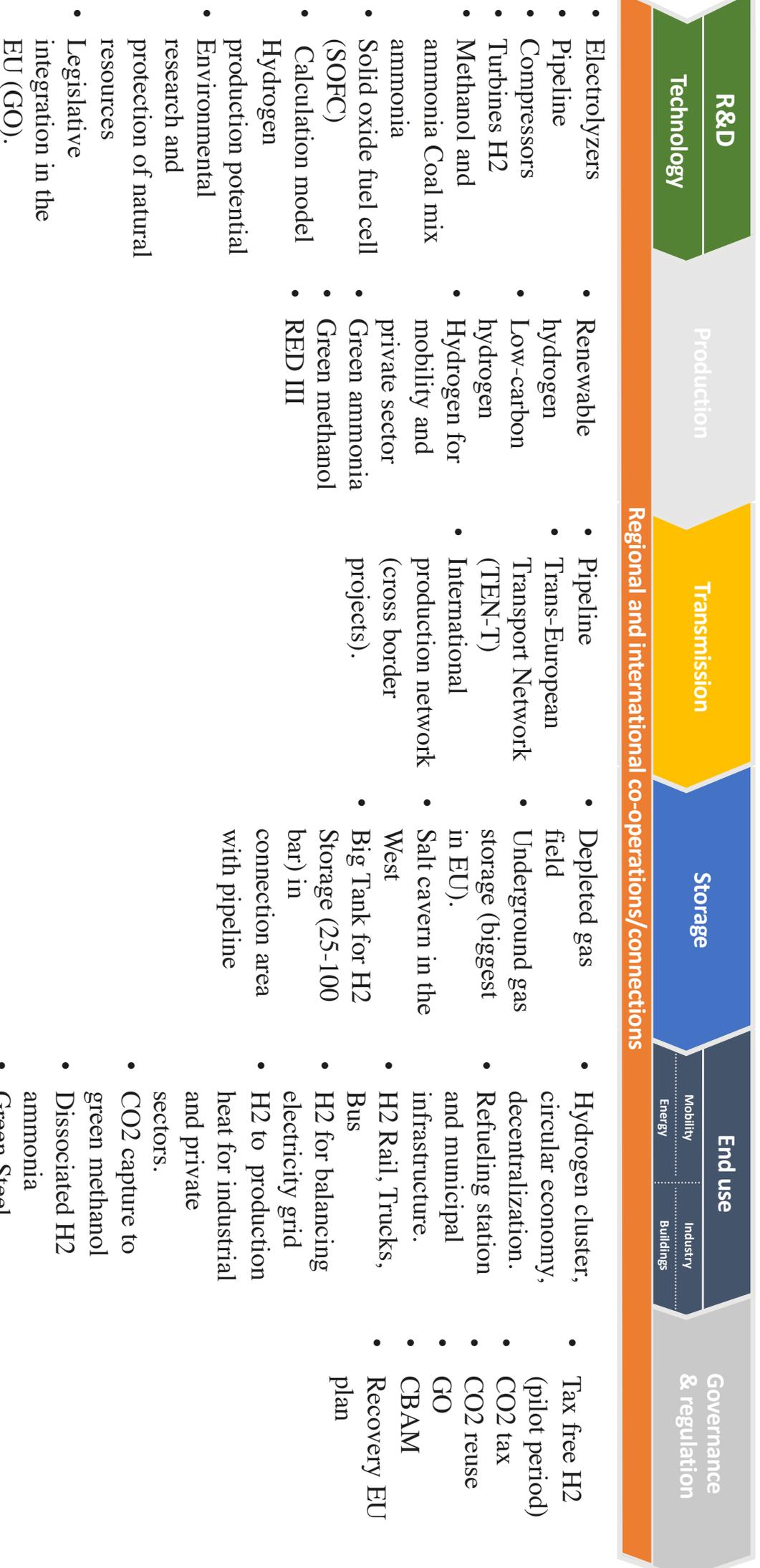
Member Committee on Energy, Housing and Utilities  
Services

Head Parliament Working Group “Implementation of EU  
GreenDeal, green finance and innovations, hydrogen  
energy solutions, energy storage to Ukrainian legislative  
system”.

Ukrainian Hydrogen Association - coauthor voted "energy  
storage" law and participant in the hydrogen draft law.

# NATIONAL HYDROGEN CLUSTER ALONG THE VALUE CHAIN and for ENERGY SECURITY

## Elements Hydrogen Strategy and EU





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