

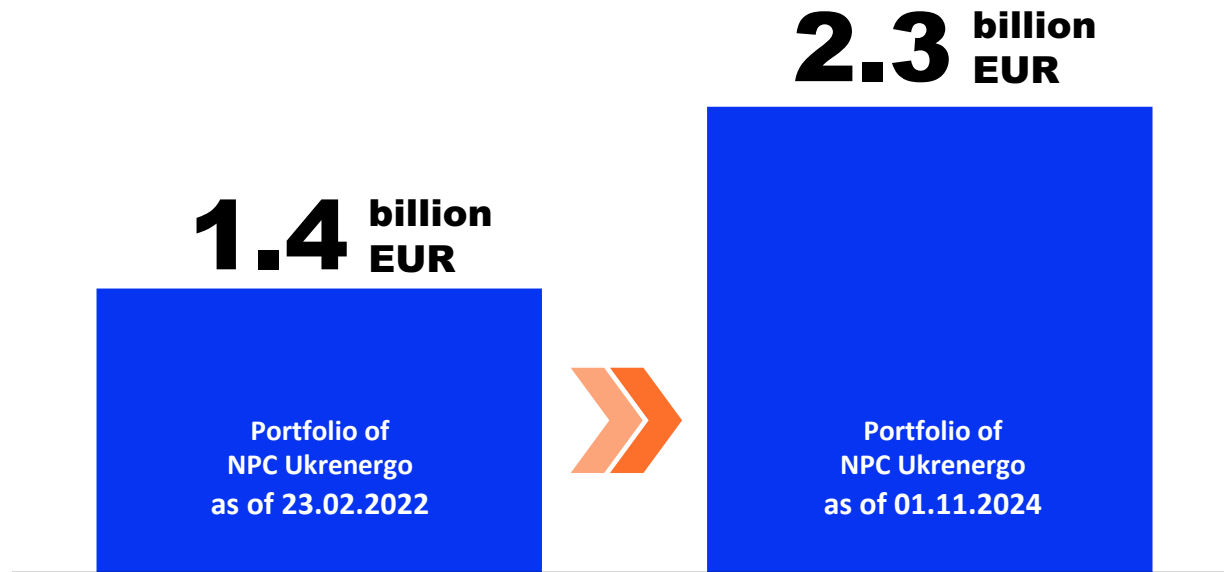


MAIN DIRECTIONS AND CHALLENGES OF REBUILDING THE POWER SYSTEM OF UKRAINE

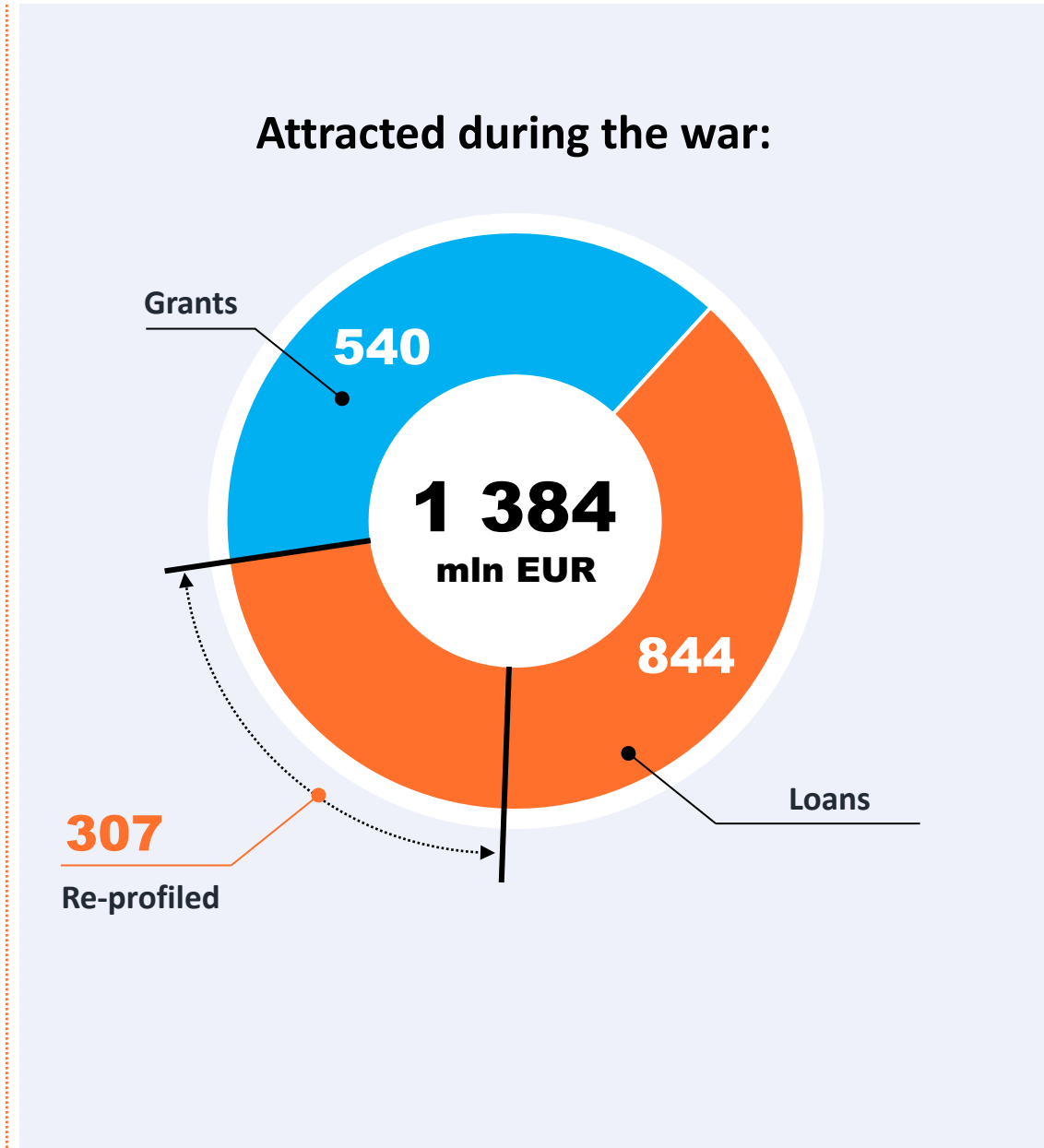
OLEH PAVLENKO

Chief Investment Officer

COLLABORATION WITH IFI PARTNERS DURING THE MARTIAL LAW



History of cooperation with IFIs



CONCLUDED DURING THE WAR:

8

GRANT AGREEMENTS



1. IBRD – **37.7 mln EUR**: STATCOM
2. IBRD – **200 mln USD (185.8 m EUR)**: restoration, protection
3. KfW Phase V – **76 mln EUR**: restoration, protection, reconstruction of SS and construction of OHLs
4. EBRD – **70.56 mln EUR**: restoration
5. KfW Phase VI – **45 mln EUR**: restoration, reconstruction of the SS
6. KfW – EU NIP – **15 mln EUR**: protection, reconstruction of the SS
7. KfW – EU UIF – **100 mln EUR**: protection, reconstruction of the SS and construction of OHL
8. EBRD – **10 mln EUR**: liquidity

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LOAN AGREEMENTS



1. Phase II – **32.5 mln EUR**: restoration
2. KfW Phase III – **24 mln EUR**: reconstruction of SS
3. KfW Phase IV – **30.5 mln EUR**: reconstruction of SS
4. EBRD – **300 mln EUR**: liquidity, restoration, protection
5. EBRD – **150 mln EUR**: liquidity

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RE-PROFILED AGREEMENTS



1. KfW Phase I – **24 mln EUR**: protection
2. EBRD – **147 mln EUR**: liquidity
3. EIB – **136 mln EUR**: liquidity, protection

