ETCSEE 2023

Vienna

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Rethinking the Ukrainian energy market from scratch

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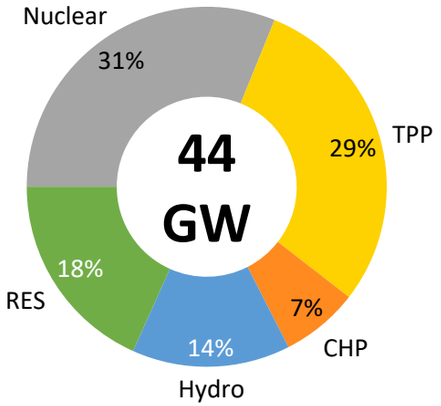
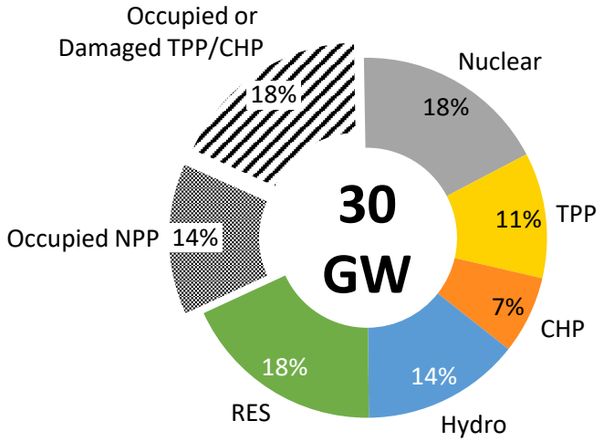
Installed capacity transition

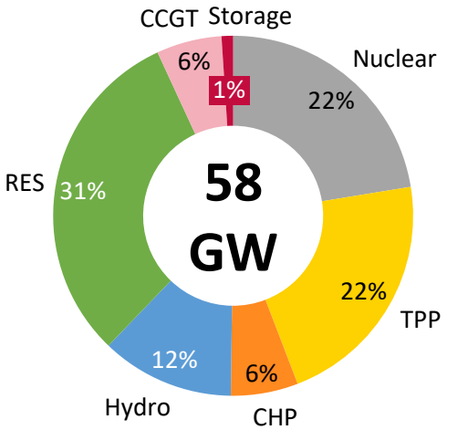
Pre-War level (2021)



Current situation (2023)



