



Ukraine's Winterisation 2024/25

Cold spot assessment

Findings from REACH assessments

June 2024

Context & rationale

- The full-scale war has resulted in a significant level of damage to housing infrastructure.
- The war has also damaged electricity, gas and heat supply facilities, with a large concentration of the damage on the front line and border areas.
- As of June 2024, Ukraine has lost 50% of its electricity generation capacity, compared to pre-war levels, and the situation is expected to worsen before winter ([Ukrinform](#)).
- Elevated humanitarian needs and socio-economic challenges, exacerbated by recent frontline developments and new waves of displacement ([e.g. Sumska](#)).



REACH aims to support winterization response planning by identifying “cold spots”, areas where winter-related hazards intersect with socio-economic vulnerabilities and lack of coping capacities (LOCC), with a focus on damaged energy infrastructure

Key findings

- The 2024/25 Cold Spot Index (CSI) identified **Kharkivskiyi, Bohodukhivskiyi and Chuhuivskiyi (Kharkivska oblast) and Sumskiyi (Sumska oblast)** as the raions with the highest winter-related risks.
- These results are based on a combination of severe winter conditions, high levels of vulnerability (presence of internally displaced persons (IDPs) and elderly populations), and conflict-related damage.
- **Conflict-related damage has impacted Ukraine's energy infrastructure**, exacerbating the vulnerability of populations to winter conditions through frequent power outages disrupting essential services like heating and water supply.
- **The winterisation response should remain adaptable** to address potential deterioration of the energy infrastructure in response to emerging localized challenges.



Cold spot



➤ Climatological → Winter-related hazards



➤ Human → Exposure



➤ Social → Susceptibility



➤ Institutional / Infrastructural → Lack of coping capacity (LOCC)



➤ Complex → The combination of all these four dimensions allow the estimation of compounding impacts of winter-related hazards and vulnerabilities on people.



