

# Rebuilding Ukraine Resilient Energy Future: *A collective endeavor*

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CAIRO

# Impact of Russian's invasion of Ukraine

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# Economic Impact of Russia's Invasion of Ukraine

**-29.2%**  
Decrease in 2022 GDP

**US\$11 billion**  
Damage to energy  
sector as of Feb 2023

**5.4 m**  
Internally displaced  
persons as of Jan 23

**-29.6%**  
Decrease in grain  
exports y/y in Jan

**US\$37 billion**  
Damage to transport  
sector as of Feb 2023

**8.1 m**  
Refugees in Europe as  
of Feb 15, 2023

**24.1%**  
Poverty rate at \$6.85  
est. in 2022

**US\$1.1 billion**  
Additional energy  
recovery needs from  
Kakhovka dam break

**2.4 m**  
Employment decline in  
2022 (ILO estimate)

# RAPID DAMAGE AND NEEDS ASSESSMENT (RDNA2)

(PERIOD OF FEBRUARY 24, 2022 – FEBRUARY 24, 2023)

RDNA3 will be launched in upcoming weeks and will include damages till end Dec 23

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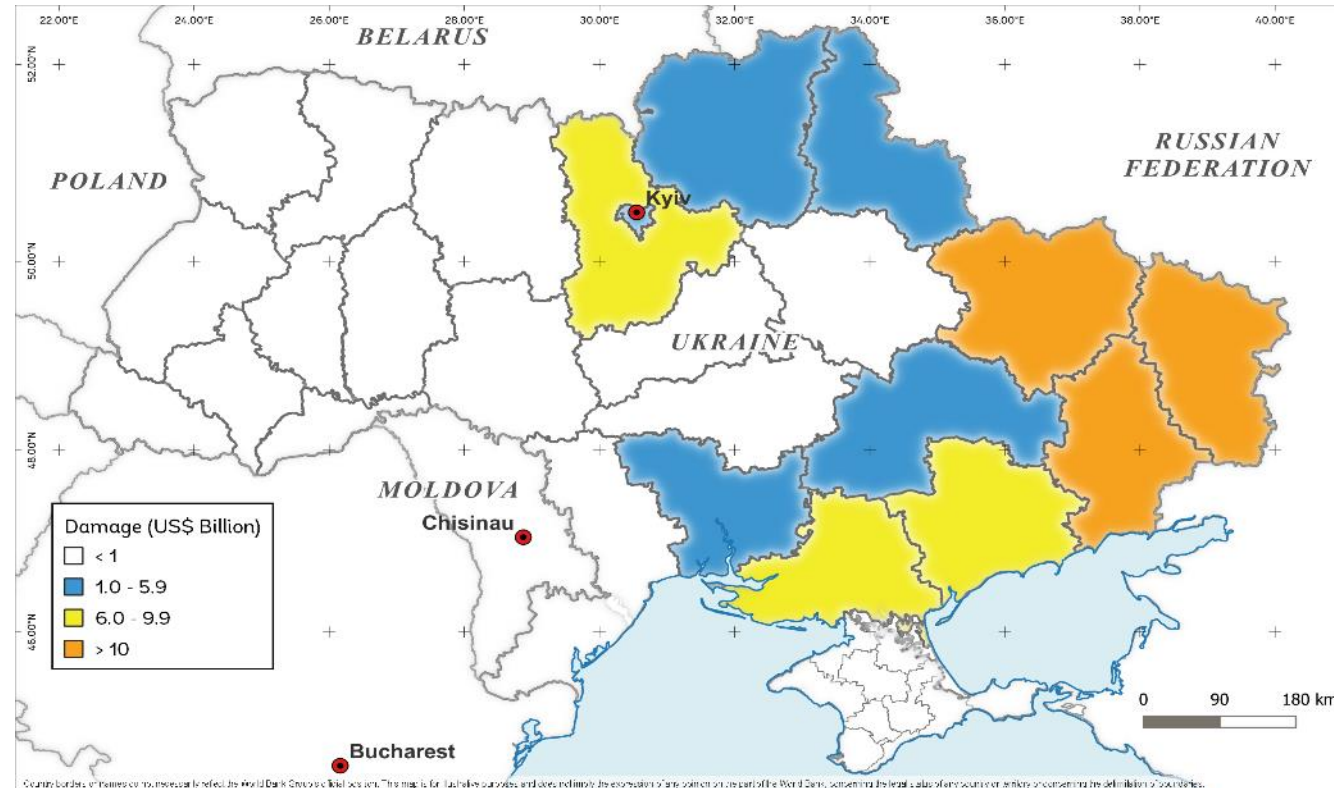
**TOTAL DIRECT DAMAGE**  
**US\$135 billion**

