



**Beyond ~~Apocalypse~~ Crisis:**

# **Net Zero is Peace?**

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# What is in common?



Wildfires California 2024



Russian War Against Ukraine 2014 – present

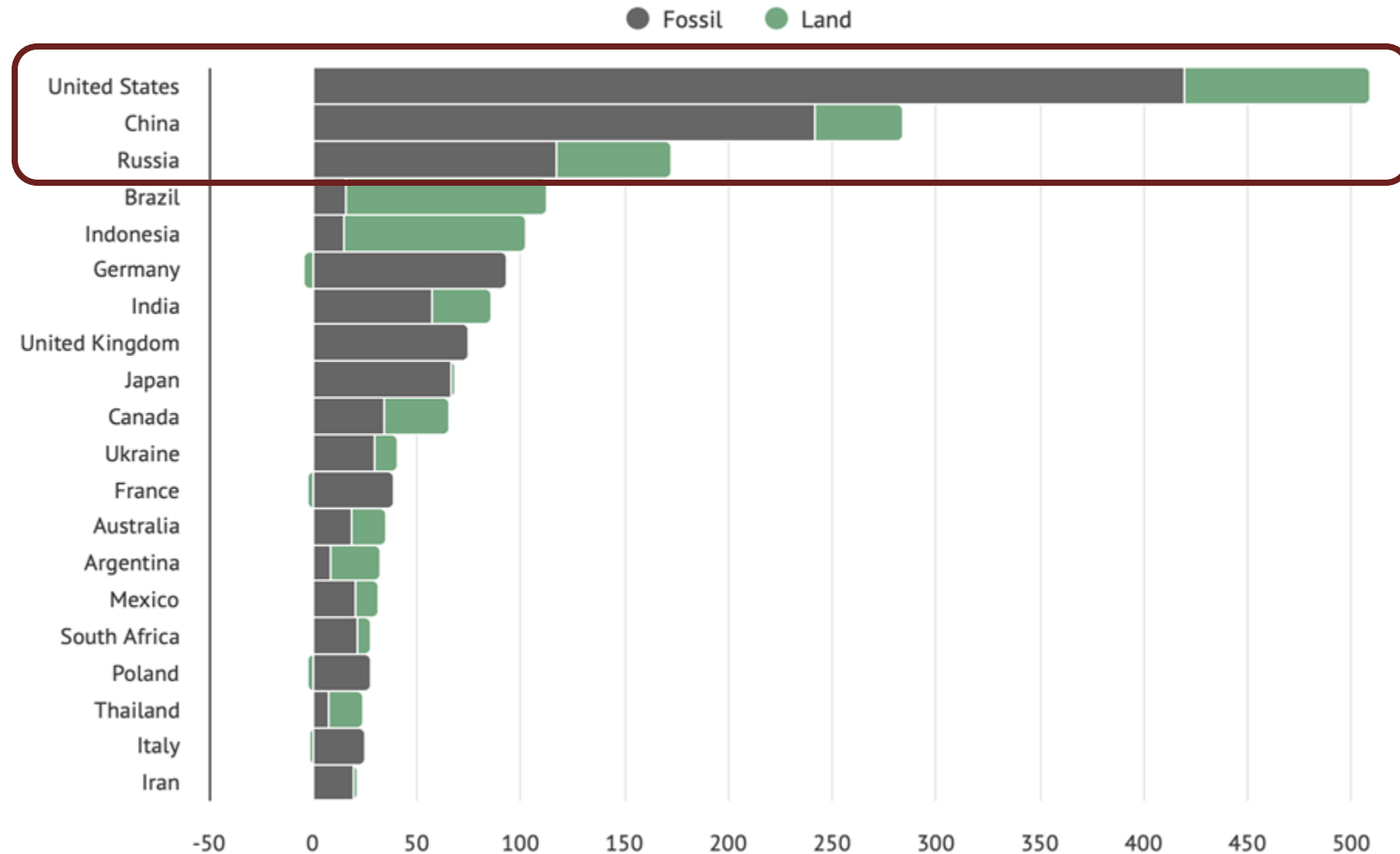
# Fossil Fuels



**Coal, oil and gas extraction has a lasting legacy of violence and destruction, from the Sudanese Civil War, the killings of Indigenous communities in Nigeria to contemporary conflicts in Mozambique.**