Methodology



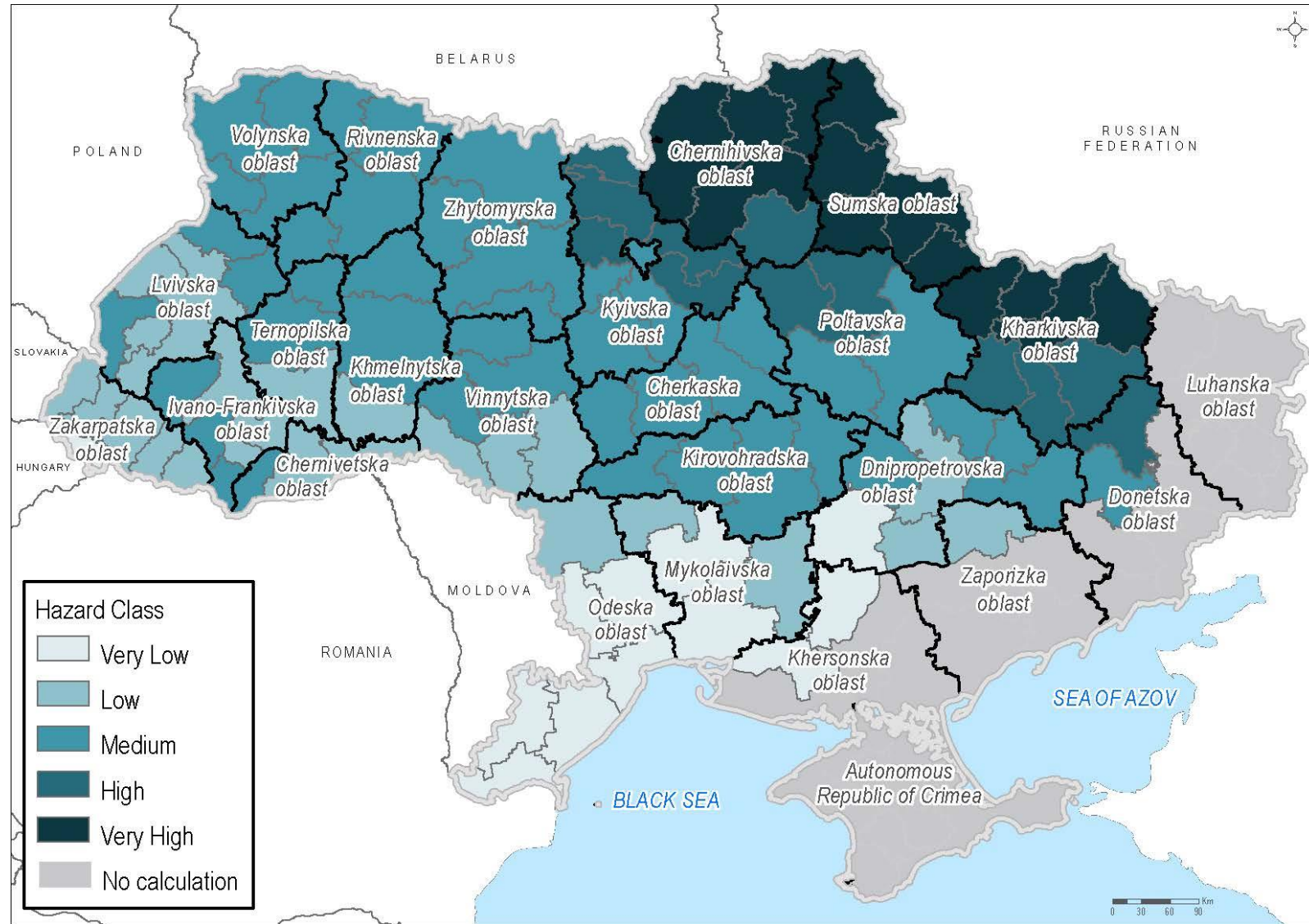
- **Geographical scope:** 107 raions mostly under control of the GoU as of May 2024.
- **Four groups of indicators:** hazard, exposure, susceptibility, and lack of coping capacity (LOCC). Indicators' values were assigned into **five classes**, from **Very Low** to **Very High**.
- In the final calculations, **each indicator was granted a different importance**, based on their relevance for the Cold Spot Index (CSI).
- **Limitations:** (1) Population Estimates: No official census since 2001; relies on unofficial estimates, affecting exposure and susceptibility accuracy; (2) LOCC Data: Updated only until May 2024; future damage to energy infrastructure not included, limiting current calculations.



Hazard

Indicators and sources used:

- Mean number of frost days per year (MODIS).
- Frequency of cold waves per year (Copernicus)
- Mean number of snow days per year (MODIS NASA's terra satellite).

