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Report No: PAD5253

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT AND  
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED FINANCING

IN THE AMOUNT OF US\$500 MILLION

TO

UKRAINE

FOR A

RESTORATION PROJECT OF WINTERIZATION AND ENERGY RESOURCES

April 11, 2023

Energy & Extractives Global Practice  
Europe And Central Asia Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective Oct 31, 2022)

Currency Unit = Ukrainian hryvnia (UAH)

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SDR 0.775 = US\$1

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US\$ 1.29 = SDR 1

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EURO = US\$1

FISCAL YEAR

January 1 - December 31

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## ABBREVIATIONS AND ACRONYMS

|         |  |
|---------|--|
| AM      | Accountability Mechanism   |
| CHP     | Combined Heat and Power  |
| CPF     | Country Partnership Framework  |
| DHC     | District Heating Company   |
| EBRD    | European Bank for Reconstruction and Development                     |
| EnCS    | Energy Community Secretariat   |
| ENTSO-E | European Network of Transmission System Operators                    |
| ERW     | Explosive Remnants of War  |
| ESCP    | Environmental and Social Commitment Plan                             |
| ESF     | Environmental and Social Framework                                   |
| ESMF    | Environmental and Social Management Framework                        |
| ESMP    | Environmental and Social Management Plan                             |
| EU      | European Union   |
| FM      | Financial Management   |
| GDP     | Gross Domestic Product   |
| GRM     | Grievance Redress Mechanism  |
| GRS     | Grievance Redress Service  |
| HEAL    | Health Enhancement and Lifesaving                                    |
| HPP     | Hydro Power Plant  |
| IDP     | Internally Displaced Person  |
| IFI     | International Financial Institution                                  |
| IPF     | Investment Project Financing   |
| MCTID   | Ministry for Communities, Territories and Infrastructure Development |
| MoE     | Ministry of Energy   |
| NBU     | National Bank of Ukraine   |
| OHS     | Occupational Health and Safety                                       |
| PBC     | Performance-Based Condition  |
| PCB     | Polychlorinated Biphenyl   |
| PDO     | Project Development Objective  |
| PIU     | Project Implementation Unit  |
| PPSD    | Project Procurement Strategy for Development                         |
| PTP2    | Second Power Transmission Project                                    |
| SEA     | Sexual Exploitation and Abuse  |
| SEP     | Stakeholder Engagement Plan  |
| SH      | Sexual Harassment  |
| STEP    | Systematic Tracking of Exchanges in Procurement                      |
| TPP     | Thermal Power Plant  |
| TSO     | Transmission System Operator   |
| UE      | Private Joint Stock Company “National Power Company “Ukrenergo”      |
| UESF    | Ukraine Energy Support Fund  |
| UN      | United Nations   |
| UNHCR   | United Nations High Commissioner for Refugees                        |
| URTF    | Ukraine Relief, Recovery, Reconstruction, and Reform Trust Fund      |

|       |  |
|-------|--|
| USAID | United States Agency for International Development |
| WBG   | World Bank Group                                   |



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DATASHEET

**BASIC INFORMATION**

|              |   |  |   |
|--------------|---|--|---|
| Country(ies) | Project Name  |  |   |
| Ukraine      | Restoration Project of Winterization and Energy Resources |  |   |
| Project ID   | Financing Instrument                                      | Environmental and Social Risk Classification | Process                                   |
| P180332      | Investment Project Financing                              | Substantial                                  | Urgent Need or Capacity Constraints (FCC) |

**Financing & Implementation Modalities**

|   |  |
|---|--|
| <input type="checkbox"/> Multiphase Programmatic Approach (MPA)   | <input type="checkbox"/> Contingent Emergency Response Component (CERC)  |
| <input type="checkbox"/> Series of Projects (SOP)                 | <input type="checkbox"/> Fragile State(s)                                |
| <input type="checkbox"/> Performance-Based Conditions (PBCs)      | <input type="checkbox"/> Small State(s)                                  |
| <input type="checkbox"/> Financial Intermediaries (FI)            | <input type="checkbox"/> Fragile within a non-fragile Country            |
| <input type="checkbox"/> Project-Based Guarantee                  | <input checked="" type="checkbox"/> Conflict                             |
| <input type="checkbox"/> Deferred Drawdown                        | <input type="checkbox"/> Responding to Natural or Man-made Disaster      |
| <input type="checkbox"/> Alternate Procurement Arrangements (APA) | <input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS) |

|                        |                       |
|------------------------|-----------------------|
| Expected Approval Date | Expected Closing Date |
| 11-Apr-2023            | 30-Apr-2025           |

Bank/IFC Collaboration

No

**Proposed Development Objective(s)**

The project development objective (PDO) is to enable the restoration of essential energy services in Ukraine



**Components**

| Component Name  | Cost (US\$, millions) |
|---|-----------------------|
| Emergency equipment for the electricity transmission infrastructure | 299.70                |
| Emergency equipment for the heating services                        | 200.00                |
| Project management and monitoring                                   | 0.30                  |

**Organizations**

|                      |                                 |
|----------------------|---------------------------------|
| Borrower:            | Government of Ukraine           |
| Implementing Agency: | Ministry of Energy<br>Ukrenergo |

**PROJECT FINANCING DATA (US\$, Millions)**

**SUMMARY**

|                           |        |
|---------------------------|--------|
| <b>Total Project Cost</b> | 500.00 |
| <b>Total Financing</b>    | 200.00 |
| <b>of which IBRD/IDA</b>  | 0.00   |
| <b>Financing Gap</b>      | 300.00 |

**DETAILS**

**Non-World Bank Group Financing**

|             |        |
|-------------|--------|
| Trust Funds | 200.00 |
| Trust Funds | 200.00 |

**Expected Disbursements (in US\$, Millions)**

| WB Fiscal Year    | 2023  | 2024   | 2025   |
|-------------------|-------|--------|--------|
| <b>Annual</b>     | 80.00 | 100.00 | 20.00  |
| <b>Cumulative</b> | 80.00 | 180.00 | 200.00 |



**INSTITUTIONAL DATA**

**Practice Area (Lead)**

Energy & Extractives

**Contributing Practice Areas**

**SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)**

| Risk Category   | Rating        |
|---|---------------|
| 1. Political and Governance                                     | ● High        |
| 2. Macroeconomic  | ● High        |
| 3. Sector Strategies and Policies                               | ● Substantial |
| 4. Technical Design of Project or Program                       | ● Substantial |
| 5. Institutional Capacity for Implementation and Sustainability | ● Substantial |
| 6. Fiduciary  | ● High        |
| 7. Environment and Social                                       | ● Substantial |
| 8. Stakeholders   | ● Substantial |
| 9. Other  | ● High        |
| 10. Overall   | ● High        |

**COMPLIANCE**

**Policy**

Does the project depart from the CPF in content or in other significant respects?

Yes  No

Does the project require any waivers of Bank policies?

Yes  No





**Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

| E & S Standards   | Relevance              |
|---|------------------------|
| Assessment and Management of Environmental and Social Risks and Impacts                       | Relevant               |
| Stakeholder Engagement and Information Disclosure   | Relevant               |
| Labor and Working Conditions  | Relevant               |
| Resource Efficiency and Pollution Prevention and Management                                   | Relevant               |
| Community Health and Safety   | Relevant               |
| Land Acquisition, Restrictions on Land Use and Involuntary Resettlement                       | Relevant               |
| Biodiversity Conservation and Sustainable Management of Living Natural Resources              | Not Currently Relevant |
| Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities | Not Currently Relevant |
| Cultural Heritage   | Relevant               |
| Financial Intermediaries  | Not Currently Relevant |

**NOTE:** For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

**Legal Covenants**

Sections and Description

This Agreement shall not become effective until evidence satisfactory to the Bank has been furnished to the Bank that the conditions specified below have been satisfied:

- (a) the Recipient, through MoE and MoF, has signed the Subsidiary Agreement with UE on terms and conditions satisfactory to the Bank; and
- (b) the Subsidiary Agreement referenced above in Section 5.01 (a) and this Agreement have been duly authorized or ratified by all necessary governmental action.

**Conditions**



## I. STRATEGIC CONTEXT

### A. Country Context

1. **Russia's invasion of Ukraine has had substantial economic, social, and poverty consequences.**<sup>1</sup> The contraction in Gross Domestic Product (GDP) in 2022 is projected to be around 35 percent year-on-year. The downside risks are high, related to the unpredictability of the protracted war and high potential for further large-scale damage of infrastructure and negative social and poverty impacts. Based on the global poverty line of US\$6.85 per day (2017 purchasing power parity), poverty is projected to increase from 5.5 percent in 2021 to 25 percent in 2022. Headline inflation hit 24.6 percent in September 2022, with high food price inflation hurting the poor. Yet, despite the war, the Government of Ukraine has continued to deliver basic public services and the financial sector is functioning normally, stabilizing the foreign exchange market.

2. **Russia's invasion of Ukraine caused civilian casualties and destruction of civilian infrastructure, forcing people to flee their homes seeking safety, protection, and assistance.** The Office of the United Nations High Commissioner for Refugees (UNHCR) recorded 17,595 civilian casualties in Ukraine as of December 18, 2022, including 6,826 deaths and 10,769 injuries.<sup>2</sup> At least 1,218 children in Ukraine have been killed or injured since the war escalated nine months ago.<sup>3</sup> On average, over four children are killed or injured each day. The gender impact of the armed conflict depends on the country's demographic profile, which includes large numbers of older women, women and girls with disability and internally displaced and refugee women and girls. Since the onset of the war, nearly one-third of Ukrainians have been forced to flee their homes. As of December 5, 2022, approximately 5.9 million people have been displaced within Ukraine, 57 percent of whom are women (2 percent are pregnant or breastfeeding women) (IOM,<sup>4</sup> December 2022, see figure 1 for further information). A high share of internally displaced person (IDP) households report vulnerabilities - one quarter report at least one member with a disability, 42 percent report having at least one older person (age 60 and above) present, 39 percent report having at least one person who is chronically ill, 3 percent report have at least one infant, 14 percent report having at least one child aged 1-5 and 42 percent report having at least one child aged 5-17 (IOM, December 2022)<sup>5</sup>. As of December 13, 2022, over 7.8 million people have fled their homes to the neighboring countries (UNHCR)<sup>6</sup>. Around 90 percent of refugees are women and children, while most men aged 18–60 are required to stay behind under martial law. Ukraine has a large number of people with disabilities (over 2.7 million), of whom more than 1 million are women and girls. The Rapid Gender Analysis conducted by the UN Women and CARE revealed that women are facing immense hardship when it comes to health, safety, and access to food as a result of the war.

<sup>1</sup> All statistics in this and subsequent sections are estimates by World Bank Staff based on official statistics of Ukraine's public authorities.

<sup>2</sup> <https://www.ohchr.org/en/news/2022/12/ukraine-civilian-casualty-update-19-december-2022>

<sup>3</sup> <https://www.ohchr.org/en/news/2022/12/ukraine-civilian-casualty-update-19-december-2022>

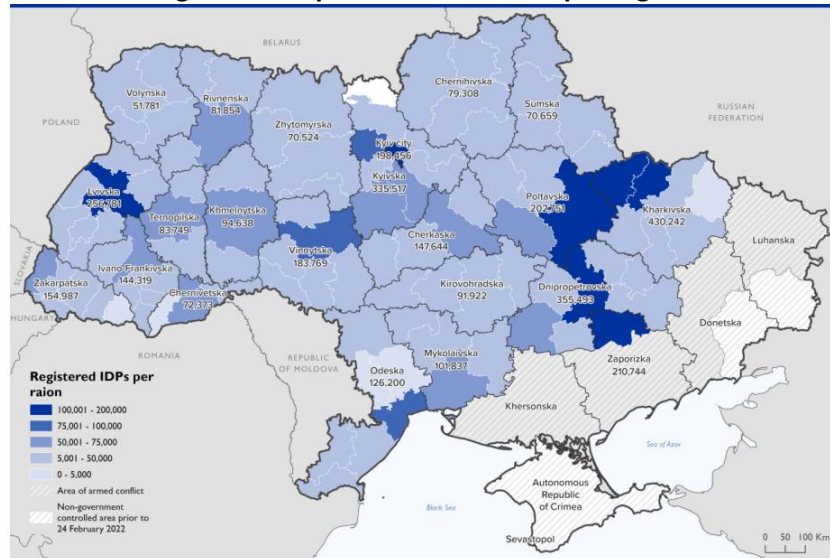
<sup>4</sup> International Organization for Migration (IOM), Ukraine Returns Report, December 2022

<sup>5</sup> Ibid.