## The countries with the largest cumulative emissions 1850-2021

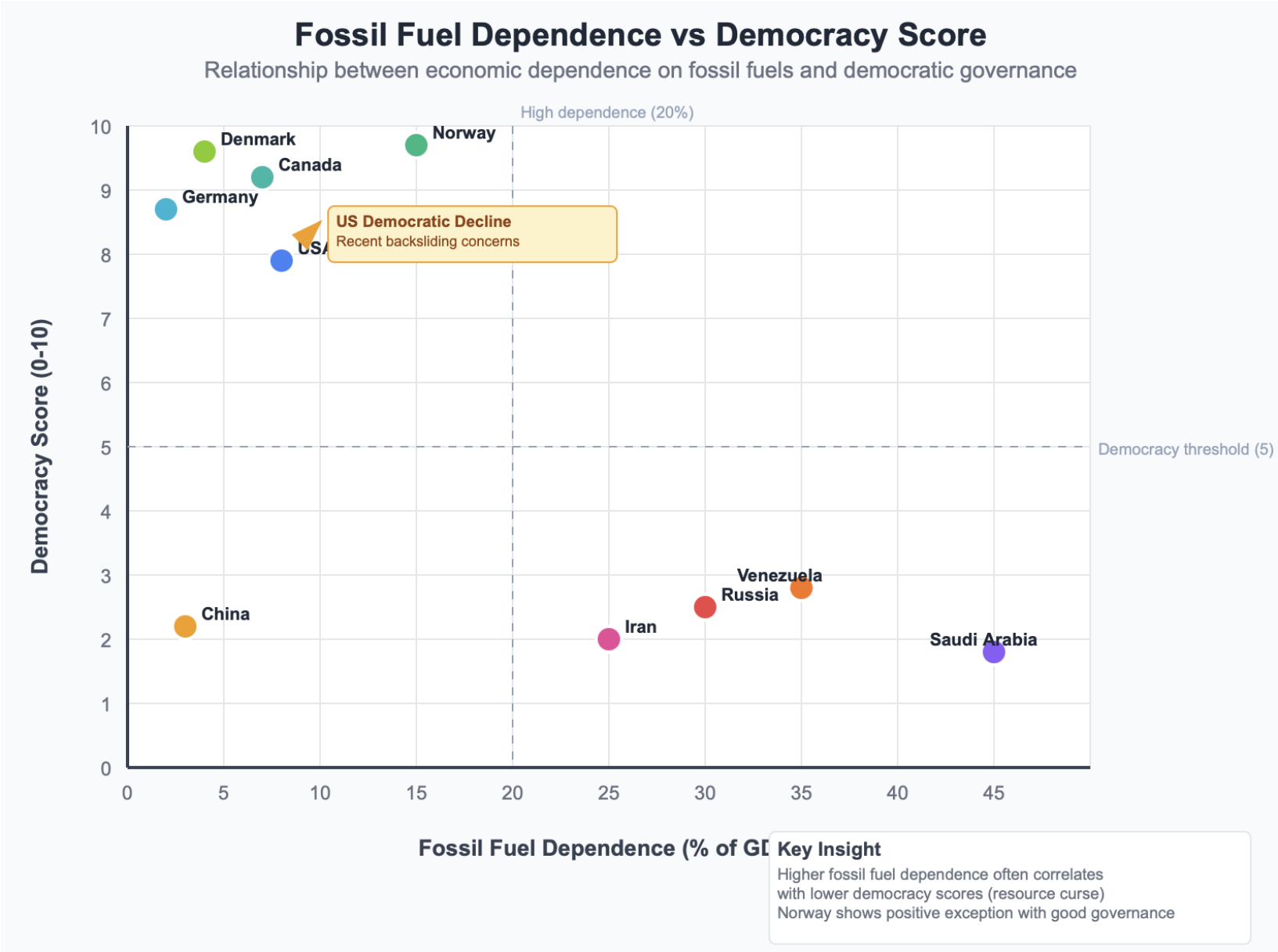
Billions of tonnes of CO<sub>2</sub> from fossil fuels, cement, land use and forestry



## Energy as Resource of:

- Climate crises
- Injustice
- Inequalities

# Energy Fossil Fuels as Source of Democratic Backsliding

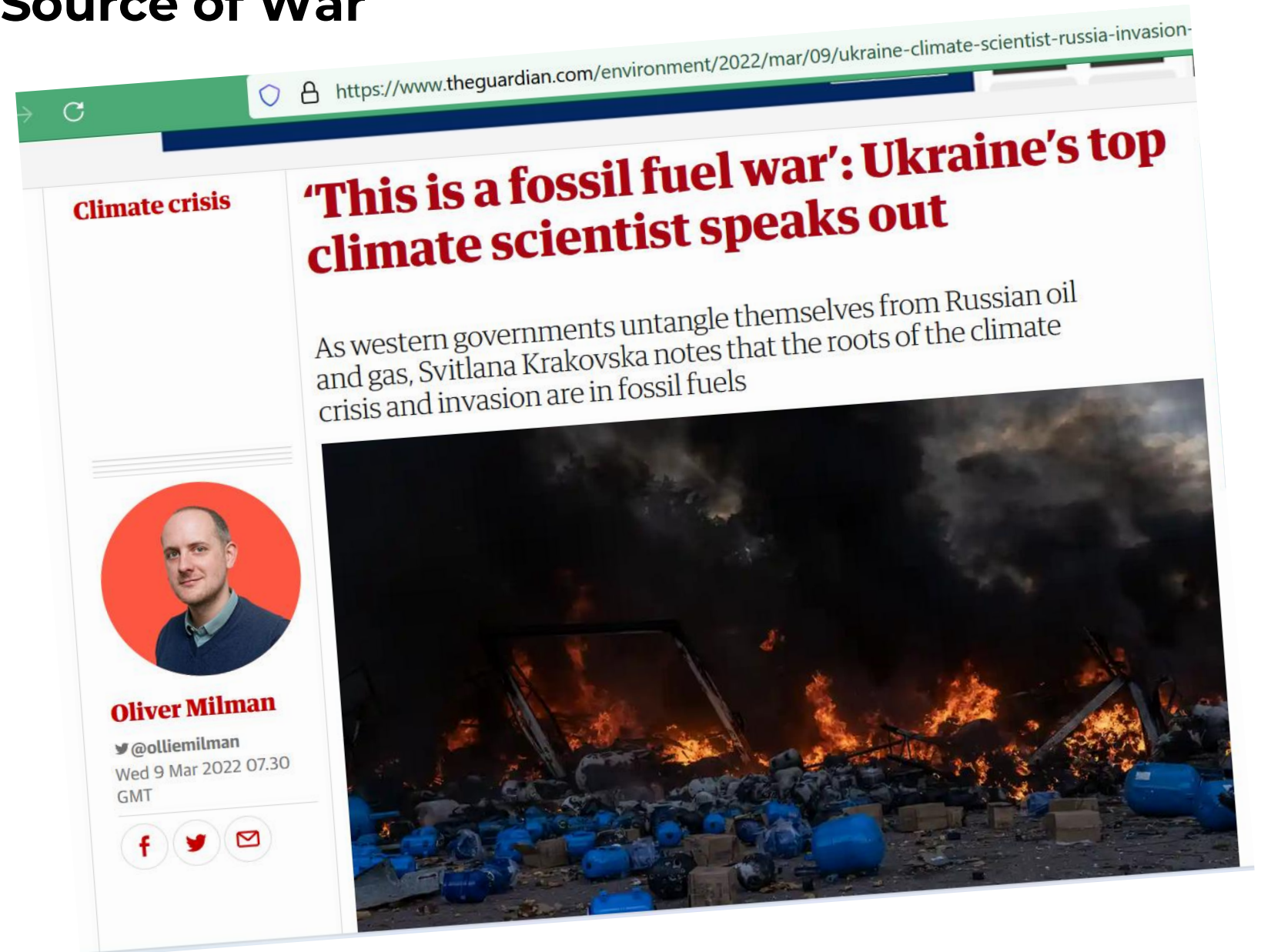


# Energy Fossil Fuels as Source of War

## 2021 Finnish Institute of International Affairs:

“the Western-driven transition away from a fossil fuel-based economy towards a renewable energy-based economy may deepen the Russian leadership’s suspicions about global climate policy.

