

## **NUCLEAR ENERGY DURING WAR. ENVIRONMENTAL ASPECT**

**Valeriia Kriuchkova**

*Kharkiv Polytechnic Institute, Kharkiv, Ukraine*

Nuclear power is an integral part of the Ukrainian and global energy sector, even in the face of the growing trend towards the use of alternative energy sources. Despite the fact that this type of energy is a rather complicated and dangerous topic in wartime, a high level of security prevents occupation and terrorist actions from turning a nuclear power plant into an atomic bomb.

# NUCLEAR ENERGY DURING WAR. ENVIRONMENTAL ASPECT

## NUCLEAR POWER IN THE WORLD



416 reactors

The total capacity is  
374671 MW



59 reactors

with a total capacity of  
61647 MW  
are under  
construction



25 reactors

are under construction.  
The total capacity of  
21272 MW  
is suspended



210 reactors

Total capacity of  
106020 MW  
decommissioned

## ADVANTAGES AND DISADVANTAGES

- Nuclear power plants are used to generate almost a third of the world's carbon-free electricity
- Nuclear's fuel calorific value 2 million times ↑ than oil ↑ than coal
- Danger of nuclear accidents
- High construction and operation costs compared to alternative energy sources
- Problems with increased radiation levels and waste disposal
- Potential risk to create nuclear "dirty bomb" using nuclear's power plant technologies and resource

## NUCLEAR ENERGY DURING MILITARY CONFLICT

- A stable source of electricity in the face of the destruction of critical infrastructure
- Practical independence from fuel sources
- Unlike alternative energy sources, the energy sector is resistant to missile attacks
- No destroyed nuclear power plants-no needs for urgent waste disposal. For example, battery & accumulators from solar panels are hazardous and after missile attack and destruction must be disposed with special conditions
- Occupation. On 4 March 2022, Europe's largest nuclear power plant with a capacity of 6,000 MW (Zaporizhzhia NPP) was occupied by the Russian military.
- Radiation released into the environment as a result of shelling
- Secondary contamination. Fire and landscape changes in the Chernobyl NPP exclusion zone as a result of increased contamination

## CONCLUSION

- Nuclear energy is an indispensable part of the Ukrainian and global energy sector, even taking into account the increase in the use of alternative energy sources
- High level of security prevents occupation and terrorist actions from turning NPPs into atomic bombs
- The safety of nuclear power depends on the human factor
- Nuclear energy should be used only for peaceful purposes