COLLABORATION WITH DONORS DURING THE MARTIAL LAW



126 MEUR



45 MEUR

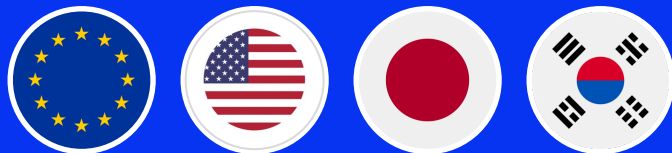


20 MEUR



68 MEUR

In contrast to other financial institutions that provide funds through loans or grants, donors directly purchase equipment based on current needs and technical requirements. As of November 2024, international partners have acquired and partially transferred to NPC Ukrenergo autotransformers and other high-voltage equipment in the sum about 250 MEUR



Countries of Europe, America and Asia (governments/TSOs/companies)

As a result of the work in the area of Humanitarian Aid, NPC Ukrenergo received various high-voltage equipment, special vehicles, generators, protection kits, and other equipment for a total amount of 1.5 bln UAH free of charge:

> 61 000 units

for the total sum:

> 885.7 mln UAH

IMPACT OF ATTACKS AGAINST UKRAINE'S POWER SYSTEM INFRASTRUCTURE IN 2024

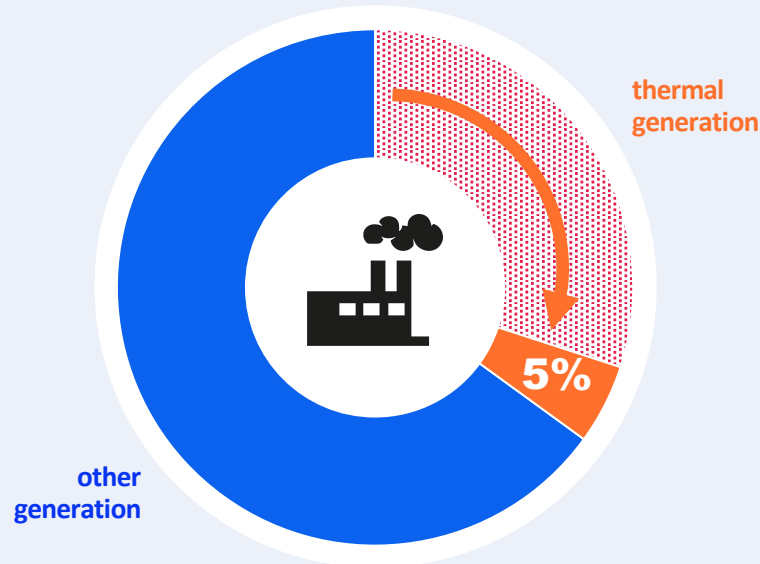
SINCE OCTOBER 2022 TO FEBRUARY 2023 – **15 MASSIVE MISSILE ATTACKS AND 18 DRONE ATTACKS** against Ukraine's power system

As a result, energy infrastructure facilities were hit by:



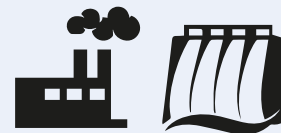
SINCE JANUARY 2024 TO NOVEMBER 2024 – **9 MASSIVE COMBINED MISSILE DRONE ATTACKS** against Ukraine's power system

As a result, energy infrastructure facilities were hit by:



From 30% to 5%

decreased the share of thermal generation in total electricity production during that period



all large thermal and hydropower plants were damaged

Ukrenergo's Dispatch Centre was forced to restrict consumption given a significant deficit in generation capacities within the system