Following Henderson and Mitrova, “the global rise in renewable energy source targets and the transition towards a decarbonized energy economy are regarded in Russia as a significant threat for export revenues and thus for Russian economic, and therefore political, security.”



## The Vicious Cycle or **the Price of Dependency**

**\$7 trillion was spent globally on fossil fuel subsidies in 2022**, with a substantial portion directly benefiting fossil fuel advocates.

**Fueled by these subsidies, Russia earned over EUR 800 billion in revenues from fossil fuel exports since the onset of the full-scale war in Ukraine, giving it the ability to channel these funds towards militarization and weapon production.**

Belgium, which allocated approximately **350 million euros** for humanitarian assistance to Ukraine while simultaneously investing billions in Russian liquefied natural gas (LNG).

The EU spent **8.3 billion on Russian LNG in 2023**, even as it facilitated LNG exports to China and India through ongoing transshipments in the port of Zeebrugge.

Average EU  
citizen has paid  
more than **500**  
**EUR** for Russian  
fossil fuels since  
invasion

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Global

834,741,099,455 EUR



Oil (69%)  
576,588 M EUR



Gas (20%)  
172,971 M EUR



Coal (11%)  
85,181 M EUR

European Union

212,773,831,107 EUR



Oil (52%)  
111,345 M EUR



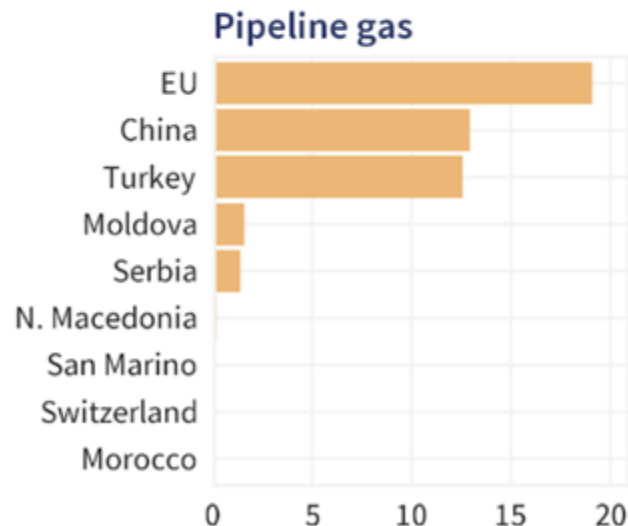
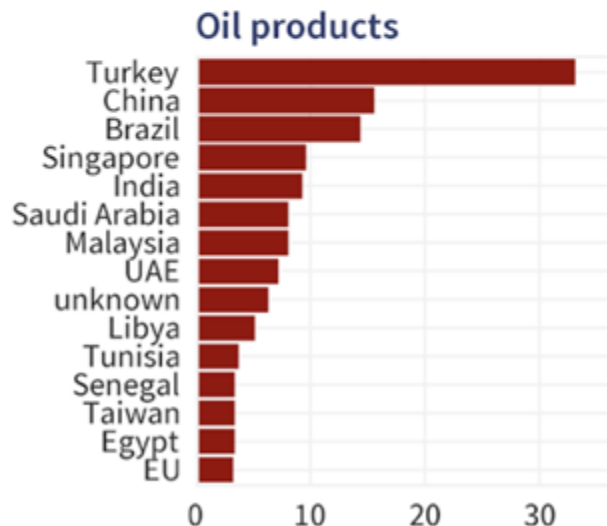
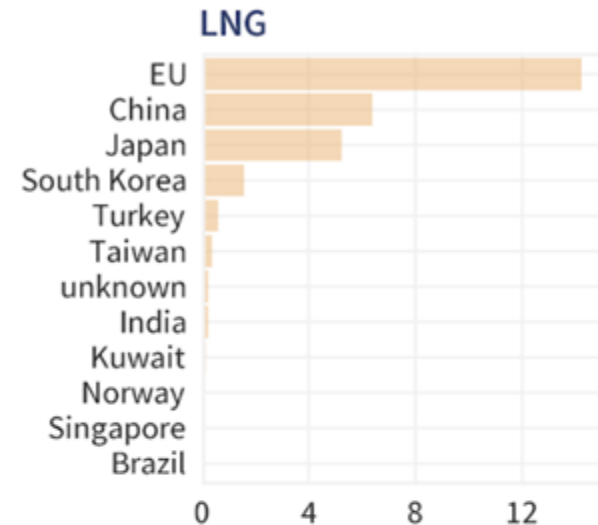
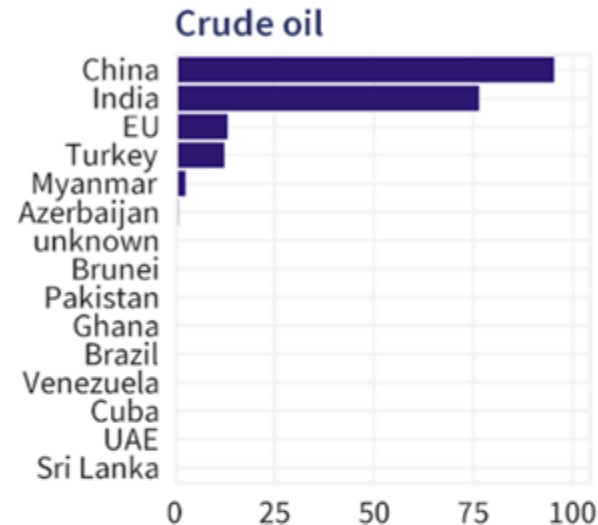
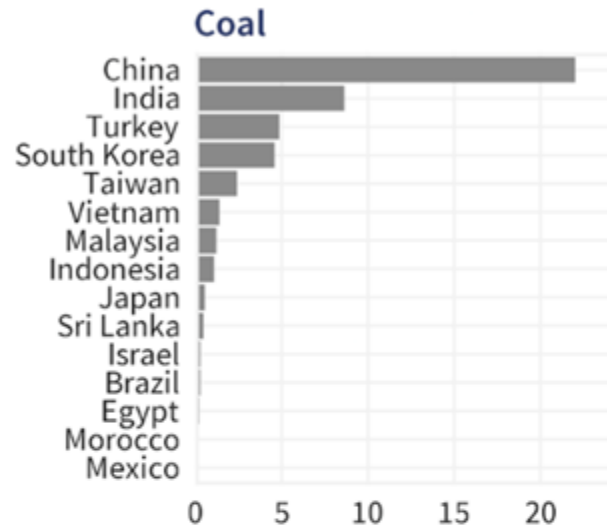
Gas (45%)  
97,821 M EUR