Post-War 2032

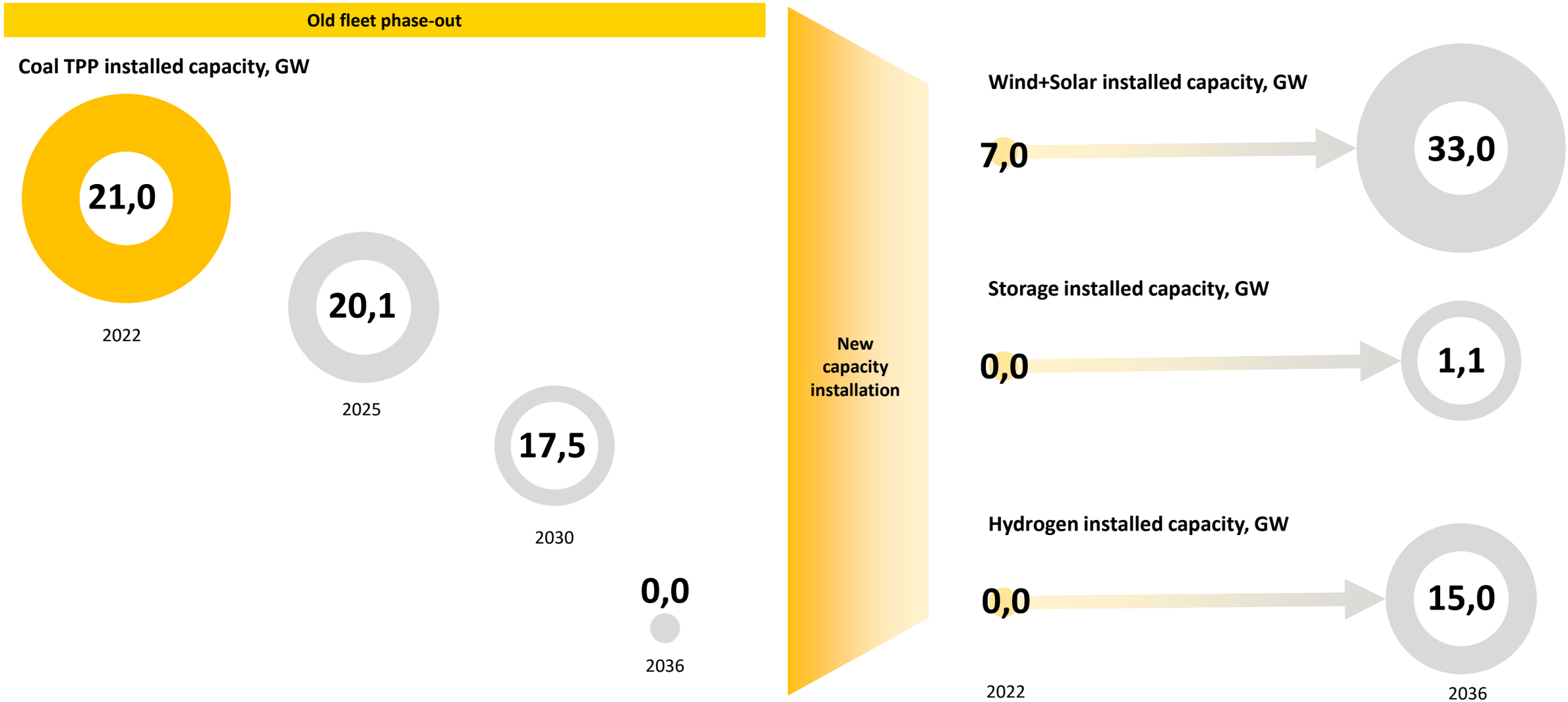


Problems caused by military risk	Problems caused by green transition	Problems solving
• Zaporizhzhia NPP – 6 000 MW (13% of pre-war generation capacities) currently occupied • Destroyed or occupied TPPs equivalent to 18% of pre-war Ukrainian generation capacities	• Coal generation is crucial for balancing generation • Phase-out of coal fleet from 2030 • Phase-out of old nuclear fleet from 2035	• Replacement of destroyed fleet by carbon-neutral power: ➢ Battery storages capacity ➢ Hydrogen ➢ CCGT

Market challenges – regulatory changes

Problem	Loss	Problem solving
Regulated tariffs for households	**USD 246 mln** - current PSO debt for Universal Services Suppliers	• Reforming subsidies to prioritize lower tariffs for lower income households • Market liberalization
Price caps on UA power market	**56% -** current level of guaranteed buyer payments for RES (5m 2023) **-167 EUR/MWh** - average UA-SK price difference during 2022	• Abolishment the system of price caps and launching European practices • Launch of long-term and financial trading on power and gas markets • Creation of market conditions for the development of the RES sector
Export ban on natural gas	**-34% -** average yearly UAVTP-TTF discount **-6%** - gas production decrease in Ukraine in 2022	• Offering a fair gas price to incentivize production • Providing a predictable fiscal framework with royalties • Removing the current gas export ban
Regulated import/export operations	**-50 mln EUR/month –** estimated loss of revenue due to power export absence	• Common auction for power cross-boarding trading • Market coupling

Market challenges – green transition



- A large amount of destroyed thermal generation accelerates the transition to carbon-neutral energy sources
- Ukraine have almost 50% of nuclear baseload generation which can be a perfect base for hydrogen production
- Existing gas infrastructure could potentially be upgraded to export hydrogen to Europe

Long-term impact the reconstruction of Ukraine could have on regional/European gas and electricity sector