<sup>6</sup> <https://data.unhcr.org/en/situations/ukraine>



Figure 1: IDP presence in Ukraine per region



Disclaimer: The data in this report was sourced from official IDP data recorded by hromada officials. As such, it likely represents an undercount of those who have been forced to flee their homes.

Source IOM, Round 16, November 2022

3. **Public revenues are under immense stress, while war-time expenditures are growing.** Before February 2022, the fiscal deficit was expected to narrow over the medium-term to just under 2.5 percent of GDP by 2024, helped by a recovery in tax revenues. However, since February 2022, the Government has made strategic decisions to reduce the tax burden on the population (both individuals and businesses) during a time of crisis, resulting in a sharp decline in tax revenues. Specifically, tax collection has been deferred for key businesses, land and municipal taxes have been suspended for the duration of the war, and the Government has shifted to a simplified tax regime for extended categories of taxpayers. In addition, overall war-related declines in economic activity (including due to out-migration) and the inability to collect taxes in conflict areas also contribute to constrained tax revenues. The Government has made efforts to cut non-essential current expenditures and capital spending and has reached an agreement with external creditors regarding a two-year debt deferral. Nevertheless, fiscal financing needs – consisting of the deficit (excluding grants) and debt repayments - are expected to grow from US\$4 billion per month in the first half of 2022 to US\$4.5 billion per month in the second half of 2022 (including US\$2 billion of non-military needs). In addition to non-military monthly financing needs, starting from September 2022, the Government could also face the high costs of gas purchases by Naftogaz for the heating season (US\$2.2 billion) and funding of the most critical reconstruction needs (US\$3.4 billion).

4. **Russia’s invasion of Ukraine has generated immediate balance of payments pressures.** Exports have fallen as the Black Sea ports were closed from February until July 2022. Despite some resumption of agricultural exports under the deal brokered through the United Nations (UN), their capacity is limited. Beginning in May 2022, imports recovered quickly. On the capital account, pressures have emerged from the withdrawal of foreign exchange by Ukrainian refugees. Since February 2022, the National Bank of Ukraine (NBU) has spent around US\$12 billion on currency interventions. This has eroded international reserves, which declined from a pre-war level of US\$29 billion to US\$22.4 billion at the end of July 2022. In August 2022, reserves improved to US\$25.4 billion owing to donor support.

5. **The Government’s proposed 2023 budget is austere with substantial compression of social and other**



**non-military expenditures and the World Bank's contribution so far has been to ensure delivery of essential administrative expenditure.** The public sector wage bill (including health and education) will be cut by 10 percent, the minimum wage and subsistence minimum income (based on which social transfers are calculated) have been frozen in nominal terms, and capital expenditures have been minimized (US\$700 million), leaving most recovery and reconstruction needs unfunded. Even after these cuts in social expenditures, fiscal needs are estimated at US\$3-US\$4 billion per month. The World Bank has been at the forefront of supporting the Government's ability to pay pensions, healthcare, and essential administrative expenditures, through the Public Expenditures for Administrative Capacity Endurance (PEACE) Project (P178946) that has mobilized US\$15.5 billion and disbursed by the end of March almost US\$14 billion. The total funds mobilized by the Bank are more than \$23 billion in financial support to Ukraine, of which over \$20 billion has been disbursed as of April 2, 2023.<sup>7</sup>

6. **The ramped-up targeted attacks on energy infrastructure since September 2022 has exacerbated existing economic pressure and external imbalances.** Quantifying the aggregate economic impact of the targeted attacks on infrastructure is complicated by an absence of up-to-date data on the economic structure and the location and duration of electricity interruptions. On a qualitative basis, the impacts on the economy can be grouped into five categories. First, electricity is the key production input in select sectors that drove Ukraine's GDP before the war. These include transport, basic metal production and mining, where the loss of electricity as an input is likely to exacerbate additional constraints imposed by the war. Second, electricity is also used in the production of output in Ukraine's two leading sectors: wholesale and retail trade and agriculture. While the share of electricity among all inputs used in these sectors is comparatively low, anecdotal evidence suggests that blackouts can cause bottlenecks, for example in maize production, that affect aggregate output. Third, before the war Ukraine had started to export electricity to eastern European Union (EU) countries and Moldova. Export revenue from these peaked in August 2022, earning the country export earnings of US\$73 million, but has since dropped to zero as the authorities instated a moratorium on exports. As export earnings per month accounted for less than 1 percent of the total current account credits earned, the impact of the halt of electricity exports on the country's foreign exchange balance is likely manageable in the short term. However, estimates by the authorities suggest that potential electricity export revenues could reach about US\$200-US\$250 million per month in the longer term. The attacks put these export revenues at risk. Fourth, reports have suggested that blackouts may lead to increased fuel imports to generate electricity in a decentral manner. This would add to an already high import bill for refined petroleum products, which amounted to US\$900 million in August 2022. Considering this scale and the amount of destruction, an on-going substitution from centralized to decentralized electricity production poses substantial balance of payments risks. For instance, the back of the envelope calculation suggests that replacing only 1 percent of the average monthly consumption with generators could generate an additional fuel import bill of US\$0.5 billion. Finally, the recent strikes on infrastructure have also affected banks' operations, undermining the functioning of a payment system that had been running smoothly since the beginning of the war. According to the National Bank of Ukraine (NBU), around 77 percent of bank branches were operational as of November 29, 2022, representing some decline following the recent attacks.

7. **The funding needs for recovery and reconstruction are gigantic.** Just taking into account the damages from the start of the invasion to early June 2022, funding needs were estimated at approximately US\$349 billion, which is more than 1.6 times Ukraine's 2021 GDP.<sup>8</sup> About one-third of this amount (US\$105 billion) was estimated to be needed in the immediate-and short-term to address the most urgent needs, including social infrastructure

<sup>7</sup> <https://www.worldbank.org/en/country/ukraine/brief/world-bank-emergency-financing-package-for-ukraine>

<sup>8</sup> World Bank, Government of Ukraine, and European Commission. 2022. Ukraine Rapid Damage and Needs Assessment, August 2022. Washington, DC: World Bank.



(such as schools and hospitals), preparation for the winter through winterization and restoration of heating and energy to homes, urgent repairs of damaged facilities, gas purchases, support to agriculture and social protection, and restoration of vital transport routes. However, these estimates did not include the recent attacks on the energy infrastructure, which have damaged over 50 percent of the energy assets and whose massive impact on losses and needs are under evaluation.

8. **Recovery and reconstruction investments are needed to lay the groundwork for Ukraine to restore services to the population, revitalize economic activity, and consolidate its development path towards a more modern, low-carbon, climate resilient and inclusive country that is more closely aligned with European standards.** Before the invasion, Ukraine had made impressive commitments on mitigation measures to address climate change. Ukraine ratified the Paris Agreement in 2016 and submitted an ambitious updated Nationally Determined Contribution in July 2021 with the target of an economy wide net greenhouse gas emission reduction of 65 percent by 2030 compared to the 1990 level. The country had also committed to reaching carbon neutrality by 2060. In January 2020, the Government published a draft concept of its Green Energy Transition of Ukraine until 2050, which aimed at increasing renewable energy share in the national energy balance up to 70 percent by 2050.<sup>9</sup> The country has recently reiterated these commitments despite the invasion by Russia and the ensuing war. Beyond mitigation, reconstruction investments will also need to consider Ukraine’s vulnerability to the impact of climate change. These includes vulnerability to wildfire, droughts, high temperatures, heatwaves, heavy precipitation, mudslides, and floods. The ongoing war significantly exacerbates the climate risks in the country and weakens the capacity to manage climate-related vulnerabilities.

## B. Sectoral and Institutional Context

### *Energy Sector Context between February and September 2022*

9. **The energy facilities were not initially a core target of hostilities. However, starting in September 2022, energy infrastructure has become a main target of attack by Russia, creating significant damage, with consequent impact on human and social aspects of life, negatively affecting human and social development.** The World Bank’s Rapid Damages and Needs Assessment, as of June 2022, estimated the following needs including for the power sector (US\$1.4 billion), district heating (US\$0.7 billion), gas sector (US\$0.5 billion), transport fuel sector (US\$0.4 billion), and coal mining (US\$0.1 billion) – out of the total damages valued at US\$349 billion. It was estimated that US\$0.9 billion in damages and losses were incurred at the Zaporizhzhia nuclear power plant, which is the largest nuclear power plant in Europe. Several combined heat and power (CHP) plants and thermal power plan (TPP) were destroyed or damaged. The transmission sector had suffered damage in some substations, but most damages were at the distribution level. In the district heating sector, the heating networks in Donetsk region were damaged at an estimated loss of US\$471 million. The gas sector damages were estimated around US\$500 million, which comprised US\$330 million in damages to the gas distribution infrastructure reported by the largest operator of gas distribution networks, the Regional Gas Company, as well as almost US\$150 million reported by the gas transmission system operator (TSO). Further, damages to 28 fuel depots in early June were estimated at around US\$250 million and to fuel stations at around US\$150 million.

10. **Ukraine’s electricity system maintained stable operations and managed to export electricity to Europe.**

<sup>9</sup> Concept of “Green” Energy Transformation by 2050.

[https://mepr.gov.ua/files/images/news\\_2020/14022020/eng\\_pdf\\_%D0%B7%D0%B5%D0%BB%D0%B5%D0%BD%D0%B0%20%D0%BA%D0%BE%D0%BD%D1%86%D0%B5%D0%BF%D1%86%D1%96%D1%8F%20\(1\).pdf](https://mepr.gov.ua/files/images/news_2020/14022020/eng_pdf_%D0%B7%D0%B5%D0%BB%D0%B5%D0%BD%D0%B0%20%D0%BA%D0%BE%D0%BD%D1%86%D0%B5%D0%BF%D1%86%D1%96%D1%8F%20(1).pdf)



Emergency synchronization with the European network (European Network of Transmission System Operators, [ENTSO-E]) helped Ukraine maintain a stable power grid and ensure electricity supply despite the war and subsequent disconnection of the largest nuclear power plant, Zaporizhzhia. Ukraine has also exported electricity to ENTSO-E countries, which generated additional revenues for the electricity sector and helped Europe diversify its energy supply sources. The electricity trade capacity between Ukraine and ENTSO-E was initially restricted by ENTSO-E due to grid stability issues, but with more technical measures implemented, the trade capacity increased to 300 MW by the end of September 2022. Ukrenergo (UE) has been implementing necessary measures for expansion of the electricity trades capacity including the procurement of static synchronous compensator (STATCOM),<sup>10</sup> financed under the ongoing World Bank financed Second Power Transmission Project (P146788) with a grant contribution from the German Government.

11. **The energy sector financial losses were partly being compensated by electricity exports.** Electricity consumption decreased significantly in March and April 2022, about 35 percent less than consumption in the previous year, with the collection rate dropping around 65 percent, on average. In fact, total electricity consumption during the first half of 2022 was reduced by 20 percent compared to 2021. Various analyses estimated financial deficits for the electricity sector at US\$1–US\$1.2 billion for March to June 2022 (around US\$220–US\$295 million per month). While all sector stakeholders were affected, UE and Energoatom accumulated the highest deficits, even if some of their financial obligations could be deferred. With the increase in electricity exports, UE earned UAH 4.4 billion (equivalent to US\$120 million) from June till September 2022. With the planned further increase in electricity exports, UE had expected to receive the additional revenue of UAH 2 billion (equivalent to US\$54 million) per month on average.

#### ***Energy Sector Context September 2022 Onwards***

12. **The recent targeted attacks on the energy infrastructure impacted critical points of the power network, thereby causing devastating damages and leading to supply disruptions in all regions in Ukraine.** Intensified missile strikes and shelling conducted since early October 2022 have damaged more than 50 percent of Ukrainian power infrastructure, including at least 12 Thermal Power Plants (TPPs), 39 UE's extra high-and high-voltage transmission substations, and most hydro power plants (HPPs). In addition, 78 percent of wind, nine percent of solar, five percent of biomass, and two percent of small hydropower capacities have been either damaged or disabled. Moreover, without electricity, the coal mines stopped operations and cannot supply coal to power plants, leading to further generation disruptions. The most critical damages are on high voltage transmission substations, more precisely extra high voltage (750/330/220/110kV) transformers and switchgears. Damages to the transmission network, particularly transformers in transmission substations owned by UE, have led to disruptions in the electricity supply, as the transmission network functions as hubs in the power system between power plants and distribution networks. With the transmission network damaged, supply disruptions will have to continue even if generation capacity is sufficient and distribution networks are restored.