Coal (3%)  
3,606 M EUR

# Who bought Russia's fossil fuels after EU bans

Shipments arriving since EU oil bans until end of December 2024



Despite the outcry against Russia's aggression in Ukraine, European and G7 countries' policies remain contradictory. While publicly condemning Russia's actions, these nations continue to provide financial support through fossil fuel purchases.

If the EU member states spent at least this much money  
on a mix of green solutions, we could have:



2,403,204  
SOLAR  
HOMES



23,725  
FOOTBALL  
FIELDS  
OF SOLAR PV



6,149  
ONSHORE  
WIND TURBINES



998  
OFFSHORE  
WIND TURBINES



892,967  
HOMES  
INSULATED



3,054,730  
HEAT  
PUMPS

The European Union has chosen a strategy for sanctions policy that inflicts maximum damage with minimal losses. In its [summary](#) of the sanctions, the European Council describes the list of banned products as “...*designed to maximize the negative impact of the sanctions on the Russian economy while limiting the consequences for EU businesses and citizens.*”

**INSTEAD:**

# The Russian war against Ukraine has caused unprecedented damage.

**Russia's invasion in February 2022 severely damaged Ukraine's economy, suspending exports and destroying critical infrastructure.**

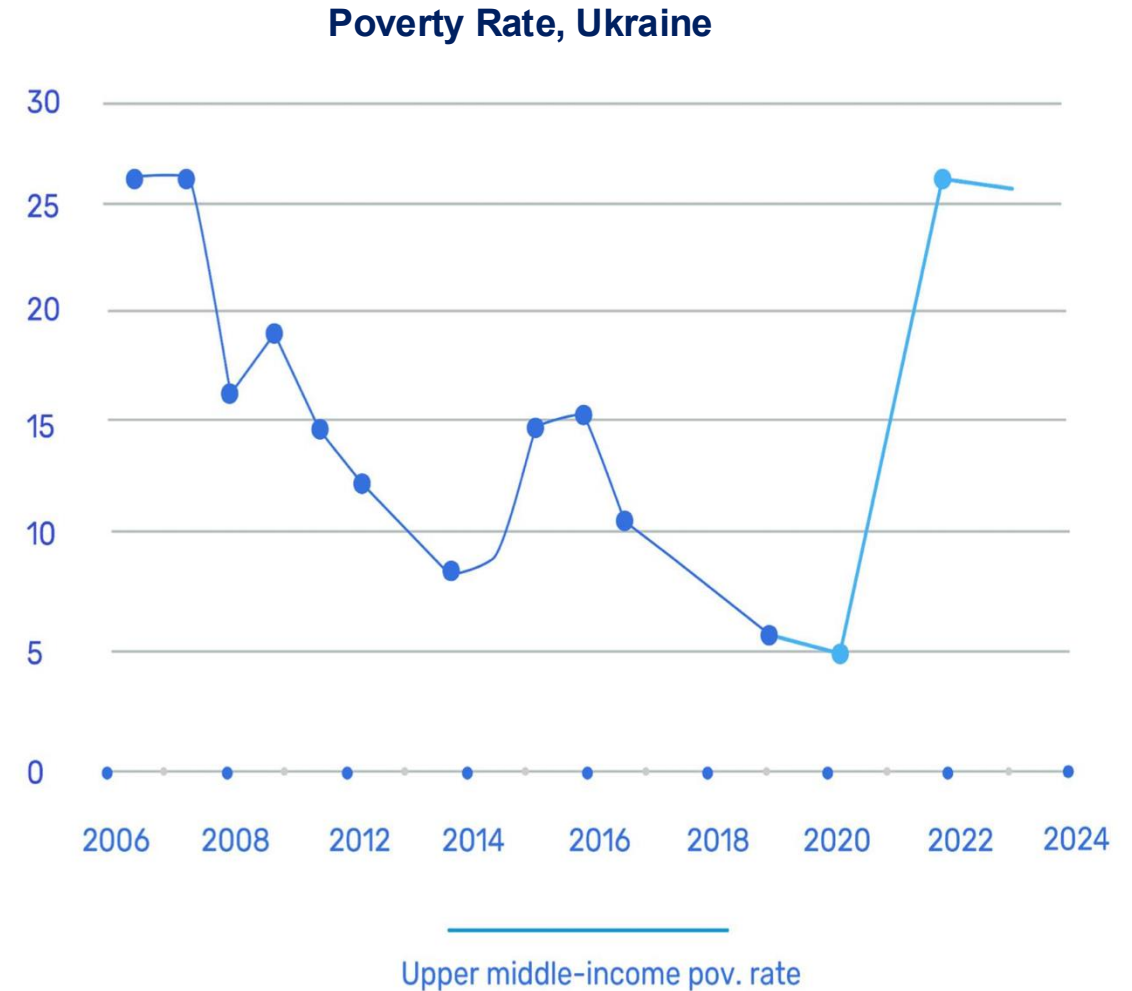
**Ukraine's GDP crashed 29.1% in 2022.**

**Key export industries like metals and agriculture have suffered major losses from damage to machinery, land, and stored goods.**

**73% of Ukraine's jobs were in small and medium businesses before the war. Many have closed or laid off workers due to plunging demand, supply issues, and safety threats.**

**The enormous loss of human capital (as of March 2025):**

- 12,910 civilians killed
- 30,700 civilians injured
- 6.3 million Ukrainian refugees in Europe
- 6.8 million worldwide