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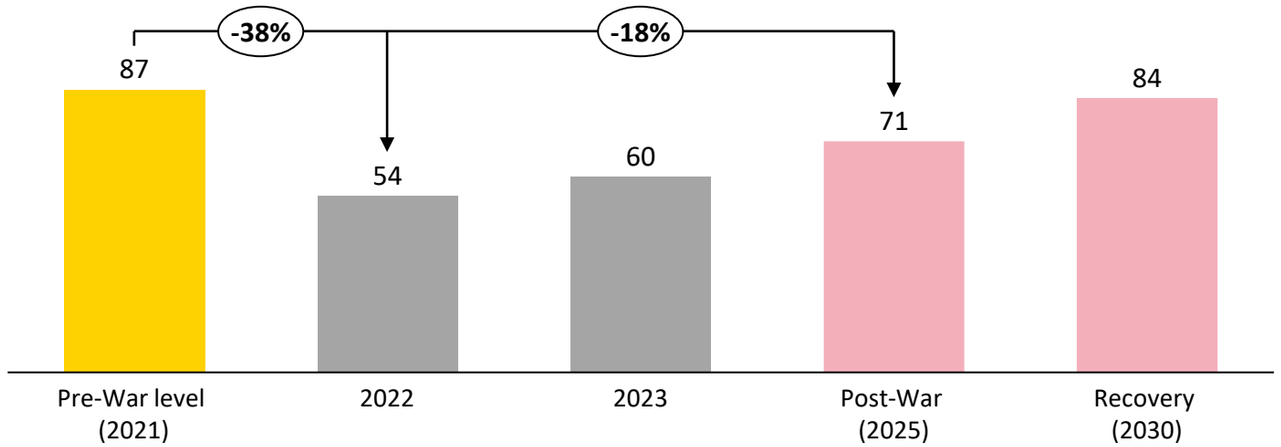
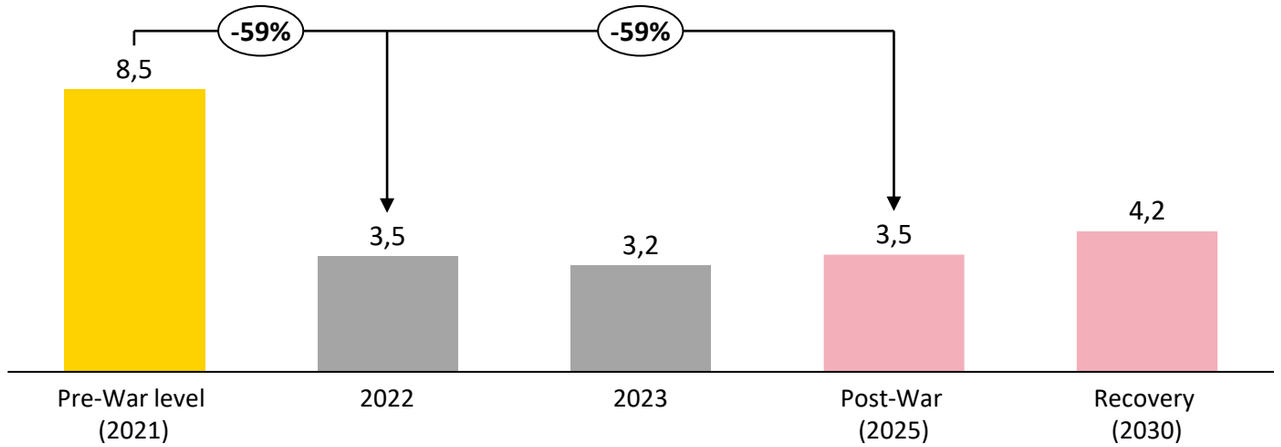
Power consumption by industry, TWh