TYPICAL UKRENERGO EQUIPMENT NEEDS FOR RESTORATION AFTER SHELLING

Autotransformers



Circuit breakers



Disconnectors



Bushings

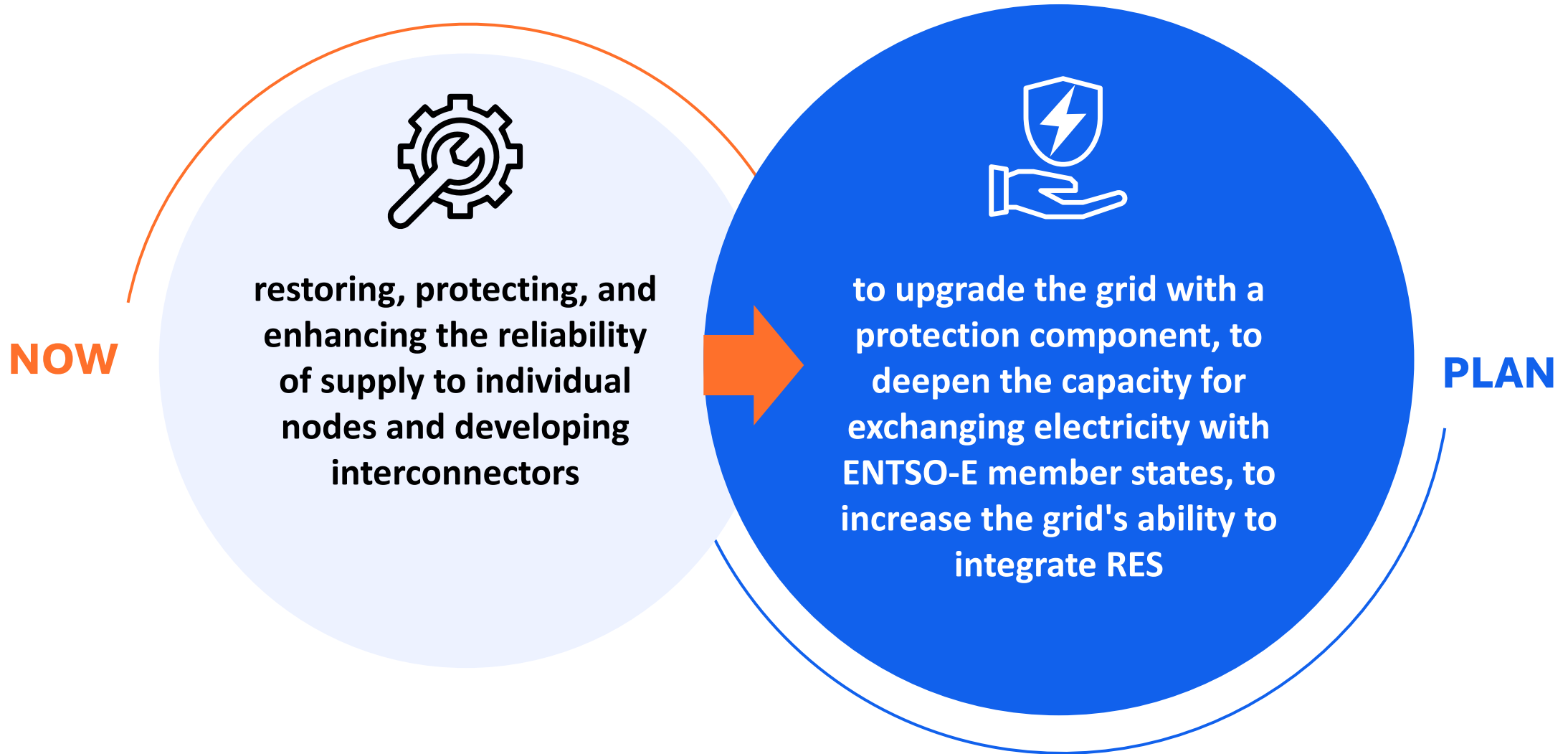


Relay protection



Open switchgear equipment

WHAT WE ARE DOING NOW AND WHAT WE PLAN TO DO





PROJECT 1

The construction of the 400 kV transmission line Pivdenoukrainska NPP (Ukraine) – Isaccea (RO)

Expected outputs:

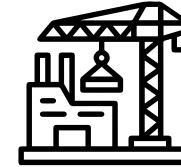
To improve the reliability of power supply to consumers in the southern regions of Ukraine and Romania
Remove restrictions on renewable energy production capacity in southern Ukraine and eastern Romania



Net Present Value

216 mln USD

The total transit length from Pivdenoukrainska NPP to Isaccea substation is approximately 386 km



The project will be implemented in stages:

Stage 1 - Construction of the OHL 330 kV Novoodeska – Artsyz (2025) - **106 km**

Stage 2 - construction of the OHL 750 kV Pivdenoukrainska NPP - Primorskaya from SS 750/400/330 kV “Primorska” (2027) - **160 km**

Stage 3 - Construction of 400 kV GIS at SS 750 kV Prymorska, installation of AT 750/400 kV and construction of a double-circuit section of the OHL 400 kV(2027)

Stage 4 - Construction of OHL 400 kV Artsyz – Isaccea (2028). Increase the capacity of the interconnector with Romania to 1000-1200 MW after 2028 - **120 km**



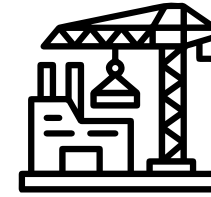
PROJECT 2

CONSTRUCTION OF SS 400 kV UZHGOROD WITH DIVERSIONS OF OHL 400 kV MUKACHEVE-KAPUSHANY

The aim of the project is to ensure reliable electricity supply to consumers in Zakarpattia region and to enable economic development of the region with great potential, as EU markets are located nearby.

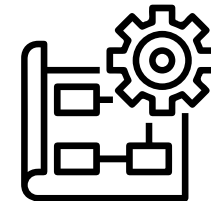
SS 400/110 kV Uzhhorod

The construction is planned for 2025-2027



Scope of construction:

AT 400/110 kV
(2x250) MVA,
OHL 400 kV 2x2 km



At the first stage, implementation a temporary scheme with one AT 400/110 kV is recommended



PROJECT 3

**RECONSTRUCTION OF 400 kV
SS MUKACHEVE WITH THE
INTRODUCTION OF AN
AUTOMATED TECHNOLOGICAL
PROCESS CONTROL SYSTEM
(ASKTP)**

SS 400/220/110/35 kV
Mukacheve supplies electricity
to consumers of the substation
itself and Zakarpattia region

To ensure reliable power supply to consumers from SS 400/220/110/35 kV Mukacheve, and to create reliable electrical circuits for open switchgear 400 kV, 220 kV, 110 kV, 35 kV and 10 kV, the reconstruction of 400 kV, 220 kV, 110 kV, 35 kV and 10 kV outdoor switchgear is being implemented during the repair of the main equipment



Budget

**738 979
ths UAH**

Construction is planned for 2026-2028

OVERVIEW OF KEY PARTNERS, PROCUREMENT CHANNELS AND PLATFORMS 1/2



European Bank
for Reconstruction and Development



EBRD: Transmission Network Emergency Restoration Project

Procurement notices are published on EBRD Client e-Procurement Portal (ECEPP)

Website:



World Bank: Restoration Project of Winterization and Energy Resources (Re-PoWER)

Procurement notices are published on UN Development Business online and the World Bank's external

Website:



KfW:

Procurement notices are published on Germany Trade & Invest (GTAI)

Website:



European Investment Bank:

Procurement notices are published in the Official Journal of the EU (OJEU) on the TED

Website:



OVERVIEW OF KEY PARTNERS, PROCUREMENT CHANNELS AND PLATFORMS 2/2



USAID: Energy Security Project (implemented by Tetra Tech ES, Inc.) **Energy Community Secretariat:** **Ukraine Energy Support Fund**

Procurement notices are published on the Energy Security Project and Energy Community Secretariat

Websites:



United Nations Development Programme (UNDP):

Procurement notices are published on Germany Trade & Invest (GTAI)

Website:



Japan International Cooperation Agency:

Assistance from the Government of Japan via JICA agency

Website:





**THANK YOU FOR
ATTENTION!**