**The reconstruction of Ukraine might become one of the most difficult multilateral challenges of the 21st century.**

**Estimated costs €506 billion (£420 billion) - 2.8 times the estimated nominal GDP of Ukraine for 2024**

**The highest estimated recovery and reconstruction needs are in:**

- ✓ **housing (17%)**
- ✓ **transport (15%)**
- ✓ **commerce and industry (14%)**
- ✓ **agriculture (12%)**
- ✓ **energy (10%)**
- ✓ **social protection and livelihoods (9%)**
- ✓ **and explosive hazard management (7%)**

**Reconstruction must address not only physical rebuilding but also social, economic, and environmental renewal.**



in an apartment building hit by a Russian missile strike, amid Russia's at  
January 23, 2025. REUTERS/Stringer/File Photo [Purchase Licensing Ri](#)



## **Nature is a Silent Victim**

**Environmental damage to date carries a total cost of \$200 billion.**

**Over 20% of Ukraine's forests- 1 million hectares - burned by rockets or projectiles.  
At least 10 years to restore.**

**Ukraine is currently the most mined country in the world since the WWII-  
174,000 square km of the mined territory.**



**30% of Ukraine's agricultural land was uncultivated in 2023 due to explosives contamination.**



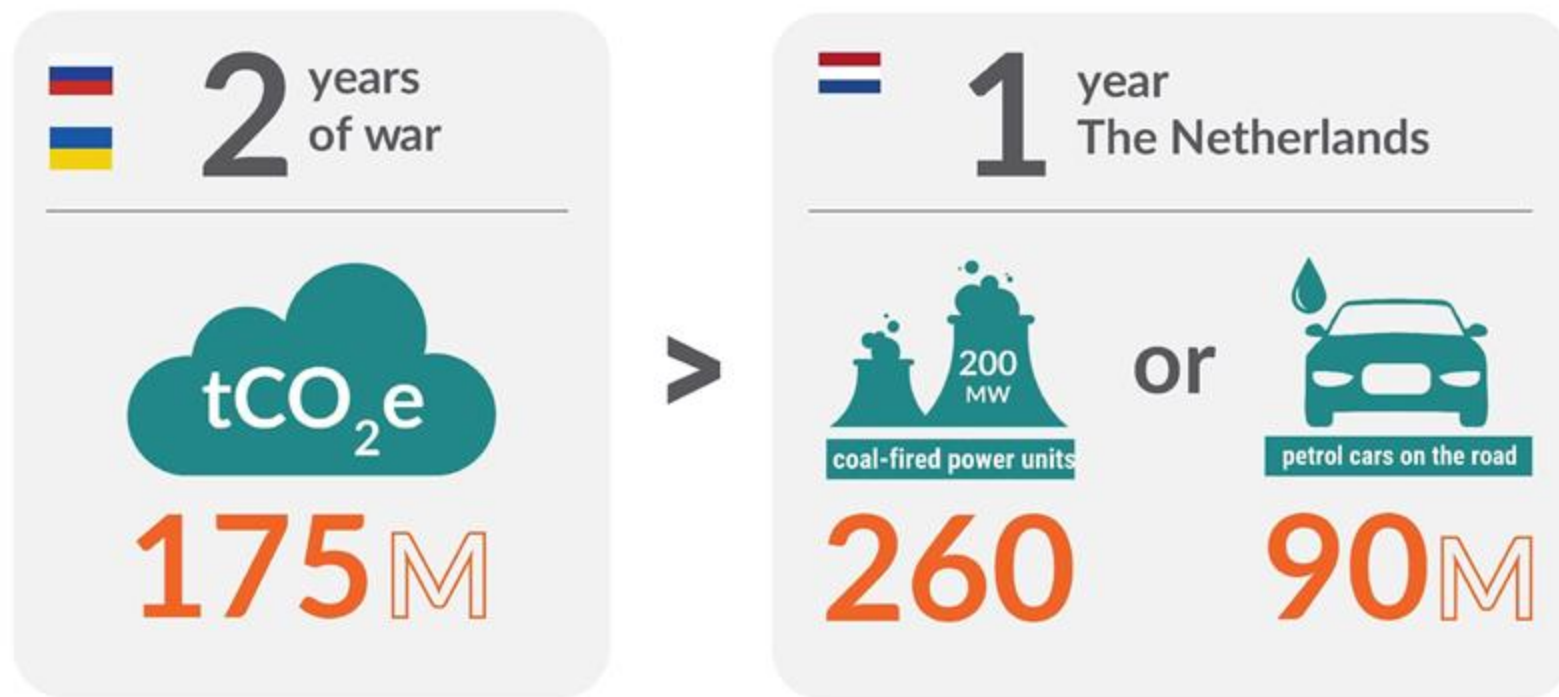
A field is covered with craters left by the shelling close to Izium, Kharkiv region, Ukraine, Tuesday, Sept. 13, 2022.



As of December 2024, greenhouse gas emissions linked to the warfare reached 175 million tons of CO2 equivalent = equals the CO2 emission of a country like Belgium

No accountability measures for conflict-related emissions yet

# GHG emissions after 2 years of Russia's war



Since 2022, Russian armed forces has been deliberately targeting energy infrastructure facilities.