**RECONSTRUCTION AND RECOVERY**  
**NEEDS**  
**US\$411 billion**



Julia Burlachenko

**Most affected regions**





# Energy accounts for over 10 % of damages

More than half of energy facilities in Ukraine damaged or impacted

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Energy sector faces critical challenges due to legacy and war-related issues

Available capacity of power plants down from 36 GW to 13.9 GW in 2022

41 out of 94 crucial high-voltage transformers in Government-controlled territories damaged or destroyed by missiles or drones

Revenue losses in power, gas production, gas transit, coal mining, and fuel oil sectors of over US\$27 billion

Since June 2022 damage to district heating reached about \$ 1.2 billion

Largest share of damage in the power sector (~\$6.5 billion)

Over 12 million people suffering from energy service disruptions due to damages

Electricity consumption decreased significantly and collection rate dropped by 60 to 65%

Lack of cost viability in the sector consistently increasing quasi-fiscal deficit

# WBG Support

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# SUPPORTING UKRAINE: WORLD BANK'S APPROACH

## Phase I: During the ongoing war (Relief and restoration)



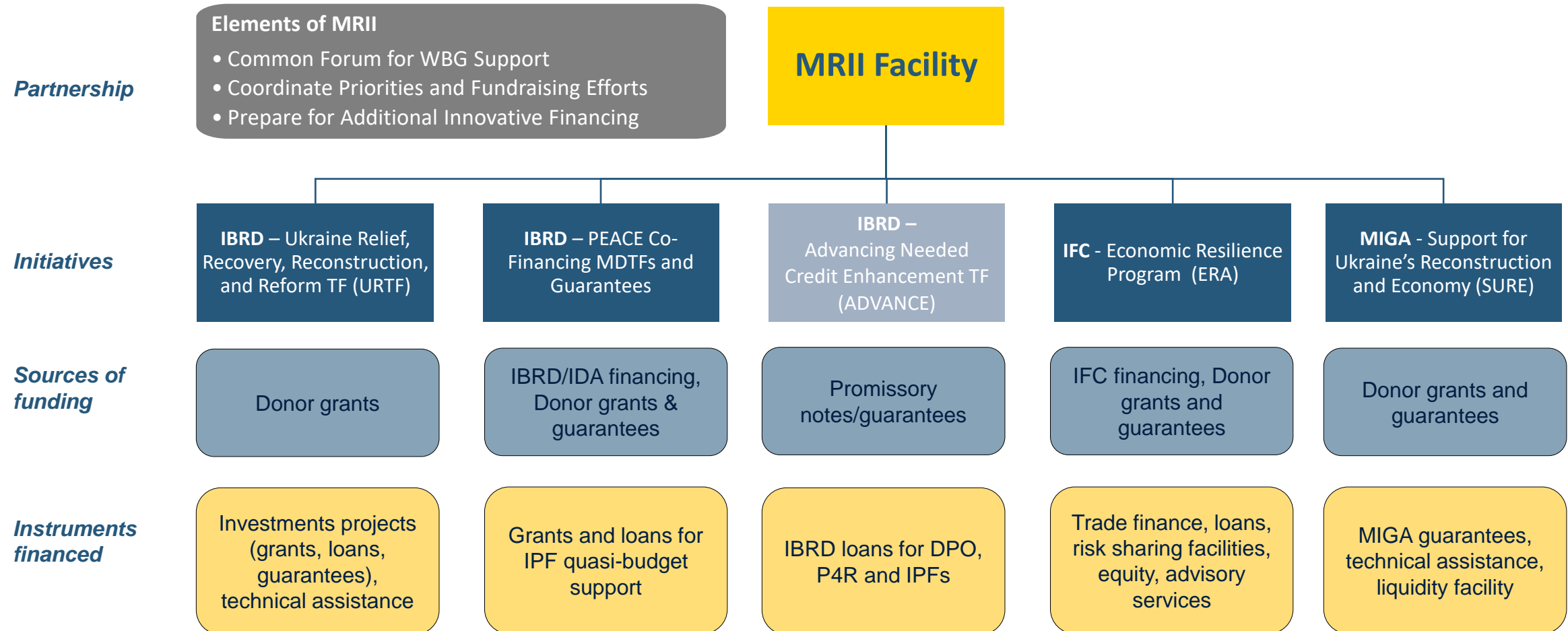
## Phase II: Post-war (Reconstruction)