13. **Despite efforts to restore connections and stabilize the electricity system, millions of Ukrainians remain without access to electricity and many areas have only a few hours of supply per day and export revenues have halted completely.** The loss of critical equipment within transmission substations has forced UE to implement scheduled outages throughout the country.<sup>11</sup> In October 2022, the deficit of electricity supply in Kyiv reached 30

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<sup>10</sup> STATCOM is one of smart grid technologies to regulate reactive power.

<sup>11</sup> Schedule outages were implemented in the city of Kyiv, the Kyiv, Chernihiv, Cherkasy, Zhytomyr, Sumy, Kharkiv, Poltava, Dnipropetrovsk, Zaporizhzhia, and Kirovohrad regions.



percent – available supply capacity was 600-800 MW while the needs in Kyiv were at 1,000-1,200 MW. Repeated attacks in November 2022 temporarily left millions of people without access to electricity: after the November 3, 2022, attack 4.5 million consumers were left without electricity supply and after the attack on November 5, 2022, almost 1 million customers, after the attacks of November 18, 2022, about 10 million Ukrainians in the city of Kyiv and 17 regions were disconnected from the power grid. More recently, a partial system blackout on November 23, 2022 left the majority of electricity consumers in all regions of Ukraine without electricity. As a result of non-stop restoration efforts by energy technicians, the power systems were partially restored and most power plants were connected back to the grid, but their output remained constrained due to significant damages to transmission substations, leading to scheduled load shedding and outages in most regions. The electricity export was halted due to the Government's decision to ensure that all remaining resources are focused on providing energy services to the local population.

**14. Disruptions in electricity supply have led to disruptions in water supply in major cities and grain exports.** Water supply in many cities had to be halted periodically. On October 31, 2022, two 330 kV substations were hit in the Kyiv region, which led to the disconnection of 16 110kV substations, including two substations of water supply, causing cessation of water supply to several districts in Kyiv. The population has had to wait in long lines to receive bottled water since then. The World Bank plans to provide a number of diesel generators for water pumping stations through the recently activated CERC component under the Second Urban Infrastructure Project (P132386), but significant additional support for the water sector is required. Furthermore, the energy infrastructure damages in the Odesa region prevented further operation out of the port thereby putting grain exports at risk.

**15. Gas and district heating networks have also suffered important damages.** The preliminary assessment is that overall damage to the district heating infrastructure has doubled, and it is estimated that the value of the immediate needs for the district heating sector has already exceeded US\$500 million. Recent attacks, damaged 580 boiler houses and heating substations, 253 of which have been repaired while the remaining are being repaired where possible. The Kharkiv region is the most affected. (Combined Heat and Power) CHP facilities were also damaged (three of them in Kyiv) and their operation was constrained by coal supply limitations. While some of the affected facilities have been fully restored, most are undergoing emergency restoration. District heating services, including domestic hot water were severely affected. About 40 percent of the population living in multifamily apartment buildings in urban areas are connected to district heating with no other viable alternative. Therefore, the urban population are the most vulnerable group in case of no gas supply or destroyed district heating infrastructure. The population living in individual family houses (mostly in rural and peri urban areas) have access to woodstoves, coal stoves, and electric heaters, and it might be easier for them to use wood and other solid fuels for heating.

**16. The Government of Ukraine and energy utilities have reacted swiftly to mitigate the impact on the population, but the needs are staggering.** UE introduced a schedule of emergency outages of consumers in many regions<sup>12</sup>, while the Government called on Ukrainians to reduce electricity consumption.<sup>13</sup> Also, a decision was made to completely suspend the exports of electricity from October 11, 2022, onwards. The Government has simplified the imports of some energy equipment by a separate protocol decision of the Cabinet of Ministers to ensure smooth customs clearance and some exemption from taxes and import duties. The State Customs Service

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<sup>12</sup> Includes the city of Kyiv and the Kyiv region, the Cherkasy and Chernihiv regions, and the city of Zhytomyr. Outages usually last around four hours, though the number of shutdowns varies. In Kyiv, blackouts can last up to 12 hours.

<sup>13</sup> According to UE, residents of the Kyiv region reduced peak consumption by 26.5 percent as an emergency response.



has published guidelines regarding the need for declaring imports of generators to Ukraine. Oschadbank launched an interest free business lending program for the purchase and installation of equipment for uninterrupted operation of the power system. This enabled the import of 136,000 small generators of various types during November 2022.<sup>14</sup> In the heating sector, the Government committed only for 2022 to compensate district heating companies (DHCs) for the difference in tariffs<sup>15</sup> and allocated UAH 563 million (equivalent to US\$15 million) to eight regions for purchasing firewood for free distribution to households in territories with a significant risk of repetitive damage due to hostilities. This included the transfer of 6,000 m<sup>3</sup> of firewood and 6,000 potbelly stoves to residents of the areas of the Kherson region most affected by the hostilities. The Ministry of Environmental Protection and Natural Resources increased firewood stocks for the heating season by 1.5 times compared to last year. This should help prevent illegal logging and reduce deforestation risks. In the areas that are back under government control, the restoration of district heating facilities continues. Residents in those communities where district heating was damaged and cannot be restored, are being advised to evacuate. Algorithms for evacuating the residents of each region have been developed, together with a network of protected winter shelters called - invincible points- where inhabitants can warm themselves and charge their electronic devices.

**17. While mobile emergency energy solutions and alternative heating options can help alleviate the situation for the population, the provision of high voltage transmission equipment is critical to restore the electricity network and prevent further partial or total blackouts.** The recent military attacks have severely damaged critical equipment such as extra high-and high voltage transformers and switchgears both in the transmission substations and power plants' substations. Due to extensive damage, most of the equipment cannot be repaired and must be replaced with new one. UE submitted a list of urgent equipment which includes 750/330/220/110kV transformers and switchgears. Such extra-high voltage equipment, particularly autotransformers, is specifically designed for and used in the transmission networks in the former Soviet countries and hence not easily available with European manufacturers or with the TSOs in Europe.<sup>16</sup> Only a limited number of manufacturers can produce such equipment and its production could take six to eight months. With additional substations damaged due to the attacks in November 2022, the total cost for urgent equipment for UE is estimated at US\$400 million. Without the replacement of damaged autotransformers with new ones, UE would need to continue rolling blackout and consumption restrictions due to the limited transmission capacity caused by the damages, which will severely threaten the supply of other critical services in winter.

**18. According to the World Bank's estimate based on the available information, the need for urgent repairs and equipment for the electricity and heating sectors is currently estimated to be US\$900 million.** Given the high risk of repeated attacks in both undamaged and recently repaired energy infrastructure, the provision of additional equipment beyond the current needs has been considered when assessing the funding gap. In addition, there are clear constraints in terms of availability of equipment, logistics and the ability of energy companies to install equipment and perform repairs under severe shelling. These constraints must be considered when determining the funding needs over time, and the project implementation period for the World Bank to be able to verify the installation of equipment by end beneficiaries.

**19. The equipment to be procured under the proposed project and its locations will be identified and prioritized by the Ministry of Energy (MoE), Ukrenergo (UE), and Ministry for Communities, Territories and**

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<sup>14</sup> with a total customs value of almost US\$88 million

<sup>15</sup> UAH 14 billion (equivalent to US\$370 million) is provided in the state budget; according to Naftogaz, arrears of DHCs owed to Naftogaz exceed UAH 63 billion (US\$1.7 billion).

<sup>16</sup> Main transmission voltages in Europe (ENTSO-E) are 400 and 220kV while the former Soviet countries (IPS/UPS system) use 750, 500, and 330 kV. ENTSO-E TSOs' equipment is based on IEC standards while IPS/UPS TSOs' equipment is based on GOST standards.





**Infrastructure Development (MCTID) to maximize impact on the population.** In general, a power system is designed to withstand the loss of one or two elements at the same time during peak hours in order not to cause electricity supply disruptions. The current situation of the Ukraine power system far exceeds the design standards given that dozens of elements of the power system, meaning transformers and feeders, are damaged and hence lost. In this situation supply disruptions are unavoidable. While all damaged facilities will have to be restored as quickly as possible, UE will prioritize more critical substations based on the magnitude of supply disruptions and the criticality of substations from the perspectives of nation-wide electricity transmission and local supply. UE has prepared a priority list and requested the World Bank to fund the most urgently needed equipment. The World Bank's analysis has confirmed the need for the requested equipment.

20. **Various donors and international financing institutions (IFIs) have already pledged donations and financial support for the procurement of urgent equipment, but funding is not sufficient to meet the sector's increasing needs.** The Energy Community Secretariat (EnCS), an international organization that supports EU neighboring countries join an integrated pan-European energy market, has established the "Ukraine Energy Support Fund" (UESF)<sup>17</sup> to arrange procurement and donation of emergency energy equipment and fuels. The United States Agency for International Development (USAID) is supporting the UESF acting as a procurement agency in verifying the list of urgent equipment and procuring the equipment. The UESF has received financial support from Denmark in the amount of US\$0.5 million, while Germany and the United Kingdom are planning to contribute to the fund<sup>18</sup>. USAID will allocate US\$50 million from the ongoing Energy Security Project technical assistance program for urgent heating needs and another US\$53 million for electricity infrastructure repairs, while the Nordic Environment Finance Corporation is planning to provide US\$50 million for heating at the community level. The European Bank for Reconstruction and Development (EBRD) allocated US\$ 150 million of a EUR 300 million loan to UE<sup>19</sup> for emergency support (the remaining USD 150 million will provide liquidity support). Ukraine's MoE has also requested emergency support to other countries, including Canada, Japan, and the Republic of Korea. As the targeted attacks continue, the financial gap continues to increase. Given that the estimated financial need for urgent equipment to restore energy services is at least US\$900 million, the financing gap is estimated to be at least US\$500 million at the time this project was appraised.

21. **The proposed project is part of an international effort to ensure restoration of energy services. Coordination among financiers and equipment manufacturers remains vital.** Given the multiple parallel support initiatives, donor coordination is essential to avoid duplication of work and ensure proper prioritization of funding, supplier capacity and logistics. Immediately after the initial targeted attacks in October 2022, the MoE and UE compiled a list of urgent equipment and distributed it to foreign government agencies, utilities, and manufacturers. The MoE and UE have been receiving responses which include information about when and what kind of equipment can be supplied and in what forms of support. The MoE and UE will prioritize support for quick delivery and grant funding. The G7 coordination mechanism is in place to arrange donations and fundings, with the United States taking a coordinating role, and participation of G7 countries, IFIs and other development partners. Given that the donor communities are responding to the comprehensive list, it is critical to avoid duplications of supply and donations particularly for larger, more costly, and custom-made equipment such as transformers. With support from EnCS and EBRD, the MoE is developing a centralized database to track needs,

<sup>17</sup> UESF has arranged donations of equipment equivalent to 900 metric tons and liquid fuels equivalent to 9000 metric tons from 72 companies in 20 countries.

<https://www.energy-community.org/regionalinitiatives/Ukraine.html>

<sup>18</sup> According to the available information, Germany and UK has pledged in providing 56 million EUR and 50 million GBP respectively to the UESF.

<sup>19</sup> The loan is expected to be approved before the end of the calendar year. The actual amount to be available for procurement of goods is smaller due to custom tax, VAT and income tax.



donations received, pledges and equipment under procurement. The MoE also organizes weekly coordination meetings inviting all donors. Populating and maintaining this coordination tool and coordinating logistics and communications to donors and IFIs systems will require dedicated resources. The proposed project will support coordination efforts in close collaboration with EnCS.