2022 – 2023 - targeted attacks on the distribution systems

2024 - strategic attacks on power plants

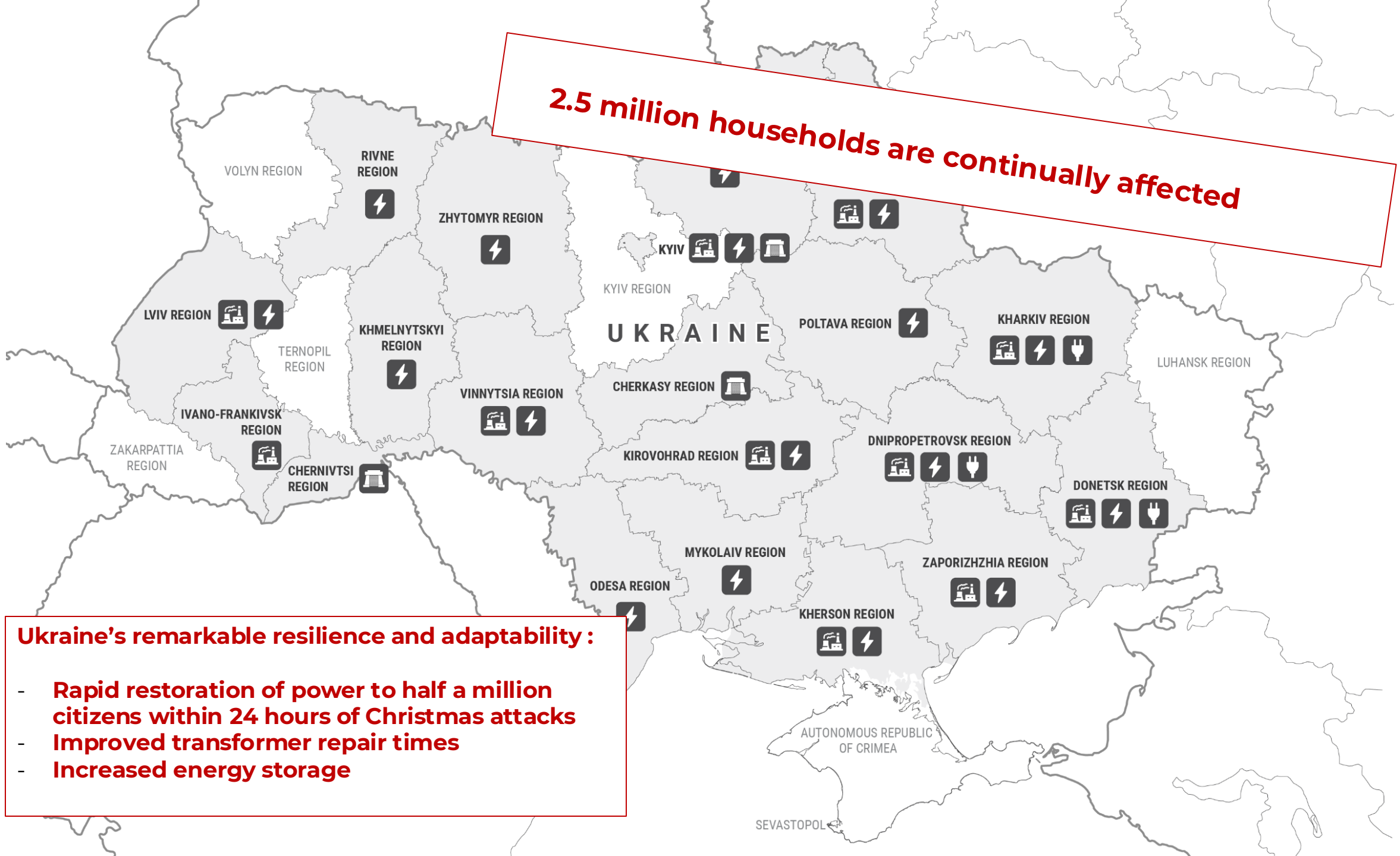


**Energy as Target**

Prior 2022, Ukraine could generate up to 32 GW of power, with actual generation around 25 GW.

Today, Ukraine struggles to produce **9 GW**.

**2.5 million households are continually affected**



**Ukraine's remarkable resilience and adaptability :**

- **Rapid restoration of power to half a million citizens within 24 hours of Christmas attacks**
- **Improved transformer repair times**
- **Increased energy storage**

## Lessons Learnt

- **Centralized fossil-based infrastructure is vulnerable**
- **Traditional energy systems are insecure**
- **Renewables-based energy systems can ensure energy security and accelerate net-zero transition efforts**

Renewable power plants that harness solar or wind energy are particularly suitable for distributed infrastructure and can be installed **much more quickly** than centralized conventional plants.

\*The typical construction timeline for a coal-fired power plant is 4 to 7 years from start to finish

For commercial and utility-scale solar farms: the total process (permitting, procurement, installation, and commissioning) – takes 6 to 14 months

## Lessons Learnt

**Energy Transition is NOT a luxury**

**In Ukraine, we do not have the luxury of time**

**Neither the world does.**



**Despite active war phase, Ukraine  
commissioned 1.6 GW of new renewable energy  
capacity**

Household, commercial, and some utility-scale solar installations, along with new wind, biomass, and small hydro projects.

**Ukraine has installed more onshore wind  
power (114 megawatts) since the start of  
the war than the UK.**

Tydgul'ska wind power plant, constructed just 60 miles from the frontline

A solar plant with energy storage systems already operating at Chernihiv Secondary School № 19



**Solar Initiatives: “100 Solar Schools” and “50 Solar Hospitals”**  
The Energy Act for Ukraine Foundation

**30 kilowatt solar power plant installed on the roof of Boryslav Hospital.**

Opened on January 7, 2024, it will produce ~ 25,000 kWh per year, saving up to 35% of the electricity needed to operate the building.

Funder: Ukrnafta, in cooperation with the City Council





**Solar panels in the yard of an apartment building in Lyman, Donetsk region.**

**Apartment block in Kyiv installed solar panels for powering elevators and pumps during blackouts**





**Svitlana Krakovska, Ukraine's top climate scientist, and her husband installed rooftop solar panels on the roof of their apartment building in Kyiv.**

# Solar-plus-storage systems inaugurated at two Ukrainian hospitals

Two Ukrainian hospitals recently hosted inauguration ceremonies for hybrid solar and storage systems that have been installed through an initiative spearheaded by the RePower Ukraine Charitable Foundation.