- Provide **budget support** and maintain Ukraine's core government functions and **sustain its administrative and service delivery capacity**
- Support critical investments to **repair destroyed infrastructure** and help meet **Ukraine's urgent needs of economic recovery**.
- Support capacity building and institutional strengthening of the government agencies

- Support Ukraine in planning and implementation of its recovery, resilient reconstruction, and reform agenda.

# WORLD BANK GROUP's COORDINATED RESPONSE TO SUPPORT UKRAINE: MRII

The **Multi-Donor Resources for Institutions and Infrastructure (MRII) for Ukraine Facility** is the WBG's coordinated approach for engaging partners in mobilizing financing for Ukraine. MRII encompasses **donor-funded** initiatives of the World Bank, IFC and MIGA.







# \$25 BILLION MOBILIZED BY WB FROM DONORS IN EMERGENCY FINANCING FOR BUDGET SUPPORT & EARLY RELIEF & RECOVERY

- \$22.3 billion committed through the Public Expenditures for Administrative Capacity Endurance (PEACE) Project from donor-supported trust funds, IDA, and partner-guaranteed IBRD
- Over \$1.2 billion mobilized for Emergency Framework Projects (URTF and IBRD backed by donor guarantees) for immediate repair and relief needs in health, transport, energy, housing and agriculture sectors:
  - **HEAL** (Health Enhancement and Lifesaving Project): \$500mln, of which \$220mln secured
  - **REPOWER** (Restoration Project of Winterization and Energy Resources): \$500mln, of which \$200mln secured
  - **RELINC** (Repairing Essential Logistics Infrastructure and Network Connectivity): \$585mln, of which \$50mln secured
  - **HOPE** (Housing Repair for People's Empowerment Project): \$800mln, of which \$232mln secured
  - **ARISE** (Agriculture Recovery Inclusive Support Emergency Project): \$550mln - under preparation
- \$1.5 billion in Development Policy Lending fast-disbursing operation providing budget support for immediate relief and critical reforms

# ENERGY SECTOR: RE-POWER & REDIRECTING RESOURCES IN CURRENT PROJECTS

**Repower:** US\$500 million with US\$200 million signed for restoration of essential energy services

Short description of components and main activities	Initial funding	Additional mobilization needs	Total	Equipment
<b>1. Emergency equipment for the electricity infrastructure</b> - Transmission transformers - Transmission switchgears - Relay protection devices - Other equipment and materials for Ukrenergo	US\$ 199.7 million	US\$ 100 million	US\$ 299.7 million	 
<i>Potential adjustment and expansion of scope to support anti-missile protected substations.</i>				
<b>2. Emergency equipment for the heating infrastructure</b> - Mobile heat-only boilers for heating centers - Mobile mini co-generation units - Other equipment and materials for heating services	US\$ 0 million	US\$ 200 million	US\$ 200 million	 
<b>3. Technical Assistance and Project Management</b>	US\$ 0.3 million	-	US\$ 0.3 million	
<b>Total</b>	US\$ 200 million	US\$ 300 million	US\$ 500 million	