### C. Relevance to Higher Level Objectives

22. **The project is strongly aligned with the Government of Ukraine’s directions for recovery outlined in the Ukraine Recovery Plan,<sup>20</sup> and the approach of the World Bank Group (WBG) to support Ukraine, as described in the Relief, Recovery, and Resilient Reconstruction Approach Paper.<sup>21</sup>** The overarching goals of the Ukraine Recovery Plan are to provide economic, social, and environmental resilience, find efficient solutions for recovery of crucial economic and social processes and natural ecosystems, and develop a modernization plan to ensure expedited sustainable economic growth and the well-being of the Ukrainian people. For the energy sector, the main goal is to strengthen integrated energy system resilience – increase ENTSO-E interconnections, link EU oil refineries with the storages in Western Ukraine, and build-up gas storage. The priority programs are to (a) prepare blocks for maximum availability during winter, including mothballed gas blocks; (b) switch to biomass and biogas for district heating, where possible; (c) launch an Energy Efficiency program; (d) progress work on interconnection extension (power, oil products); and (e) build-up gas reserves in storages. Stable electricity supply is fundamental for all listed priorities. The WBG approach to revive Ukraine’s economy includes critical immediate actions to provide the foundation for regaining incomes and reducing poverty in the short-term, while identifying priorities to support resilient, inclusive recovery and reconstruction in the medium- to long-term. During the war (the relief phase), the priority is to preserve as much of economic capability as possible by (a) maintaining macro-financial management and the functioning of government; (b) protecting the population under severe socio-economic stress; (c) restoring essential infrastructure services; and (d) preserving productive economic capacity (physical and human capital) as much as is feasible. In the energy sector, the immediate priority is to restore energy services, and over the medium term, the focus will be on harmonizing Ukraine’s energy model to European standards, facilitated by the interconnection to the European electricity transmission network, while maintaining a longer-term focus on resilience.

23. **The project is also aligned with the WBG goals to end extreme poverty and boost shared prosperity, as well as other key cross-cutting strategies.** By repairing damage to critical infrastructure and restoring energy services, the project will contribute to reestablishing a stable electricity supply. Access to reliable and quality energy supply can boost productivity and economic activity, which can in turn create opportunities for jobs and incomes. It can also improve public safety, and facilitate the delivery of education, health services and e-governance. The project is also aligned with the Strategy for Fragility, Conflict, and Violence (2020-2025)<sup>22</sup>, particularly Pillar II “Remaining engaged during conflicts and crisis situations”, which is premised on maintaining a development approach in areas where security is sufficient to implement efforts that build resilience, support service delivery, and promote livelihoods and job creation. It emphasizes the importance of well-targeted development interventions in such situations—especially when aid is limited, to restore social capital and collaboration among social groups, support private sector activities, and maintain trust in local institutions. By improving the public and private sector’s ability to deliver energy services, the project will help strengthen the populations’ confidence in the state and mitigate people’s incentives to flee across borders as well as help to

<sup>20</sup> <https://www.urc2022.com/urc2022-recovery-plan>

<sup>21</sup> <https://documents1.worldbank.org/curated/en/099608405122216371/pdf/IDU08c704e400de7a048930b833049a329ab3ca.pdf>

<sup>22</sup> <http://documents.worldbank.org/curated/en/844591582815510521/World-Bank-Group-Strategy-for-Fragility-Conflict-and-Violence-2020-2025>



preserve Ukraine’s institutional capacity for a full recovery and resilient reconstruction once the war ends.

24. **While the ongoing war has fundamentally affected the context for the current Country Partnership Framework (CPF) FY17-FY21, the project is consistent with the CPF’s long-term development directions, many of which remain relevant.** Specifically, the project is aligned with the first objective of CPF Focus Area 1 – to improve the quality of infrastructure services, particularly in energy. The Project is also aligned with Focus Area 3 on enhancing the Efficiency and Inclusiveness of Social Service Delivery. Preparation of the new CPF for 2022-2025 began in September 2021, with a Performance and Learning Review but was halted following the hostilities that started in February 2022 and the extended conflict.

25. **The project aligns with the approach outlined in the WBG’s “Relief, Recovery, and Resilient Reconstruction” paper.**<sup>23</sup> The three key elements of this approach are: (i) prioritizing relief during the war to maintain operation of the economy and protecting the population; (ii) implementing quick and coordinated actions to stimulate recovery in the immediate aftermath of cessation of hostilities, effecting a timely exit from sub-optimal wartime policies; and (iii) designing and coordinating a resilient reconstruction strategy in the medium term, rebuilding both institutions and infrastructure. In line with this approach, the proposed project would finance urgently needed physical investments to restore critical energy service which are fundamental requirements for relief efforts while war remains ongoing. In addition, the project will help strengthen the capability of the MoE to prepare critical projects according to the standards needed for IFI financing.

26. **The project supports the outcomes of the Ukraine Relief, Recovery, Reconstruction and Reform Trust Fund (URTF).** Specifically, Outcome 1.2 of the URTF Results Framework seeks to ensure that the Government of Ukraine “has financial and implementation support to execute critical recovery and reconstruction operations.” The project’s interventions directly contribute to URTF Output 1.2b that supports this through “enabling emergency relief operations by restoring essential infrastructure.” Similarly, the proposed project supports Outcome 2.1 of the URTF results framework which seeks to ensure that the Government of Ukraine “has (i) relevant data and analytics; and (ii) needed sectoral planning and project preparation capacity for recovery, reconstruction, and reform.” Component 3 of the proposed project would specifically contribute to Outputs 2.1b, 2.1c, and 2.1d relating to this objective which cover institutional reforms, project preparation tasks and associated development of capabilities needed for recovery and reconstruction.

## II. PROJECT DESCRIPTION

27. **The project is designed using a framework approach.** The project design will support activities that Ukraine will need to address the ongoing emergency caused by the targeted attacks on energy infrastructures, with a scope of support that is informed by both available and future financing over the immediate-and short-term. It provides a clear line of sight for the Government of Ukraine, the World Bank and other development partners on urgent needs in the energy sector. The project has been designed and appraised for the full US\$500 million, including envisaged results indicator targets that match this envelope. Specifically, the design outlines project activities that will be implemented with an initial funding of a US\$200 million grant with the expectation of additional contributions from other donors.<sup>24</sup> Consistent with this approach, project components are designed as sustainable within the available financing, while also being flexible enough to easily absorb additional financing

<sup>23</sup> <https://documents1.worldbank.org/curated/en/099608405122216371/pdf/IDU08c704e400de7a048930b8330494a329ab3ca.pdf>

<sup>24</sup> Should the full \$500 million in Project financing not become available, the Project will be restructured to scale-back total financing, the scope of activities, and the results framework, among other things and as needed.



as resources become available. The framework approach of the project supports needed agility and speed of delivery in an emergency. Depending on the evolving needs, additional resources for project activities could mean doing more of the same (for example, implementing the same energy facilities repair interventions in different geographic areas or for a longer time). As more financing becomes available within the identified envelope, adding it will be a straightforward process as there are no changes needed to the original design.

28. The project follows an analogous framework approach to the Health Enhancement and Lifesaving (HEAL) Ukraine Project (P180245). The HEAL operation has been designed as a framework approach with an overall envelope of US\$ 500 million in total and an initial funding commitment of US\$ 110 million. The Board's approval of the project authorized the Regional Vice President to approve incremental financial commitments up to the Board-authorized envelope (with notification to the Board and after coordinating with relevant internal stakeholders, including the Operations Policy and Country Services and Credit Risk departments). This authorization is valid for the duration of the Project as approved by the Board. This project has been designed similarly. **The initial contribution, a US\$200 million grant will be provided through the URTF**<sup>25</sup>, and as such, this and subsequent trust funds are expected to be approved by the Regional Vice President. In case of any subsequent financing that requires Board approval (for instance, involving IBRD loans), the project will be reassessed and submitted for Board approval and will request authorization of the Regional Vice President to approve incremental financial commitments up to the Board-approved financing for the remaining amount of the project envelope as determined at the time.

29. Any further increase beyond US\$500million will entail Additional Financing and restructuring to scale-up the project. Furthermore, should mobilization of anticipated resources prove more difficult than anticipated, efforts to identify additional resources will be intensified or, alternatively, the project will be restructured to adjust indicator targets. It is envisaged that the World Bank's management will update the Board as appropriate as the framework approach secures additional funds. For example, an update on the project was recently delivered through a complementary briefing associated with the Board's discussion of the HEAL Ukraine Project (P180245) on December 20, 2022.

## A. Project Development Objective

### PDO Statement

30. The Project Development Objective (PDO) is to enable the restoration of essential energy services in Ukraine.

### PDO Level Indicators

31. **To monitor the achievement of the PDO, the following two key indicators will be used**

- I. Number of equipment for the transmission system operator delivered and installed or operational
- II. Number of heating equipment delivered and installed or operational

### 32. Intermediate indicators

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<sup>25</sup> The URTF is established by the WBG to channel grant resources from partners to finance projects and critical analytical and advisory work. This is in coordination with international partners and in line with the WBG's Approach Paper to support Ukraine during the current relief phase, as well as the recovery and reconstruction phases."



- I. Operational transformation capacity provided under the project (MVA)
- II. Operational heat-only-boiler capacity installed under the project (MW)

33. **These indicators were selected based on their relevance and feasibility, as they capture what the project is trying to achieve, and the data to evidence their achievement, during the ongoing war.** Under normal circumstances, it would be useful to have additional data regarding continued delivery of services in some key sectors. However, it is difficult to assess the comprehensiveness and accuracy of such data under the prevailing circumstances. The indicators on supplied and installed equipment to enable the restoration of essential energy services and the intermediate indicators on operational capacity allow for targets lower than baseline to accommodate for possible disruptions during the war. Nevertheless, the World Bank team will monitor the delivery and installation of the equipment to ensure intended use and operationalization.

## B. Project Components

34. **The project consists of three components: (a) Component 1: Emergency equipment for the electricity transmission infrastructure; (b) Component 2: Emergency equipment for the heating services; and (c) Component 3: Project management and monitoring. The Project will start with Component 1 and 3 with the initial funding of US\$200 million, with further contributions expected to fulfill the financial gaps.**<sup>26</sup> The project will finance procurement of equipment for the provision of emergency electricity and heating services including transformers, switchgears, and repair parts. The project will finance only the supply of goods including transportation to sites but not civil works since the beneficiaries of the project have sufficient capacity and expertise to install, commission and operate the equipment allocated to them.

35. **Retroactive financing up to 40 percent would be applicable for Components 1 and 2 subject to the compliance of the World Bank's Procurement Regulations.** The retroactive financing, if used, will have the objective of expediting the delivery of components with long delivery time, which require initial payment of suppliers to initiate manufacturing, but it is expected that the delivery and installation of equipment will take place during the project implementation and therefore, transportation, delivery and installation will be monitored following the same Project requirements.

36. **Component 1: Emergency equipment for the electricity transmission infrastructure (US\$199.7 million funded; estimated funding need is US\$299.7 million):** The component will fund procurement of emergency equipment for UE, which includes autotransformers, transformers, instrument transformers, reactors, circuit breakers, disconnectors, surge arresters, relay protection devices, and substation automation equipment. These are critical to restore the electricity supply for the entire country. Transportation services to the sites within Ukraine could be also funded. The most urgent need is large autotransformers in the voltage levels of 750, 330 and 220 kV, because loss of these equipment has directly affected the electricity supply for the wider regions. While the manufacturing of the large equipment would take several months and the equipment is not easily available in TSOs in Europe due to the difference in the voltage level, various options are being explored for speedy delivery including potential transfers of already manufactured or work-in-progress equipment for UE<sup>27</sup> and other customers as well as potential priority production allocation by manufacturers. While international competitive procurements have advantage over non-competitive methods, due to emergency nature of the project and urgent need to procure equipment, direct contracting could be considered where technical justifications apply. Local

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<sup>26</sup> Interests expressed by the US, the UK, Netherland and Sweden.

<sup>27</sup> 750kV autotransformers are already procured for 750kV Dniprovka substation, which was damaged by recent attacks.



suppliers and manufacturers of equipment - inter alia – local state-owned enterprise (SOE) manufacturers could be considered eligible if technical and financial requirements are met and adequate risk mitigation measures are put in place.

37. **Component 2: Emergency equipment for the heating services (US\$0 million funded; estimated funding need is US\$200 million):** The component will be funded upon the provision of additional contributions from donors for procurement of essential equipment and materials for heating services. Those include mobile and stationary heat-only boilers, mobile mini cogeneration units, pipes, fittings and valves, and pumping sets/pumps. The mobile cogeneration units could also help ramp up those parts of district heating where power supply is not available because of damaged power transformers. The project could also finance stationary boilers under exceptional cases. The project will also procure essential parts to repair district heating and gas networks, as well as equipment for liquid fuel depot repairs in some municipalities and equipment required to provide alternative heating options such as electric heating and biomass in those areas where district heating repairs are not feasible. Potential cities covered under the component are Kharkiv, Mykolaiv, smaller cities in Chernihiv region, and Sumy, among others. Transportation services to the sites within Ukraine could be funded.