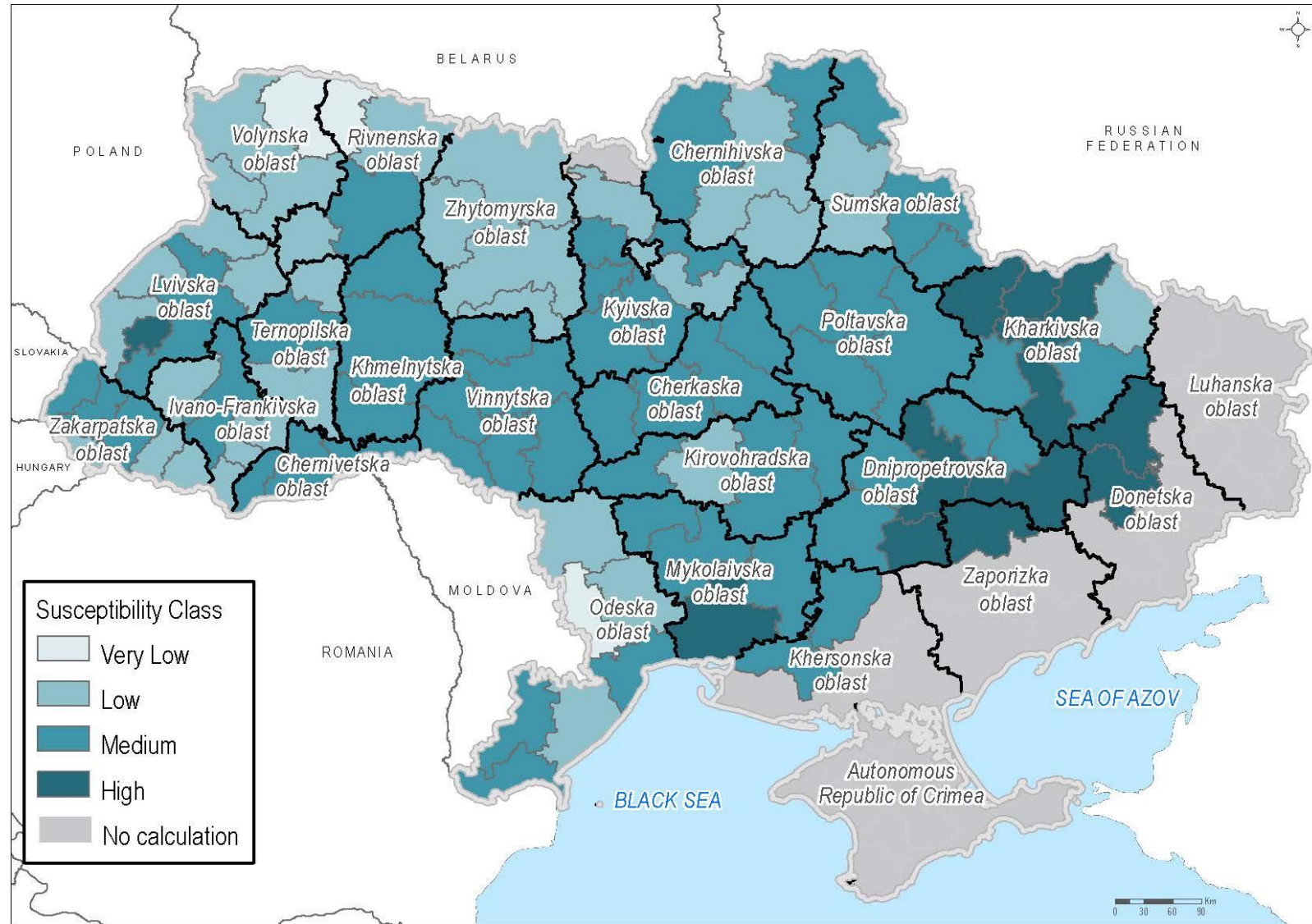




Susceptibility

Indicators and sources used:

- Percentage of elderly population as of August 2023 (UNFPA, 2023).
- Percentage of IDPs per raion as of March 2024 (IOM, 2024).
- Number of people living in active collective sites as of May 2024 (CCCM Cluster, 2024).