AUGUST 2, 2024 **PATRICK JOWETT**

COMMUNITY

INSTALLATIONS

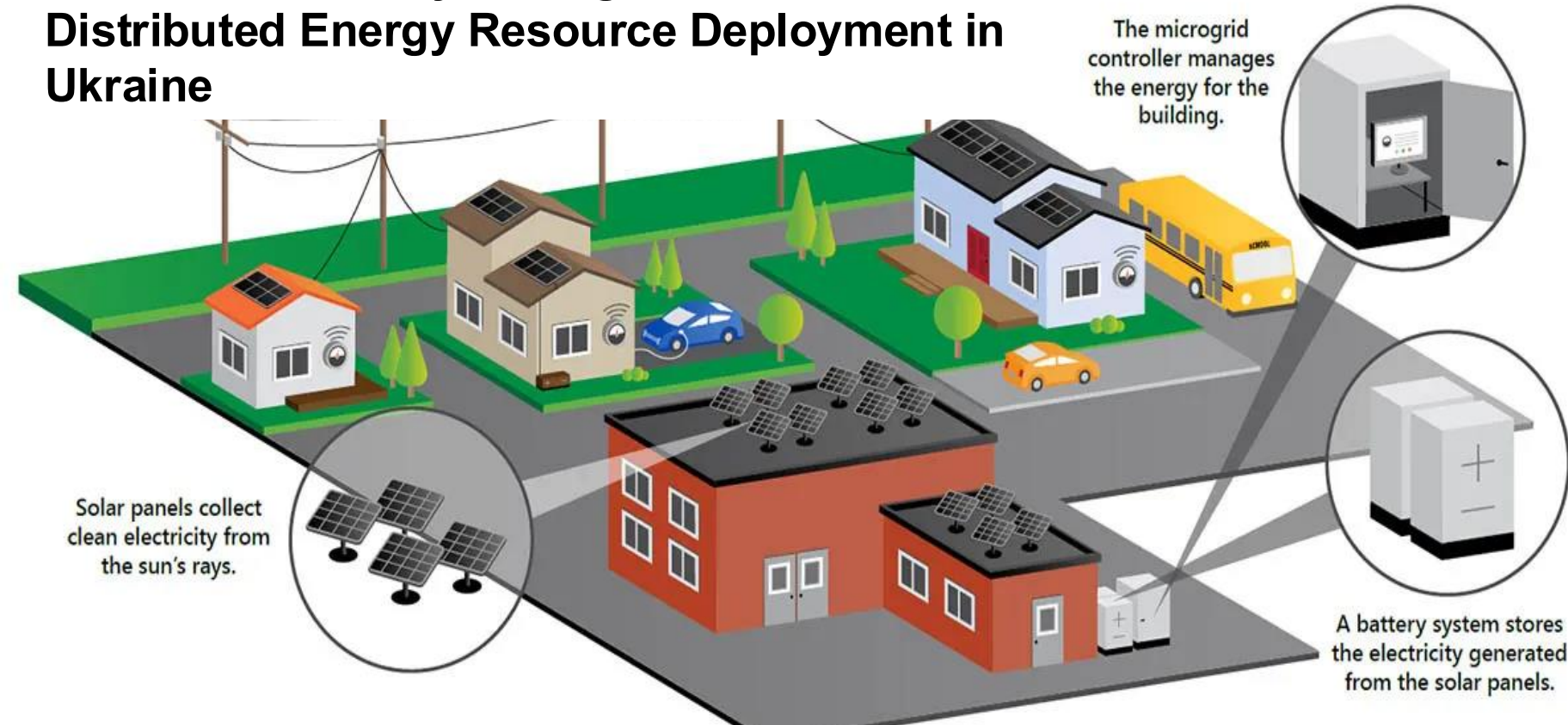
MARKETS

UKRAINE



Hospitals in the Ukrainian cities of Kharkiv and Brovary have begun benefiting from solar-plus-storage energy systems

# Merefa Community Microgrid: Distributed Energy Resource Deployment in Ukraine



A 6.06 MW-DC PV system, with 4.4 MW of assets - already operational or under construction, a 2.5-MW battery energy storage system with 4-hour capacity and dual 532-kW natural gas reciprocating engine generators, plus balance-of-plant equipment.

A total estimated capital cost of \$9.85 million USD, with projected annual operations and maintenance costs of \$1.02 million USD, while anticipated first-year wholesale market participation revenues are estimated at \$0.65 million USD.

The microgrid's resilience capabilities are demonstrated by its 87% probability of maintaining critical load service during extended 96-hour outage periods, ensuring reliable power supply during grid disruptions.

# Energy Transition is a key pillar of Ukraine's Reconstruction, Recovery and EU accession



## Net-Zero

A market-based approach could boost net-zero transition efforts in the long term and provide energy security. These achievements could drive net-zero technologies down their respective cost curves and build a pathway to faster decarbonization in other countries of the EU.



## Energy security

Developing a strongly renewables-oriented energy sector in Ukraine and its integration into the EU energy market will contribute to European supply diversification.

## Renewable Energy as a Security Solution



## Innovation

Ukraine offers a special opportunity to concretely develop a leading model for decarbonization through technological change.



## Just transition and Green Jobs

Technical and policy solutions supporting rapid low-carbon transition in post-war Ukraine will result in significant net socio-economic and ecological benefits.

# Ukraine can become a role model for the EU, UK and beyond

## What Ukraine can teach the developed West?

Great British Energy's first project will put rooftop solar panels on 200 schools and 200 hospitals - cutting energy bills.

Today (21 March 2025) the Department for Energy Security and Net Zero has [announced around £180 million](#) of funding from Great British Energy, aimed at powering community clean energy projects across the UK. This is the first major investment under Great British Energy's Local Power Plan, which is set to deliver clean energy projects nationwide.

## **Lessons Learnt: Resilience and Energy Security**

- **National, regional, and global security are inextricably linked**
- **Urgent Need to Phase Out Fossil Fuel Dependence**
- **Bottom-Up Approach to Energy Security :**

### **Local and community-level initiatives have proven crucial for resilience People-Centered Infrastructure**

Decentralized energy systems are more resistant to disruption  
Local energy generation reduces vulnerability to external threats  
Distributed systems can maintain essential services during crises  
Small-scale projects can be implemented and adapted more quickly

**Energy security, climate action, and community resilience are deeply interconnected.**

**Green agenda is not a luxury but an existential necessity for Ukraine, Europe and the world**

**2025: Ministry of Environmental Protection and Natural Resources of Ukraine presents draft law “On the Principles of Green Recovery of Ukraine,” aiming to embed environmental and climate priorities into the country’s post-war reconstruction and guide its transition toward a green economy.**



The draft law outlines the principles of sustainable recovery, introduces criteria for green investment, and calls for the creation of a national green taxonomy aligned with EU standards.

Does **NET ZERO** = Inclusive?

Does **NET ZERO** = Just?