38. **Component 3: Project Management and Monitoring (US\$0.3 million funded: estimated funding need is US\$0.3 million):** The component is needed to ensure the implementation of the project and also to enhance the capacity of the Project Implementation Unit (PIU) under UE. The component will cover expenses for project implementation and management by the UE PIU, including: (i) hiring of consultants for procurement, financial management, environmental and social risk management and supervision, monitoring, coordination, and evaluation, audit and reporting; (ii) training of UE PIU staff; and (iii) UE operating costs.

39. **As funds become available within the framework project, the Project will support further procurement of critical energy equipment in coordination with development partners and humanitarian aid.** The current project design covers potential needs that can be covered with the additional funding available, with which the project will further procure the same type of equipment: transformers, circuit breakers, disconnectors, surge arresters and relay protection for the transmission system operator and heating equipment for DHCs. Priorities will be given for the equipment and locations that enable larger impacts for the energy service restoration.

**Table 1: Project Components and Associated Financing (US\$, millions)**

| <i>Short description of components and main activities</i>   | <i>Initial funding</i> | <i>Additional mobilization needs</i> | <i>Total Funding</i> |
|--|------------------------|--------------------------------------|----------------------|
| <b>Component 1: Emergency equipment for the electricity infrastructure</b><br>- Transmission transformers<br>- Transmission switchgears, circuit breakers, disconnectors and so on<br>- Relay protection devices<br>- Other equipment and materials for UE | <b>199.7</b>           | <b>100</b>                           | <b>299.7</b>         |
| <b>Component 2: Emergency equipment for the heating infrastructure</b><br>- Mobile heat-only boilers<br>- Mobile mini cogeneration units<br>- Other equipment and materials for  | <b>0</b>               | <b>200</b>                           | <b>200</b>           |



|   |            |            |            |
|---|------------|------------|------------|
| heating services including stationary HOBs under specific conditions as accepted by the Bank. |            |            |            |
| <b>Component 3: Project Management and Monitoring</b>   | <b>0.3</b> | <b>0</b>   | <b>0.3</b> |
| <b>Total</b>  | <b>200</b> | <b>300</b> | <b>500</b> |

40. **The initial financing available at the time of project approval and the large resource mobilization needs may affect the implementation of a subset of project activities if resource mobilization needs are not realized.** The scope of activities supported by the initial financing is defined, and the Project Development Objective (PDO) can be achieved with initial financing. The World Bank together with the Government will agree on how the remaining defined activities are prioritized when further funding becomes available. There is always a risk that resource mobilization falls below the US\$500 million target, which would affect the implementation of a subset of the project activities. The availability and timing of additional resources, and their potential impact on delays in future project implementation, will be closely monitored during the implementation Project. If timely resource mobilization looks as if it may become a binding constraint to project implementation, it will necessitate accelerated efforts to identify further resources for the project or, alternatively, will require restructuring to scale-down the scope and expected results of the project, while remaining within the PDO.

### C. Project Beneficiaries

41. **Ultimate project beneficiaries will include all consumers in Ukraine, who have suffered from disruptions in critical energy services.** The recent attacks on critical energy facilities have caused interruptions in energy services, particularly electricity, in various regions all over in Ukraine including Kyiv, Khmelnytskyi, Cherkasy, Mykolaiv, Rivne, Volyn, Kirovohrad, and Odesa. As of October 22, 2022, 1.5 million Ukrainians were left without electricity supply, increased to 10 million on November 18, 2022, due to intensive attacks on November 14 and 15, 2022. Given that the Project will fund critical equipment to restore the halted services, all populations and industries will benefit from the project interventions.

42. **Direct project beneficiaries are the energy companies.** Under component 1 and 3, UE will be the single beneficiary while component 2 will be implemented by MoE. DHCs in the cities of Kharkiv, Mykolaiv, Sumy, and two smaller cities in Chernihiv Oblast (Nizhyn and Pryluky) will be the beneficiaries under Component 2 and will receive emergency heating equipment as described in this document. Additional beneficiaries could be identified during the implementation depending on damages occurring to the energy and heating infrastructures.

43. **Gender.** The war has adversely affected both men and women, whether these people have remained in their homes, become internally displaced, or are temporarily living abroad as refugees. Of the over seven million people who are abroad, almost 90 percent are females (adults and children), pushing the proportion of the people who remain in Ukraine towards the male population. At the same time, a September 2022 survey conducted by the UNHCR showed that while 13 percent of refugees plan to return permanently to Ukraine in the next three months, 81 percent hope to return to Ukraine one day.<sup>28</sup> Moreover, the majority plan to return with all their household members (76 percent) and to the same place where they were living before the war (79 percent). Of the 3,300,532 registered IDPs in receiving communities (“hromadas”), as of September 30, 2022, 65 percent were

<sup>28</sup> <https://data.unhcr.org/en/documents/details/95767>



women and 35 percent were men<sup>29</sup> and many indicate an intention to return to their homes. The attacks since mid-September 2022 have led to rolling blackouts in major cities, limited number of hours of electricity and disabled district heating services in many communities, putting lives at risk. Under these circumstances a large population will need to be evacuated or seek refuge in shelters or flee to less affected regions or to neighboring countries. Migratory flows will increase the risk of human trafficking, particularly for women, children, and vulnerable groups. The project will help prevent evacuation of large areas of the country due to lack of energy services and increase the level of comfort and security for the population. Overall improvement in the provision of electricity and heating supply will benefit the entire population and therefore the gender composition of the beneficiaries will be identical to that of Ukraine’s population. In addition, the project will apply a gender lens to ensure that it will not lead to unintended negative impacts for women.

D. Results Chain

44. The proposed project aims to restore and ensure essential energy services in Ukraine through procuring urgently needed equipment in the critical energy infrastructure. The result chain is presented in Figure 2. The most critical equipment that needs to be procured is extra high voltage transformers, which were targeted by the recent attacks. With devastating damages on the transformers, UE has had to restrict electricity consumption through rolling blackouts in the entire country. By procuring and installing new transformers under the project, the transmission constraints will be eliminated and hence the frequency (numbers per day and hours per day) and the magnitude (the number of impacted customers) of blackouts will be reduced. It should be noted that the heating aspect of the result chain is subject to subsequent financing for component 2.

Figure 2: Results chain

| Activities   | Outputs   | Outcomes                            | Contribution to the PDO  |
|--|---|-------------------------------------|--|
| 1. Key Transmission equipment for the electricity infrastructure | The following equipment for Ukrenergo is procured<br>- Transmission transformers<br>- Transmission switchgears<br>- Relay protection devices<br>- Other equipment and materials for Ukrenergo | Electricity infrastructure restored | Enable the restoration of essential energy services in Ukraine |
| 2. Emergency equipment for the heating infrastructure            | The following equipment for heating service is procured<br>- Mobile heat-only boilers<br>- Mobile mini co-generation units<br>- Other equipment and materials for heating                     | Heating infrastructure restored     |  |

E. Rationale for Bank Involvement and Role of Partners

<sup>29</sup> International Organization of Migration data, [https://displacement.iom.int/sites/g/files/tmzxbd1461/files/reports/DTM%20Ukraine\\_Rd%2014%20-%203-16October\\_Recorded\\_IDP\\_21\\_Oblasts\\_2022\\_Public\\_Raion\\_Eng.pdf](https://displacement.iom.int/sites/g/files/tmzxbd1461/files/reports/DTM%20Ukraine_Rd%2014%20-%203-16October_Recorded_IDP_21_Oblasts_2022_Public_Raion_Eng.pdf)





45. **The rationale for World Bank involvement relates to the Government’s need for financing, to address the emergency in the electricity and heating sectors and the alignment of donor / partner support to Ukraine.** First is that the World Bank wishes to support the Government of Ukraine’s request to mobilize loan and grant resources, to support the continuation of essential government services and to help blunt the widespread human and economic impacts of the war. The current fiscal space in Ukraine is very tight, and key government expenditures are underfinanced, leaving no space for support of capital expenditures, or improving access to additional services to address new needs. Ukraine needs continued government services, including provision of energy services to prevent further deterioration in living conditions and poverty context. Supporting the continuation of essential services will support a more successful and less costly recovery and reconstruction. Second is the ability of the World Bank, including through its convening abilities, to help bring together donors / partners and support the Government’s efforts to align the financing of different partners towards Ukraine’s eventual recovery.

46. **The World Bank will take advantage of its technical expertise and expansive global experience of working in conflict and fragile contexts.** Addressing the challenges of fragility, conflict, and violence is critical to achieving the World Bank Group’s twin goals of ending extreme poverty and boosting shared prosperity. To meet the growing challenges, the WBG is significantly scaling up the volume and types of financial support it provides for FCV in both low and middle-income countries. The WBG has set up the Strategy for Fragility, Conflict, and Violence for 2020-2025, the objective of which is to enhance the WBG’s effectiveness to support countries in addressing the drivers and impacts of FCV and strengthening their resilience, especially for their most vulnerable and marginalized populations. To carry out the FCV Strategy, the WBG has set out twenty-three (23) measures to strengthen its effectiveness in FCV settings.

47. **Providing scalability under the Bank’s Environmental and Social Framework.** The Project’s activities will be implemented in compliance with the Bank’s Environmental and Social Framework (ESF) which will also serve as the basis for scaling up Project interventions as and when additional funds may become available. The ESF is designed to align broadly with the social and environmental standards that apply to various bilateral and multilateral development partners which would increase the fundability of investments prepared according to ESF requirements. This would provide the pipeline of ready projects that can intersect with available funding.

## F. Lessons Learned and Reflected in the Project Design

48. The project incorporates lessons learned from previous emergency projects implemented by the Bank in other countries, lessons from emergency operations during COVID-19 in Ukraine, and lessons from the implementation of the EnCS “Ukraine Recovery Fund.”

49. **Strong commitment and coordination among the MoE, UE, and MCTID are critical for implementing energy projects involving the electricity and heating sector.** Given the urgent needs, it is essential that this project is implemented promptly. MoE will use the existing PIU implementing the technical assistance component of the Second Power Transmission Project (PTP2, P146788). UE already has well-functioning PIU under PTP2 staffed with technical experts, financial management specialists, procurement specialists, and environmental and social specialists. The existing MoE PIU’s implementation capacity needs to be strengthened to incorporate technical, procurement, environmental and social experts and improve their coordination capacity with donors.

50. **Coordination with other donors is essential to optimize the use of funds.** The coordination consultants



hired by the MoE PIU will ensure coordination with other donors and initiatives, to ensure that the database of needs and pledges is adequately updated, priorities clearly established, and duplicated procurement efforts are avoided. The consultants will work in close coordination with EnCS, which will provide expert advice regarding custom clearance and logistics, in collaboration with the Emergency Response Coordination Centre. EnCS and World Bank are both members of the G7 coordination mechanism.

51. **Maintaining and building the implementation capacity of the client is essential in preparation for the reconstruction phase.** The Project will help further strengthen the capacity of the MoE PIU in anticipation of the upcoming reconstruction phase. As demonstrated in the implementation of various investment projects including the Hydropower Rehabilitation (P083702), the first Power Transmission (P096207) and the Second Power Transmission (P176788) Projects, capacity-building support to participating companies (UE and Ukrhydroenergo [UHE]) improved technical competence, institutional capacity, and governance, thus supporting the sustainability of investments. Through the implementation of the project, the PIU will strengthen its capacity to take on more complex activities.

### III. IMPLEMENTATION ARRANGEMENTS

#### A. Institutional and Implementation Arrangements

52. **Component 1 and 3 will be implemented by UE and component 2 will be implemented by MoE, which may need support from a fiduciary agency for delivery of component 2.** Both MoE and UE already created PIUs under the ongoing World Bank financed project, Second Power Transmission Project (PTP2, P146788), respectively for investment and technical assistance components. UE will be the implementation agency for Component 1 and 3. Through implementation of the PTP2, UE has developed and demonstrated strong implementation capability equipped with adequate technical capacities and qualified experts including at least eight project managers, three FM specialists, three procurement specialists, two administrative staffs, at least ten technical experts and environment and social experts. MoE will be the implementation agency for Component 2. While the heating infrastructure supported under the project's Component 2 currently falls under the responsibility and mandate of the MCTID, the MoE agreed to take the responsibility for the implementation of the heating component with technical advice from MCTID and any other ministry responsible for heating sector in the future after the ongoing ministerial re-organization.<sup>30</sup> The MoE PIU consists of the following full-time staff - head of the PIU, who is also a procurement specialist, an FM specialist and an information specialist, supported by other administrative staff. However, the team needs to be strengthened by hiring more qualified experts including environmental and social expert and coordination consultants, to ensure that procurement is aligned with activities and support from other donors. The MoE PIU will be responsible for coordination of all components particularly given that many donors are supplying equipment and providing funds.