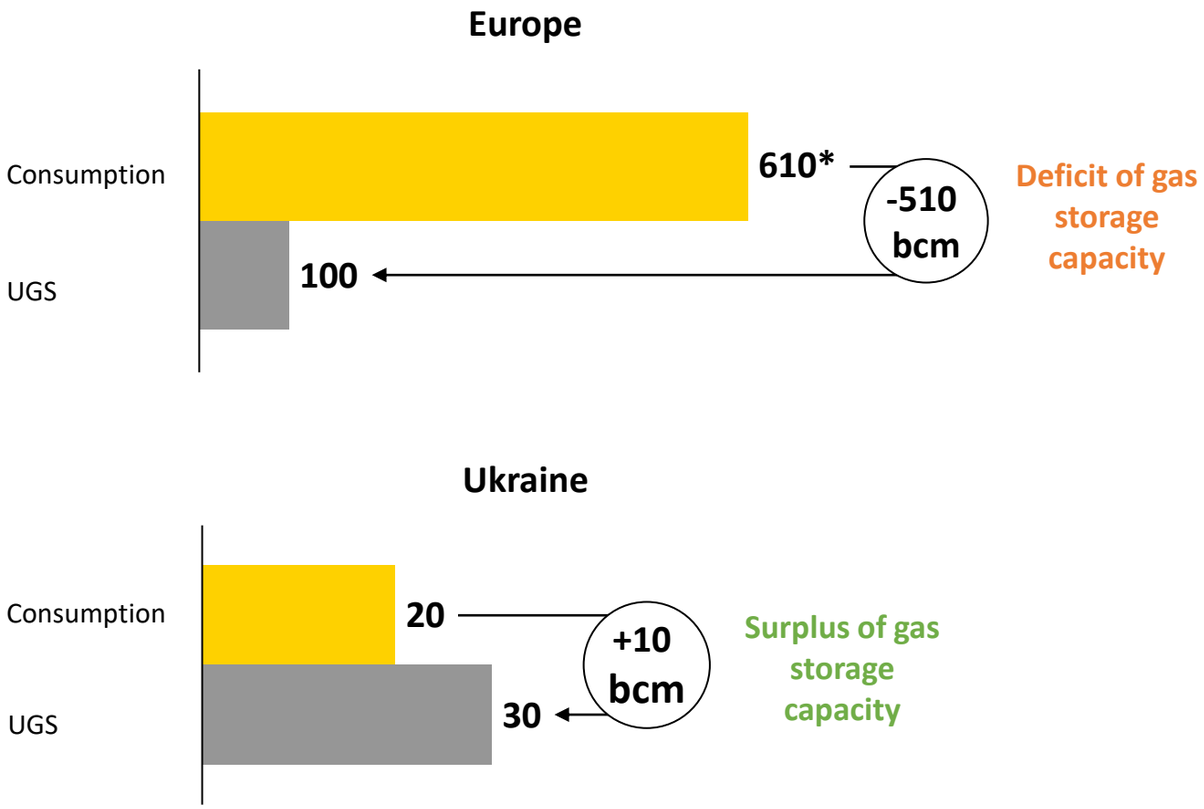
- Industrial consumption of power fell by 38% in 2022
- Transition to low-carbon technologies in industries will lead to lower power consumption after the recovery
- New low-carbon generation capacities to replace destroyed/outaged units
- **Power balance surplus**
- **Export of fossil free electricity to Europe**

Gas consumption by industry, bcm



- Industrial consumption of gas fell by 59% in 2022
- Increasing of domestic gas production in near terms (ambitious plans of state-owned companies) and middle-term (Crimean assets return)
- Slow recovery of gas consumption among households and industry
- **Gas balance surplus**
- **Export of gas to Europe**

What role can Ukraine’s storage sites play in Europe’s security of supply?



- Drop in piped gas flows from russia to Europe, that decreases flexibility and optionality
- The problem of covering peak consumption in the winter months
- Europe needs to expand own gas storage facilities

- **Ukraine need 50-60% of its capacity to meet domestic needs**
- **Ukraine can offer 10-15 bcm of UGS capacities for European participants**

Ukraine could compensate to Europe around **10%** of EU UGS capacity
which is additional flexibility and security of supply

*Source: IEA Q2 2023 Gas Market Report

Thank you for your attention!

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