Does **NET ZERO** = Recovery?

**Welfare and growth can be decoupled from greenhouse gas emissions, meaning that a *green recovery* and a *welfare-maximising recovery* are conceivably the same thing.**



# The Green Phoenix Framework: Climate-Positive Plan for Economic Recovery in Ukraine

Anastasiia Zagoruichyk, Oleh Savvitskyi, Ievgeniia Kopytsia, Brian O'Callaghan

Oxford Smith School of Enterprise and the Environment | **Working Paper No. 23-03** | 21 June 2023

ISSN 2732-4214 (Online)



## FINDINGS:

Spending on fossil fuel industries **is unlikely to return high dividends** for the public and introduces large economic and environmental risks.

- Instead of developing new gas fields to increase energy access and high-value exports, we propose scaling low-carbon energy production and decarbonising domestic industrial processes.

**If Ukraine is to pursue a low-carbon economy, it could benefit from becoming a technological leader in sectors such as hydrogen production or “green” steelmaking. Large-scale investment in research and development could attract talent home and catalyse Ukrainian climate leadership.**

Training and reskilling are likely to be core components to any Ukrainian recovery plan.

If a low-carbon shift is desired, much of these investments in human capital would need to prioritise skills relevant to the low-carbon economy, such as solar panel installation or retrofitting a house.

An aerial photograph of a wind farm in a lush green landscape. The image shows several large white wind turbine towers and blades. The background features rolling green hills and a clear sky. A large blue rectangular box is superimposed over the center of the image, containing yellow text. In the bottom right corner, there is a square QR code.

# **REBUILDING UKRAINE: 4.2 MILLION GREEN JOBS**



**The green transition represents more than an environmental or economic transformation; it is the cornerstone upon which a new, more secure global order must be built.**

**The time for gradual change has passed – the path to global security runs through the immediate and comprehensive energy transition.**

**MORE SUN.  
MORE WIND.**



**MORE PEACE.**

**Does NET ZERO = PEACE?**

## Net Zero as Peacebuilding Tool

- Disrupting cycles of resource competition
- Enabling more equitable distribution of energy benefits
- Fostering cooperation across divided communities

## From Technical Solutions to Social Transformation

Moving beyond technocratic approaches to carbon reduction

Recognizing interdependencies between **sustainability, security, & peace**



Net zero transitions offer more than environmental benefits—they provide frameworks for broader societal **resilience**

Net zero can simultaneously address **carbon reduction, energy security, and justice concerns**

**Post-conflict recovery & environmental restoration**  
- **Just transition** initiatives in post-industrial communities  
- Resource competition transformed into cooperation

**Net Zero Framework address climate impacts and build more secure and resilient societies**

# Unite against climate change - Ukraine scientist

🕒 3 March 2022



Russia-Ukraine war



**The Washington Post**  
*Democracy Dies in Darkness*

## Time to transform

The magnitude of the world's task to slow climate change was underscored by another escalating crisis this week, as Russian troops invaded Ukraine while representatives from 195 countries worked to finalize the IPCC report.

The head of the Ukrainian delegation, Svitlana Krakovska, continued to participate in the virtual meeting in recent days, even as bombs fell on her home city of Kyiv. The violence only underscored the dangers facing all people as the planet warms, she told an international gathering of negotiators over the weekend, according to two participants.

“Human-induced climate change and the war on Ukraine have the same roots: fossil fuels and our dependence on them,” Krakovska [said in an impassioned speech](#) Sunday. “We will not surrender in Ukraine. And we hope the world will not surrender in building a climate-resilient future.”

# CHALLENGES?

**The US democracy score has declined in recent years, with concerns about democratic norms, polarization, and the rule of law.**

**Trump Factor:** Trump's policies favor fossil fuel expansion and deregulation, aligning with interests that often resist democratic reforms and climate action.





# ISOLATE PUTIN.

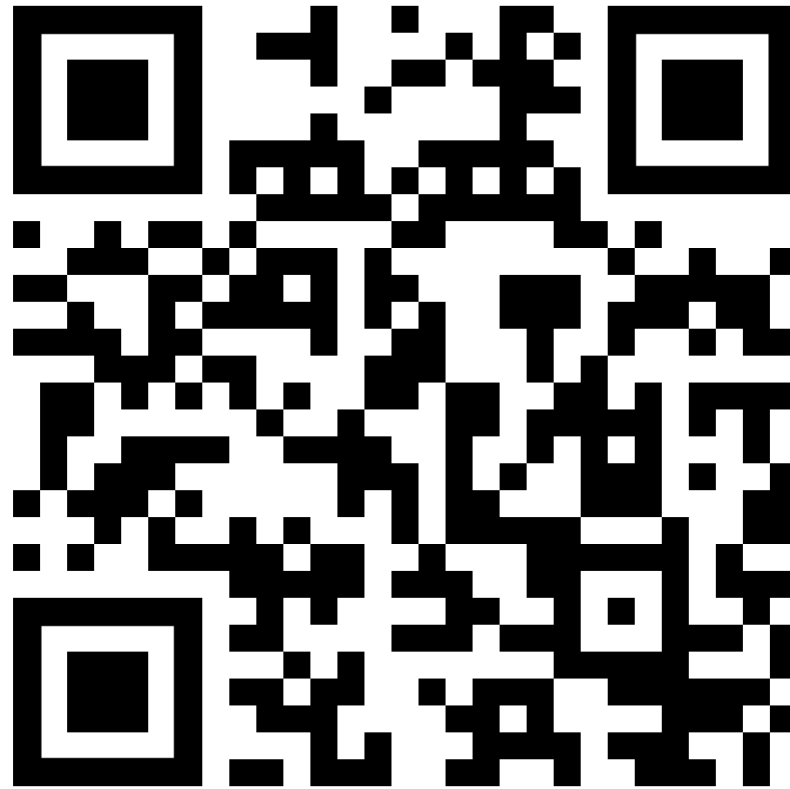
# INSULATE HOMES.



THE GREENS/EFA  
in the European Parliament

We stand  
with Ukraine

**Thank you!**  
**A short quiz as a food for thought:**





# Thank you!

**Dr. Ievgeniia Kopytsia**

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