53. **For component 2, MoE will be supported by a fiduciary agency for carrying out procurement, contract management, and delivery of equipment. An appropriate agency such as a UN agency will be identified upon confirmation of funding for component 2 in consultation with the Government.** The agency can also help transportation of goods as some suppliers are reluctant to arrange domestic transportation to sites. Under this arrangement, the MoE, through its existing PIU, will retain the entire implementation responsibility, including for the environmental and social safeguards functions. For that, the MoE will consolidate the capacities of its PIU by

<sup>30</sup> Ministry of Infrastructure is expected to become responsible for the provision of Heating services in the near future.



initially hiring an environmental specialist and a social specialist in the PIU, and subsequently, any other experts as required. The MoE PIU will also coordinate procurement and transportation of goods with the donor community in close coordination with EnCS.

54. **The project will exclusively finance supply of goods including transportation to sites, while the direct beneficiaries, including DHCs and UE will conduct civil work, installation, and commissioning of the supplied goods** with help from local construction companies. Suppliers will deliver goods/equipment to hubs in Poland or the border, while beneficiaries will arrange transportation of goods/equipment to final locations while some suppliers can arrange transportation to sites within the supply contracts. The works for the installation and commissioning of equipment will be conducted by the direct beneficiaries. The MoE PIU will be responsible for Component 2 including environmental and social due diligence responsibilities with support from the beneficiaries (DHCs). The UE PIU will be responsible for the implementation of Component 1 and 3, including relevant environmental and social due diligence responsibilities. The project will take advantage of bulk procurement and avoid the use of financial services that are increasingly difficult to access in Ukraine.

55. The detailed implementation arrangement will be described in the Project Operations Manual (POM), which will be adopted within 30 days from the project's effectiveness.

## B. Results Monitoring and Evaluation Arrangements

56. **The project's M&E will be carried out by the UE PIU for component 1 and 3 and by the MoE PIU for component 2.** The project managers in both PIUs will be responsible for preparing and submitting all M&E reports to the World Bank related to the activities implemented by the respective PIUs. The Project Managers will be assisted by relevant PIU staff. The PIUs will include a dedicated M&E officer, who will be responsible for preparing quarterly implementation progress reports on all ongoing project-funded activities. The reports will draw upon input from relevant members of the PIUs, the M&E technical consultant described in the following paragraph, and other relevant sources as needed. The reports will provide progress updates on ongoing procurement, activities under implementation, anticipated timelines, disbursement projections for the next six months, and any challenges affecting implementation progress. Progress reports will also provide updates on progress towards the achievement of targeted outcomes, as captured under the Results Framework of the Project. The reporting format will be guided by the M&E arrangements detailed in the POM and may change during implementation with the prior agreement of the World Bank.

57. **The UE PIU will be supported by a technical consultancy firm (to be funded by the Component 3):** This firm will provide regular (monthly and quarterly) progress reports to the UE PIU, detailing the implementation progress. To facilitate ease of implementation support, the reports from the M&E Consultant will also be submitted to the World Bank team for review and filing. The M&E Consultant will monitor and verify that the procured equipment is delivered, installed and finally operational on the ground. The consultant will also ensure coordination on other support.

58. **Considering the current limitations to perform direct supervision by the World Bank, an independent third-party consultancy firm will be recruited** in situ on behalf of the World Bank team. The World Bank Supervision consultant will verify that the procured goods and equipment are delivered to the site and duly installed and commissioned for operations. The appointment of the supervision and verification third party will be completed after project approval, before procurement of the first equipment is completed.



## C. Sustainability

59. **Sustainability of long-term recovery process.** The Government has prepared the draft Energy Sector Recovery Plan, which laid out the path towards the zero-carbon transition and Europe's energy security. Despite the widespread damages after the drafting of the plan, the plan remains relevant for the country's long-term recovery.

60. **Sustainability of institutions.** The Project will support the strengthening of the institutional capacity of the MoE implementation agency. It is critical to strengthen the PIU established within the MoE in view of the upcoming next phases and the future reconstruction projects. Through the Project, the MoE PIU will strengthen its capacity including environmental and social safeguards.

## IV. PROJECT APPRAISAL SUMMARY

### A. Technical, Economic and Financial Analysis (if applicable)

61. **The Project will procure well proven equipment to quickly restore critical energy services.** While smaller equipment and materials for Component 2 are widely available and quickly delivered, manufacturing and transportation of larger equipment, particularly for Component 1, will take time in months or even a year. The project will support the PIU on procurement, contract negotiation, contract management to achieve speedy delivery. The procured equipment is well known to beneficiaries, which can prepare technical specifications. Furthermore, the equipment to be procured under the project is extremely critical and urgently needed to restore the electricity supply. Those will be installed in substations which have large scale supply disruptions and contain critical loads. UE has prepared a priority list and requested the World Bank to fund the most urgently needed equipment. The World Bank verified that the requested equipment, primarily extra high voltage transformers, is urgently needed to restore the electricity supply.

62. **The Bank has conducted preliminary market assessment outreach to potential suppliers.** The Bank co-organized with EnCS a vender conference in December 2022 inviting all potential suppliers and manufacturers. It is identified that the manufacturing lead time for extra high voltage transformers could be several months or even more than one year and the limited number of players can produce such transformers. It is critical to place orders and make advance payments as early as possible to allow them to commence manufacturing of the equipment. The market outreach also identified that several suppliers are willing to enter into contracts with UE and with higher advance payment they are willing to start the manufacturing process. Due to capacity constraints and long lead-time to manufacture transformers, UE plans to enter into direct contracts with several manufacturers in parallel for 8-10 units and they consider this number of units per one supplier as feasible to achieve in the required timeframe.

63. **The recent attacks will further deteriorate the sector's financial situation due to additional financial needs for the restoration and the lack of additional revenues through electricity exports.** Electricity consumption decreased significantly in March and April 2022, by 35 percent in comparison to the previous year, with the collection rate dropping around 65 percent, on average. Electricity consumption for the first half of 2022 was



reduced by 20 percent compared to 2021. From February 24, 2022, and until the termination or abolition of martial law in Ukraine, it is prohibited to suspend/terminate the provision of energy services to the population in case of non-payment or incomplete payment, as stipulated under the Resolution of the Cabinet of Ministers of Ukraine No. 206 dated March 5, 2022. This moratorium measure would demotivate users for payments, only contributing to deteriorating the sector's financial situation. Various analyses forecast financial deficits for the electricity sector at US\$1–US\$1.2 billion for March to June 2022 (around US\$220–US\$295 million per month). While all sector stakeholders were affected, UE and Energoatom have accumulated the highest deficits, even if some of their financial obligations could be deferred. UE had expected to receive substantial revenues from electricity export congestion fees, but exports had to be halted in October 2022 to prioritize internal consumption.

64. **Given the nature of the project as a response to urgent needs caused by Russia's invasion of Ukraine and the uncertainty concerning cost and benefits, a qualitative economic analysis has been conducted to identify the main development benefits and confirm that the expected associated costs are appropriate, based on existing evidence and estimates.** The project will support restoration of critical energy services by financing necessary urgent equipment to replace and repair damaged equipment. Due to extensive damages on the energy infrastructure, particularly electricity transmission networks, Ukraine has been implementing rolling blackouts, which incur significant economic and social costs. While it is difficult to estimate the economic loss caused by the blackouts, the World Bank team conservatively estimates an economic cost of least US\$200 million per month assuming 10 hours of supply disruptions per million of electricity customers.

## B. Fiduciary

### (i) Financial Management

65. **The assessment of the project's FM arrangements was based on the analysis of performance of the ongoing Second Power Transmission Project.** The FM assessment covered capacity assessment of UE, the main project implementing agency for Component 1 and 3. Assessment was conducted taking into consideration: (a) the World Bank's OP 8.00 on Rapid Response to Crises and Emergencies; and (b) the Guidance Note on FM in Rapid Response to Crises and Emergencies. The project was appraised for the full US\$500 million scope, although the currently available financing is grant funding in the amount of US\$200 million. Given that this project follows a "framework" approach and the large size of the operation, continuous capacity of the implementing agency will be monitored on an ongoing basis, and existing capacity matched to the changing scope of the operation (if any). The FM performance and risk ratings will then be updated accordingly. While implementation support will be provided throughout project implementation, it is anticipated that more intense support will be needed in the first 12 months after project approval, with monitoring taking place every four months. It is envisioned that the intensive support (including missions) will be provided remotely. If the situation changes and the security situation permit, implementation support in-person will also be provided. The World Bank will also engage a third-party firm for supervision and verification of the project activities, and its scope will cover FM and disbursement performance of the project.

66. **The FM arrangements were confirmed to meet the minimum requirements and will be further strengthened.** The risk associated with FM is assessed as High. This is partly due to increased inherent risks, such as the UE and MoE being affected in a way that would prevent them from carrying out FM and disbursement functions, the emergency nature of this Project, and time pressures to process payments under extremely tight timelines. Inherent risks of corruption and misuse of funds will be mitigated by the UE and the MoE by hiring the



M&E Consultant who will be required to provide regular progress reports to the UE/MoE as well as to the Bank. Other factors contributing to the high-risk rating are the inability of the World Bank staff to carry out on-site supervision, which will be mitigated through more frequent and larger scope virtual team missions (every four months) and engaging an independent third-party consultancy firm to supervise project's FM and disbursement function. Further details as to the specific internal controls and segregation of tasks will be detailed in the POM, which would be prepared and adopted 30 days after the effectiveness date.

67. **The MoE PIU capacity will need to be further strengthened, including through World Bank implementation support**, to be able to cover a larger scope operation. It currently has several full-time staff, including a qualified FM consultant. MoE performance during implementation of PTP2 was assessed satisfactory, however, part of the Second Power Transmission Project implemented by MoE was smaller compared to the potential additional funding that could become available under Component 2. UE has developed and demonstrated strong implementation capability including experienced financial management/disbursement team through implementation of PTP2. UE continues to perform well in terms of FM and Disbursement in the Second Power Transmission Project despite the ongoing war.

68. **UE and MoE will be responsible for reporting and auditing for their respective project components.** The Project will be required to submit quarterly Interim Financial Reports (IFRs) to the World Bank within 45 days from each calendar quarter, format which will be agreed with the Bank and incorporated in the Project Operations Manual (POM). Auditing of the Project's financial statements will be carried out on an annual basis by an independent private auditor acceptable to the World Bank, separately for UE and MoE components. Component 3 of the Project provides funding for this audit.

69. **Regular disbursement mechanisms will be used** including (i) direct payments; (ii) reimbursement; (iii) advance; and (iv) special commitments. UE and MoE will be in charge of disbursements for their respective components, including submission of withdrawal applications and reporting to the Bank. UE and MoE will each open and maintain Designated Accounts, denominated in United States Dollars. The minimum application size for direct payment, reimbursement, and special commitment will be specified in the Project's Disbursement and Financial Information Letter (DFIL). Given the emergency nature of this Project, preference will be given to direct payments to contractors, to both save on the processing time and minimize fiduciary risks.

## **(ii) Procurement**

70. **Procurement will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers:** Procurement in Investment Project Financing for Goods, Works, Non-Consulting and Consulting Services, dated July 1, 2016, and revised in November 2020. Due to ongoing Russia's invasion of Ukraine and emergency nature of operation, procurement simplifications and flexibilities as defined in the Guidance Note on Procurement in Situations of Urgent Need of Assistance or Capacity Constraints dated March 2019 will apply. The specific flexibilities for Ukraine were approved by the Chief Procurement Officer in July 2022. The Project will be subject to the World Bank's Guidelines on Preventing and Combatting Fraud and Corruption in Projects financed by IBRD Loans and IDA Credits and Grants (Anti-Corruption Guidelines), dated October 15, 2006, and revised in January 2011, and July 1, 2016.