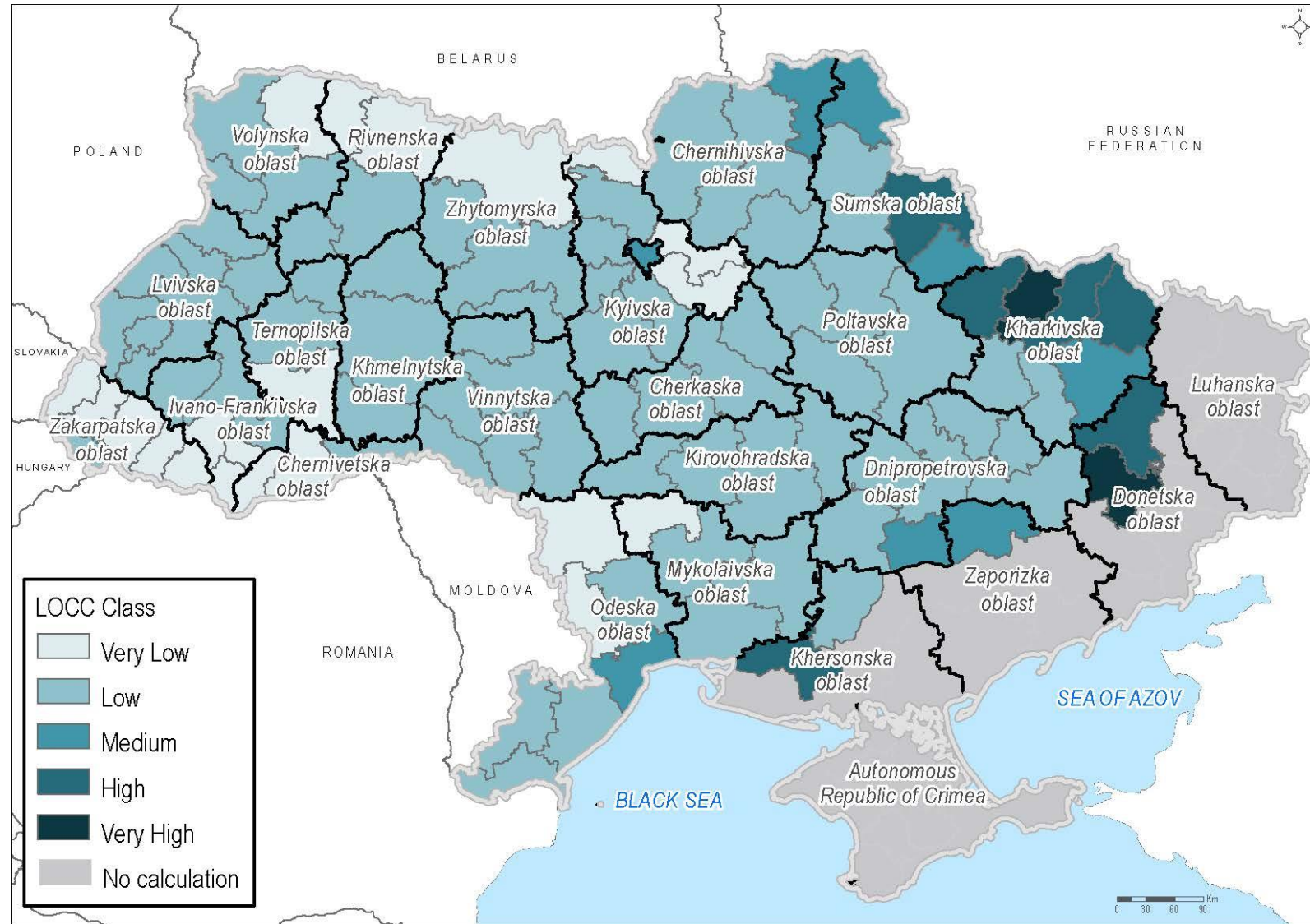




LOCC

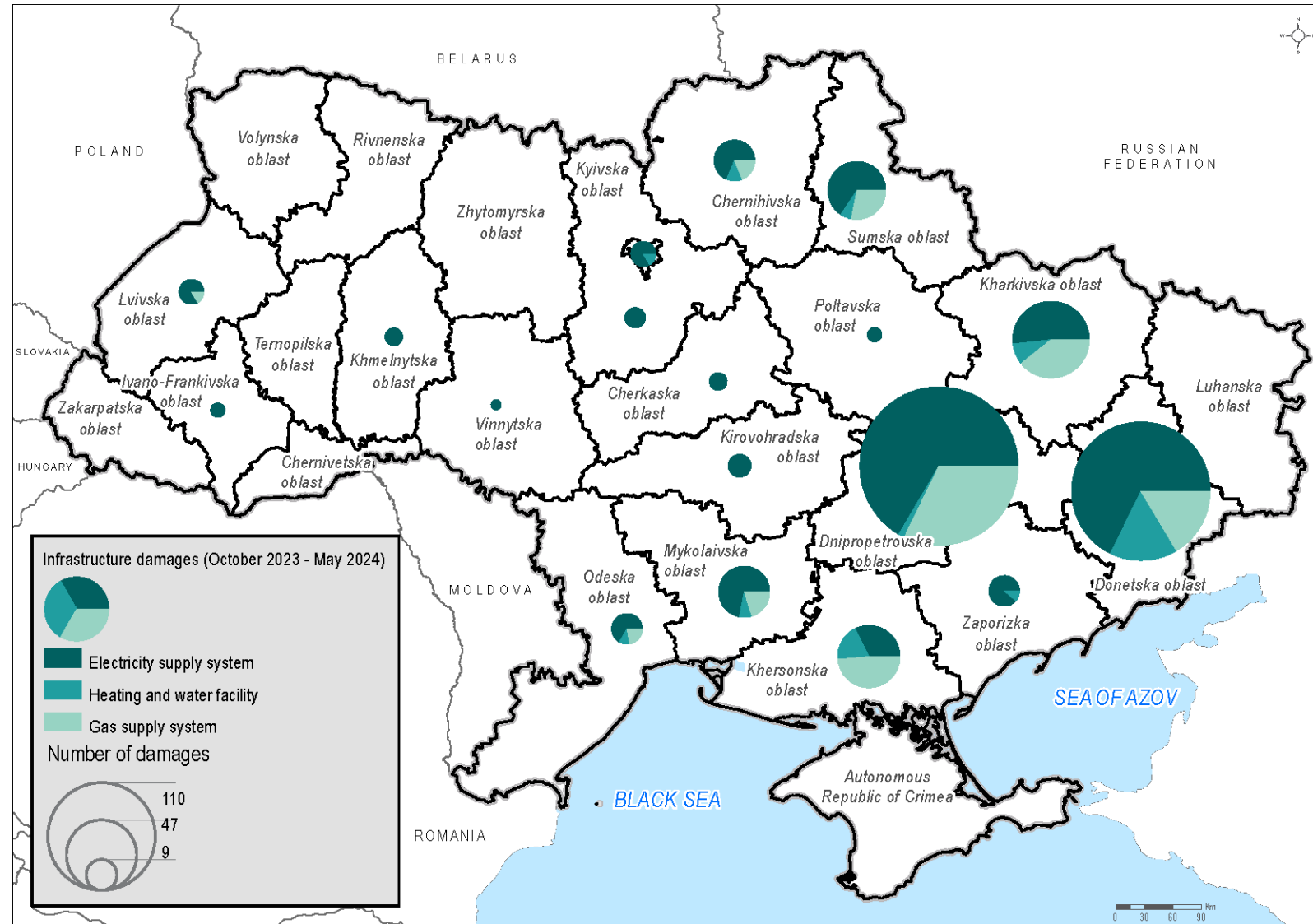
Indicators and sources used:

- Cumulative damage to power and electricity infrastructure (October 2023 - May 2024; INSO, 2024).
- Conflict incidents density per 100 sq km (01.05.2023 – 09.05.2024) (ACLED, 2024).
- Level of power outages (March - May 2024) (INSO Ukraine quarterly report: 01 March – 16 May | Q1 2024).