- **US\$ 173 million** in emergency support to Ukrhydroenergo to restore damaged hydro power plants.
- Additional **EUR 40 million grant** from Germany for purchase of STATCOMS to **increase in trade capacity** with ENTSO-E<sub>10</sub>

# Preparing for the reconstruction

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# RECONSTRUCTION OF UKRAINE'S ENERGY INFRASTRUCTURE WILL NEED TO FOCUS ON REDUCING RELIANCE ON FOSSIL FUELS & REBUILDING ENERGY DEMAND SECTORS TO MINIMIZE ENERGY CONSUMPTION

## Pillar 1

### Ensuring the provision of energy services for the population

- Restoring/repairing electricity & heating services
- Providing liquidity support to energy companies
- Increasing operational resilience to attacks: ENTSO-E trade, back-up mini-grids, Cybersecurity
- Strengthening of some interconnections & substations to increase trade capacity

## Pillar 2:

### Financial sustainability and sectoral governance

- Improving financial sustainability of SOEs through subsidy reform and gradual phase-out of PSOs
- Corporate governance reforms for key SOEs to align with EU directives
- Implementation of measures towards cost-reflective tariffs, including legal & regulatory changes (REMIT law, carbon emission trading system, phase-out of price caps and market restrictions)
- Implementation of ETS and plan for integration with EU ETS

## Pillar 3:

### Energy security and green transition

- Boosting energy efficiency and Demand side management (Energy Efficiency law, sustainable heating roadmap)
- Diversification of gas supply and integration with EU gas markets
- Scale-up renewable energy (generation and storage)
- Coal transition and new technologies



# Technical Assistance Program funded by KGGTF has supported Ukraine's restoration support and preparation for reconstruction



Analysis on battery storage use case for grid stability



Industrial tours to dialogue with Korean partners (manufacturers of substation equipment) to help Ukraine's emergency restoration



Assessment of suitable business models to increase private sector participation in battery storage projects



Capacity building activities on energy storage regulations and business models



Preparation of sustainable heating roadmap for Ukraine



Study Trip to Korea conducted in July 2023 was instrumental for Ukrainian delegation for learning and strengthened cooperation:

- Continuous financial and technical support from
- Korean Government and KEPCO
- EPC and manufacturing opportunities on energy
- equipment including transformers for Ukrenerg
- and battery storage for Ukrhydroenerg
- Highlight Investment opportunities for Korean investors in energy during reconstruction

# Conclusions and acknowledgments

- **EU accession presents an opportunity to start and advance on key reforms:** Ukraine will need to pursue a new vision by reducing reliance on fossil fuels, rebuilding energy demand sectors, and accelerate its integration with the European energy markets.
- **Ukraine is committed to building back better and green growth during reconstruction phase.**
  - Energy Efficiency and industrial decarbonization will play a key role in reducing reliance on gas imports.
  - Large amounts of renewable ener and energy storage need to be deployed for energy sector decarbonization, as per the recently proposed energy strategy.
- **Rebuilding Ukraine and its progress toward EU standards will require greater institutional capacity and accompanying reforms to leverage private sector financing and ensure proper performance of the sector.**
- **More public resources are needed to provide short term relief as the invasion continues. World Bank facilities provide a platform to channel the urgent donor support to Ukraine**
- **Leveraging knowledge from green growth international experience can help leapfrog and lead to faster recovery. Technical assistance and knowledge exchange, such as the ones financed by KGGTF are instrumental in preparation for reconstruction.**



KOREA GREEN INNOVATION DAYS

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