71. **The Systematic Tracking of Exchanges in Procurement (STEP) tool will be used to plan, record and track procurement transactions and monitor milestones for contract implementation.** In view of the countrywide lack



of electrical power supply and unstable internet connection resulting from the ongoing war, the World Bank may agree on alternative available secure communication channels with the PIU, contact persons for such communications, safe custody of documents for audit/review and Procurement Plan as control document for procurement activities. These communication protocols will be defined in the POM, but the use of STEP will still be needed to regularize all procurement-related actions after the power supply and internet connection are restored.

72. The major planned procurements under this project will include those under Component 1, the project will finance procurement of substation equipment for UE, including autotransformers, transformers, reactors, instrument transformers, circuit breakers, disconnectors, surge arresters, and relay protection devices. Under Component 2, essential equipment and materials for heating services will be procured. Those include mobile heat-only boilers, mobile mini cogeneration units, pipes, fittings and valves, and pumping sets/pumps. The project will also procure essential parts to repair district heating and gas networks, as well as liquid fuel depot repairs in some municipalities and alternative heating options such as electric heating and biomass in those areas where the district heating repairs are not feasible. Component 3 will finance project management and monitoring for UE PIU.

73. UE will be in charge of conducting procurement, signing contracts and making payments to suppliers under Component 1 and 3 and MoE will be in charge of any procurement under Components 2. Upon confirmation of funding, and if selected for implementation of component 2, the MoE will initially hire a fiduciary agency to facilitate procurement of goods, contracting and payments processing, and for tracking the delivery of goods until the PIU gains adequate experience. The Bank has conducted a procurement capacity assessment of MoE and UE and concluded that they have prior experience in conducting procurements under Bank-financed operations and have three Procurement staff and at least ten engineers and technical staff assigned to this project with more technical staffs are mobilized as needed, but their capacity needs to be strengthened due to large volume of emergency equipment to be procured in a short timeframe. In addition, due to frequent blackouts, the work of both PIUs can be interrupted, which may lead to further delays. MOE PIU has mostly implemented Technical Assistance project with mainly consultancy contracts, therefore if the funding is available under Component 2, they will need an extra procurement support to deal with equipment procurement. The MOE will hire a fiduciary agent in the initial stage of implementation of component 2. When the situation stabilizes and PIU have gained experience, the MOE could take a leading role in procurement of additional equipment, as more funds become available.

74. **A simplified Project Procurement Strategy for Development (PPSD) and initial Procurement Plan sufficient for negotiations is currently being developed by the MoE and UE with support from the World Bank and the existing PIUs in the MoE and UE.** As part of the initial simplified PPSD, a market assessment was carried out which concluded that there are bidders available and willing to participate in tenders under the Project. Preparation of a detailed PPSD is deferred to the implementation stage. All the selection methods and approaches defined in the Procurement Regulations can be used, but priority will be given to streamlined and simple procedures and to those that ensure expedited delivery, such as Direct Selection; Request for Quotations with increased threshold limit for this method as appropriate; and Framework Agreements—including tapping into existing ones, provided the call-offs under the project incorporate the requirement for compliance with the World Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework. Procurement will follow either an international or national approach with increased thresholds for all market approaches for all types of procurement and no prior reviews, whenever possible, to be reflected in the PPSD. Tender commissions of the implementing agencies shall be streamlined with composition



limited to three to five essential people to speed up project procurement-related decisions. In case of engagement of UN agencies for Component 2, respective agency's procurement rules will be used to procure equipment.

75. **The use of Ukraine's national e-procurement system ProZorro or e-catalogues system are approved by the World Bank.** ProZorro may be used for procurement of goods and works using Request for Quotations or National Request for Proposal methods. Irrespective of the use of ProZorro as a tool for procurement or World Bank standard procedures, all procurement-related notices will be published in ProZorro and UNDB<sup>31</sup> website to enhance competition and transparency. The national procurement law in force meets the requirements of the Procurement Regulations for national open competitive procurement, except the necessity to include the World Bank's Anti-Corruption Guidelines, including the World Bank's right to sanction and the World Bank's inspection and audit rights in the sample procurement documents. The World Bank will not finance any contracts that do not include the World Bank's fraud- and corruption-related clauses.

76. **The proposed procurement approach prioritizes fast-track emergency procurement for the required goods and services.** The use of such emergency measures will be carefully monitored and applied as and when needed. Key measures to fast-track procurement including use of the Bid Securing Declaration may be required instead of a guarantee; performance security may not be required for small contracts; and advance payment may be increased to 40 percent while secured with the advance payment guarantee. The time for submission of bids/proposals can be shortened depending on the value and complexity of the requested scope of bid and capacity of local and international firms to prepare responsive bids in the proposed periods. The standstill period will not apply in any procurement under the project. Overall, since the situation is fragile and dynamic, the World Bank will be flexible in advice and approval of the MoE's and UE's requests, which may be provided on a case-by-case basis depending on the circumstances and risks and will be described in the detailed PPSD.

77. **Retroactive financing of up to 40 percent and advance procurement may be considered under the project subject to the conditions defined in section V, 5.1 and 5.2 of the World Bank's Procurement Regulations for Borrowers.** In accordance with the Procurement Regulations, the World Bank requires the application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including, without limitation, the World Bank's right to sanction and the World Bank's inspection and audit rights. To ensure compliance with the above provisions of the bidding processes that have already been conducted and where the awarded/signed contracts did not include the relevant fraud and corruption provisions, the MoE has agreed to amend those contracts accordingly to be signed by both parties to the contracts. The World Bank will not finance any contracts that do not include the World Bank's fraud- and corruption-related clauses. The MoE will also submit to the World Bank the list of contractors/suppliers and subcontractors/sub-suppliers under these contracts to ensure that the firms chosen are not and were not at time of award or contract signing on the World Bank's list of debarred firms. Contracts awarded to firms debarred or suspended by the World Bank or those that include debarred or suspended subcontractors/sub-suppliers will not be eligible for the World Bank's financing. Procurement of secondhand goods may be considered under the project where justified and needed to respond to emergency. The procurement process for goods shall not mix secondhand goods with new goods, and the technical requirements/specifications should describe the minimum characteristics of the items that could be offered secondhand in age and condition such as refurbished, like new, or acceptable if showing normal wear and tear. The warranty and defect liability provisions in the contract shall be written or adapted to apply to secondhand

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<sup>31</sup> UNDB = United Nations Doing Business.





goods. Any risk mitigation measures that may be necessary in relation to the procurement and use of secondhand goods will be reflected in the PPSD.

78. **Procurement risk is High.** The table below lists major procurement-related risks and the mitigation plan.

| Risk Factor  | Mitigation Measure   | Who is Responsible | Timeframe   |
|--|--|--------------------|---|
| Slow procurement processing and decision-making with potential implementation delays | <ul style="list-style-type: none"> <li>• Use of qualified procurement staff and technical experts with knowledge of Bank procedures in the implementing agencies. Currently, UE PIU have three procurement specialists, and ten technical staffs</li> <li>• Regular monitoring through procurement plan and quarterly updates and reports</li> <li>• Streamlined Tender Commissions with clear timelines specified in the Project Operational Manual for evaluation and approval process</li> </ul>  | PIU                | <ul style="list-style-type: none"> <li>• During project implementation</li> <li>• During project implementation</li> <li>• 1 month after project effectiveness</li> </ul> |
| Payment delays to suppliers  | <ul style="list-style-type: none"> <li>• Direct Payment to Suppliers by the Bank (WFA) and clear timelines for approvals defined in the PoM</li> </ul>   | PIU, WB            | During project implementation   |
| Increased risk of fraud and corruption   | <ul style="list-style-type: none"> <li>• Disclosure of Procurement Information including awards</li> <li>• Mandatory use of e-procurement system ProZorro</li> <li>• Strengthened complaint handling mechanism with disclosure of channels of reporting on ProZorro website and in bidding documents</li> <li>• Use of Beneficial Ownership Declaration Form for all cases</li> <li>• All evaluation committee members will sign and include in BER the Declaration of Impartiality</li> <li>• All subcontracting arrangement is to be defined in the bidder’s original offer</li> <li>• For all Direct Contracting cases, PIU will provide Benchmarking of Pricing analysis in the justification document</li> <li>• All securities will be verified from the issued Bank at the appropriate stage of the procurement process</li> <li>• All Direct Contracting (DC) above \$1 million will be prior reviewed by the Bank</li> <li>• Working with civil society organizations to monitor procurement and contract implementation</li> <li>• Regular training of PIU staff and sensitization of bidders on fraud and corruption</li> </ul> | PIU                | During project implementation   |



| Risk Factor   | Mitigation Measure   | Who is Responsible | Timeframe  |
|---|--|--------------------|--|
| Increased security risks;   | <ul style="list-style-type: none"> <li>Implementing Agency will assume all security risks including loss of goods in transit. The Agency may, if necessary, hire logistic firms that will support all transportation issues for imported goods from the border to Ukraine</li> </ul> | PIU                | During project implementation  |
| Disruption of supply chain leading to low bidder participation and delayed deliveries | <ul style="list-style-type: none"> <li>Market assessment to identify bidder interest in the availability of goods before the tender is launched</li> <li>Appropriate packaging of goods to ensure supply security and delivery on time</li> </ul>                                    | PIU                | <ul style="list-style-type: none"> <li>Dec.2, 2022</li> <li>During project implementation</li> </ul> |

79. The Project task team will continuously support the implementation agencies and will monitor the Project to flexibly adjust the mitigation actions to reduce additional or unforeseen risks. Despite the proposed mitigation measures, **the overall procurement risk is High**. The risk remains High despite mitigation measures because of heightened security which cannot be mitigated and impacts on other risks.

80. **Disclosure of procurement information.** The following information shall be disclosed on the project websites: (a) a Procurement Plan and updates; (b) an invitation for bids for Goods, NCS; (c) request for expression of interest for selection/hiring of consulting services; (d) contract awards of Goods, NCS procured following RFB international and national procedures; (e) a list of contracts/ purchase orders placed following RFQ procedures on a quarterly basis; (f) a list of contracts following direct contracting (DC) on a quarterly basis; (g) a quarterly financial and physical progress report of all contracts; and (h) an action taken report on the complaints received on a quarterly basis.

81. **Complaint handling mechanism.** To address procurement complaints received by the proposed Project, the Implementing Agency will implement a complaint handling mechanism. The Implementing Agency is required to ensure the recording of procurement-related complaints in the STEP system. Both the World Bank and Implementing Agency will use STEP to track complaints. The implementation agencies will be responsible for performing the following actions in STEP: (a) promptly record all complaints relating to the procurement process in IPF operations; (b) for procurement process complaints received on contracts subject to the World Bank’s prior review, submit the Implementing Agency’s proposed response to each complaint before issuing it to the complainant(s); (c) record the Implementing Agency’s response to the procurement process complaints upon issuance to the complainant(s); and (d) promptly register requests for debriefings and update STEP with the record of the debriefings to interested parties. The Implementing Agency will publish on their Prozorro website and in bidding documents emails and telephone hotlines for reporting fraud and corrupt practices.

82. **The World Bank’s oversight of procurement will be done through implementation support and increased, and more frequent procurement post review based on a 20 percent sample.** Due to suspended missions to Ukraine, the Bank team will rely on local consultants, third-party monitoring agents, and/or NGOs/CSOs to enhance risk mitigations while physical presence is not possible. The Bank will agree with the implementing agencies on a reliable tracking system of goods coming to Ukraine and/or produced in the country. The Bank’s supervision team will work closely with Integrity Vice Presidency Preventive Services for additional risk



mitigation measures during implementation as the Ukraine’s evolving situation may require. The World Bank will intensify third-party technology-based implementation support and post-reviews, including, whenever possible, intensified implementation support missions. The Bank’s prior review will not apply except for Direct contracting activities that exceed US\$ 1 million. Instead of prior review, the Bank will provide Hands on Expanded Implementation Support to implementing agencies during the procurement process for all open tender process. The details of the implementation support and post-review arrangements will be elaborated in the detailed PPSD when it is finalized.