Infrastructure damages

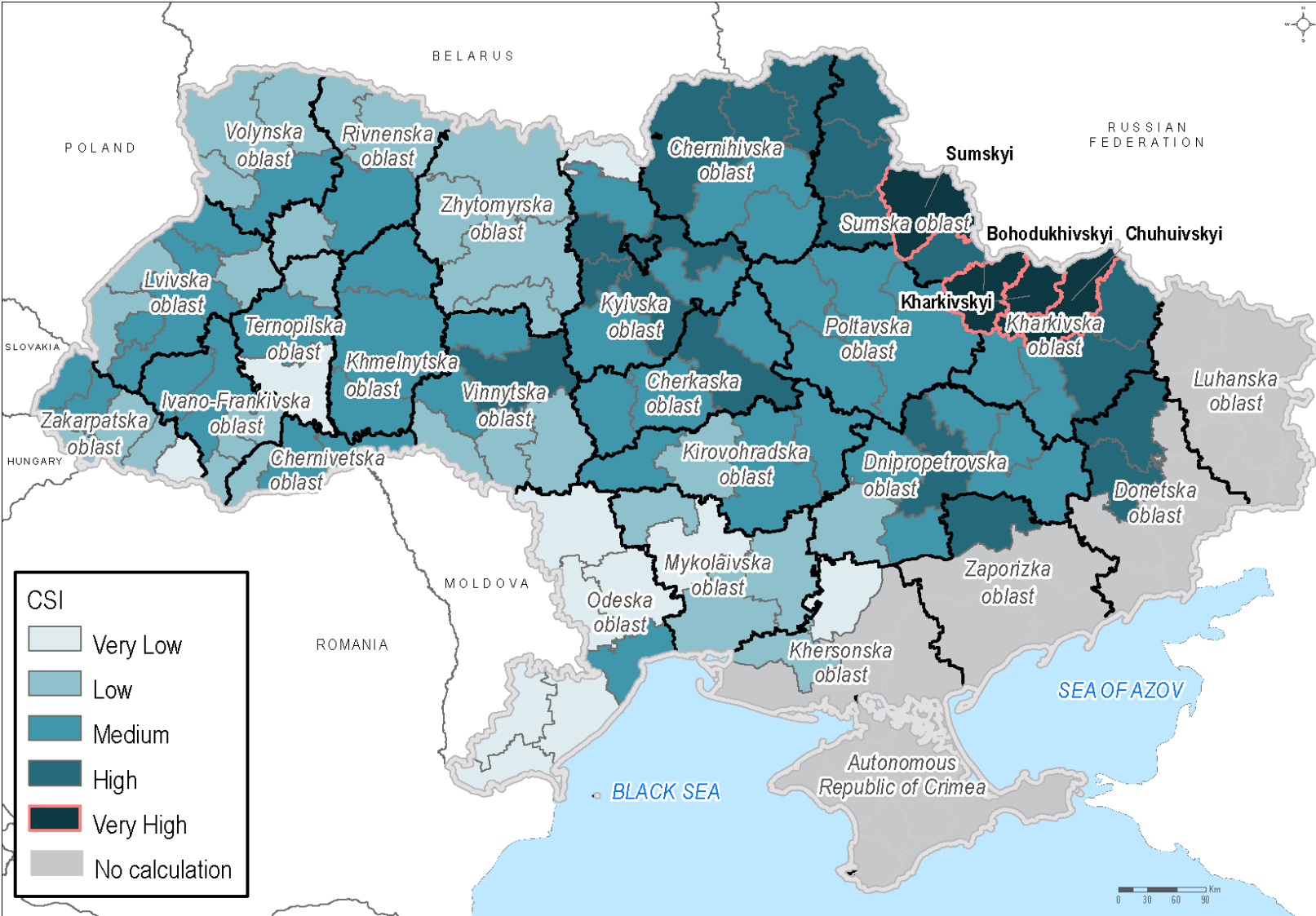
- Dnipropetrovska, Donetska, and Kharkivska oblasts, have experienced the most extensive damage.
- Among the three types of infrastructure assessed, electricity supply systems have suffered the greatest number of incidents of damage.



Cold Spot Index

Raions with the highest CSI values which face the highest winter-related risks:

- Kharkivskyi, Bohodukhivskyi and Chuhuiivskyi (Kharkivska oblast).
- Sumskyi (Sumska oblast).





Thank you for your attention



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