**C. Legal Operational Policies**

|   | Triggered? |
|---|------------|
| Projects on International Waterways OP 7.50 | No         |
| Projects in Disputed Areas OP 7.60          | No         |

**D. Environmental and Social**

83. **Standards relevant to the project include ESS1,<sup>32</sup> ESS2, ESS3, ESS4, ESS5, ESS8, and ESS10.** Energy infrastructure (especially high voltage substations) were explicitly targeted by aerial bombardment and missile attacks to destroy the network and disrupt electricity and heat supply to communities and businesses. The threat of these attacks remains and may increase at any point, especially following repairs/rehabilitation attempts. The project finances procurement of equipment that will have to be transported, installed, and commissioned by the beneficiaries. The environmental risks associated with these activities include usual construction-related risks such as dust, noise, and disturbance; repairs-related pollution (including oil spills and leaks from the transformers and relevant facilities); waste (both construction and hazardous waste, including electrical equipment waste); operation-related pollution (fuel burning by mobile boilers); and occupational health and safety (OHS) risks (including electrical safety, working at height, fire safety, emergency evacuation, and exposure to Polychlorinated biphenyls [PCBs]). Social risks and impacts are mostly associated with project-related civil works (for reconstruction/rehabilitation/installation of infrastructure and equipment) and workers’ lack of awareness of OHS requirements, such as the use of personal protective equipment and safe workplace practices. Additionally, project-related risks may be exacerbated by the war-related enhanced OHS risks, such as potential for community and worker health and safety incidents, targeted aerial attacks on the equipment shipments and the rehabilitated facilities, explosive remnants of war (ERW), and decontamination and demining concerns.

84. **The Recipient will prepare, disclose, and consult upon an Environmental and Social Management Framework (ESMF) in 90 days after the effective date and before start of repair/rehabilitation works (including supply of materials and equipment necessary for such works).** The ESMF will include procedures, criteria, and responsibilities for subproject screening to identify those that might require an Environmental and Social Management Plan (ESMP) or ESMP checklist. The ESMF will describe potential environmental and social impacts and risks and mitigation measures for common groups of activities, including preparation of additional site-specific ESMPs (such as Traffic Management Plan, Waste Management Plan, and so on), as relevant. The ESMF will provide

<sup>32</sup> ESS = Environmental and Social Standards.



a monitoring plan format that includes monitoring indicators, timing, methods, and institutional responsibilities. The ESMF will include labor management procedures and a Code of Conduct addressing risk of sexual exploitation and abuse (SEA)/sexual harassment (SH) incidents and a grievance process for workers with contact details for service providers. The ESMF will also provide guidance on the preparation of site-specific Emergency Preparedness and Response Plans, which will cover measures to protect the safety and security of project personnel and nearby communities from war-related hazards and other relevant emergencies, including ERW management procedures.

85. **The Stakeholder Engagement Plan (SEP) for the project has been prepared and discussed only with relevant stakeholders responsible for operationalization of each component given the sensitivity of the investment.** It is not possible to hold public consultations with the broader groups of stakeholders and nongovernmental organizations due to the confidentiality of the project. Once the situation allows, public consultations will take place and the SEP will be revised to incorporate the feedback from various groups of stakeholders.

86. **The project is being prepared rapidly and involves an implementing agency (MoE) with no experience of engaging with or implementing the requirements of World Bank Environmental and Social Framework (ESF).** At the same time, UE has experience with World Bank-financed projects, both under safeguard policies and ESF. Furthermore, safety issues undermine the borrower's and World Bank's ability to supervise the project activities; thus, the project will have to strongly rely on a developed environmental and social instrumental base and environmental and social capacity of beneficiaries. It will be important that a trained environmental specialist is engaged for the PIU to screen, assess, and manage environmental impacts associated with the equipment purchase, transportation, installation, and other associated activities, as well as provide ESF-related guidance to beneficiaries.

87. **Grievance redress mechanism (GRM) for the project will be established based on the national complaint system established at the MoE and UE.** It will undergo review to ensure compliance with the World Bank procedures (including ability to receive grievances related to SEA/SH) and will be reflected in the Environmental and Social Commitment Plan (ESCP). The POM will outline the GRM procedures and management.

## V. GRIEVANCE REDRESS SERVICES

88. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how



to submit complaints to the Bank’s Accountability Mechanism, please visit <https://accountability.worldbank.org>.

**VI. KEY RISKS**

| <i>Risk</i>                               | <i>Rating</i> |
|---|---------------|
| Political and Governance                  | High          |
| Macroeconomic                             | High          |
| Sector strategies and policies            | Substantial   |
| Technical design of project               | Substantial   |
| Institutional capacity and sustainability | Substantial   |
| Fiduciary                                 | High          |
| Environmental and social                  | Substantial   |
| Stakeholders                              | Substantial   |
| Other (risk of war damage)                | High          |
| <b>Overall Risk</b>                       | <b>High</b>   |

89. **The overall risk to achieving the PDO is High and reflects the combined risks due to the ongoing war and the resulting widespread and unpredictable security.** The ratings for all risk categories are based on the assessments of residual risks after considering proposed mitigation measures. Ratings are presented in the following paragraphs, as well as risk mitigation strategies in a rapidly evolving context.

90. **Political and Governance risk is High.** The ongoing war and the declaration of state of emergency on February 24, 2022, poses a huge risk to the political and governance landscape, particularly given the recent attacks targeted on energy infrastructure. These targeted attacks were scattered all over the country. It is critical to ensure delivery and installation of the project equipment through secured physical and cyber protections. The World Bank team understands the Ukrainian Parliament is discussing potential special protection to energy facilities. The team will support this initiative through various channels.

91. **Macroeconomic risk is High.** The project outcomes will depend on sufficient allocation of Government budget to the activities financed by the project, but the war has put revenues under stress at the same time as the need for public expenditure (including military) is growing. Since the war started, tax revenues have declined due to lower economic activity, inability to collect taxes in some parts of the country, tax deferrals for key businesses, temporary suspension of land and municipal taxes, and a shift to a simplified tax regime for extended categories of taxpayers. While some room has been made through cutting of nonessential expenditure and a two-year debt deferral agreed with external creditors, fiscal financing needs will increase to US\$4.5 billion per month in the second half of 2022 (including US\$2 billion of nonmilitary needs).<sup>33</sup> In addition, the Government could also

<sup>33</sup> Unless otherwise noted, estimates are World Bank staff estimates using data of the Government of Ukraine.



face the costs of gas purchases by Naftogaz for the heating season (US\$2.2 billion) and funding of the most critical reconstruction needs (US\$3.4 billion). There are also immense needs for recovery and reconstruction, estimated to be at US\$349 billion already by June 1, 2022,<sup>34</sup> and there will be difficult tradeoffs in deciding which sectors to prioritize for recovery and reconstruction. The Government's proposed 2023 budget is austere, with substantial compression of social and other nonmilitary expenditures.

92. **Sector strategies and policies risks are Substantial.** The war and recent targeted attacks have posed unprecedented challenges for the future of Ukraine's energy system development. However even during the ongoing war, Ukraine has maintained stable energy services until recently and achieved critical milestones including the power system synchronization with ENTSO-E. The synchronization helps Ukraine's power system remain stable even with the recent extensive damages on substations. While the Government remains committed to the reform agenda and the mid- to long-term energy transition, risks remain due to the uncertain nature and unpredictability of the war.

93. **Risk associated with the technical design of the project is Substantial.** The technical design of the project is ambitious, but necessary due to the urgent needs in the energy sector as a result of the war. The risk of the equipment's delivery and further targeted attacks after the project's intervention will be mitigated through secured physical and data protection. The residual risks are related to the insecurity and unpredictability associated with the war, especially given the recent attacks in regions away from the frontline, which may make it unsafe for workers to deliver and install the equipment, and there is a possibility that facilities that are restored may be subsequently damaged or destroyed. The latter risk might be difficult to be mitigated.

94. **Institutional capacity for implementation and sustainability risks are Substantial.** The UE PIU has developed its implementation capacity through the Second Power Transmission Project staffed with all experts. The PIU has procurement, technical, financial management, environment and social experts under the head of the PIU. All PIU staff are experienced and familiar with World Bank procedures. While the MoE has the PIU for the ongoing PTP2, it is only responsible for the project's technical assistance component and hence it does not have environment and social experts. Technical assistance provided by this project and separately by donors/partners will continue to help mitigate institutional capacity risks. UE's PIU for PTP2 will help the MoE PIU on technical and environmental/social aspects. A fiduciary agency could be engaged for implementation of Component 2.

95. **Fiduciary risk is High.** There are inherent financial risks related to disrupted access to financial services due to the war preventing the implementing agencies from making payments to suppliers, corruption and misuse of funds, logistics challenges due to security for transporting goods within Ukraine, and theft of goods and materials during delivery. There is also high risk of delayed procurement procedures and prolonged contracts negotiations due to constrained capacity of MOE and UE PIUs. In addition, since some of suppliers of transformers are not prepared to arrange delivery of equipment up to final destinations in Ukraine, there might be delays and issues with UE arranging own transportation of the equipment from the Ukrainian border. A contributing factor to 'High' risk is also the inability of the World Bank team to carry out on-site supervision visits. While the design of the project's fiduciary structure has identified mitigations, a high level of residual risk remains because of the broader context. For these reasons, the project's fiduciary risks remain 'High'. As further mitigation measures, the World Bank team will conduct more frequent and larger scope virtual team missions and engage an independent third-party monitoring agency to supervise FM, procurement and disbursement functions. In addition, a

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<sup>34</sup> <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099445209072239810/p17884304837910630b9c6040ac12428d5c>.



monitoring and evaluation consultant hired under Component 3 will assist in providing regular progress reports and verification of goods delivery to the implementing agencies and the World Bank. MoE and UE would also take additional actions as risk mitigation mechanisms such as (a) providing the World Bank with regular monitoring reports on procurement progress and contracts monitoring; (b) reporting on fraud and corruption allegations and how they have been handled; (c) establishing monitoring for procurement tracking and the delivery of goods, which can be accessed by the World Bank; and (d) the Bank will hold regular Anti-Corruption Guidelines awareness raising workshops for all stakeholders. The project task team will continuously support the Recipient and will monitor the project to flexibly adjust the mitigation actions to reduce additional or unforeseen risks. The project will be subject to the World Bank's Anti-Corruption Guidelines, dated October 15, 2006, and revised in January 2011, and July 1, 2016.

96. **The environmental and social risks are Substantial.** The activities supported by the project will take place within a highly volatile context beyond the immediate control of the implementing agencies (MoE and UE) and beneficiaries (DHs). The risks associated with these activities include the usual construction-related risks such as dust, noise, and disturbance; repairs-related pollution (including oil spills and leaks from the transformers and relevant facilities); waste (both construction and hazardous waste, including electrical equipment waste); operation-related pollution (fuel burning by mobile boilers); and OHS risks (including electrical safety, working at heights, fire safety, emergency evacuation, and exposure to PCBs). These risks are site specific and temporary; however, these risks may be exacerbated by potential targeted or indiscriminate aerial bombardments and other military actions. This adds an element of extreme uncertainty and risk of fatality or serious injury to project workers and nearby communities that cannot be entirely mitigated by environmental and social management measures.

97. **Stakeholder risk is Substantial.** The current state of martial law and war contexts means there are limited engagement and consultation options. Data sharing among stakeholders shall be carefully conducted, particularly the data regarding locations. Major donors were requested to provide the urgently needed equipment through various channels. Hence, donor coordination is critical to avoid duplication of work and ensure proper prioritization of funding, supplier capacity, and logistics. The MoE is leading this effort by organizing coordination meetings. The MoE is also developing a centralized database to track needs, donations received, pledges, and equipment under procurement. The baseline data for the new tool will come from the database system currently used by MCTID. The proposed technical assistance under Component 3 will support donor coordination. While some mechanisms are in place, the stakeholder risk is rated Substantial.

98. **Other risks are rated High.** From the beginning of the war but more intensively since October 2022, the energy infrastructure, particularly the electricity transmission network, has been deliberately targeted by military strikes and severely damaged, leading to energy supply disruptions. There is a high risk that the repairs and equipment financed by the project could be further damaged or destroyed by the ongoing war. However, it should be noted that the longer timeline for the delivery of the permanent equipment, particularly for Component 1, could help avoid damages by the military attacks during the period of intensive attacks.



**VII. RESULTS FRAMEWORK AND MONITORING**

**Results Framework**

**COUNTRY: Ukraine**

**Restoration Project of Winterization and Energy Resources**

**Project Development Objectives(s)**

The project development objective (PDO) is to enable the restoration of essential energy services in Ukraine

**Project Development Objective Indicators**

| <b>Indicator Name</b>  | <b>PBC</b> | <b>Baseline</b> | <b>End Target</b> |
|--|------------|-----------------|-------------------|
| <b>Equipment for the transmission system operator is procured and delivered</b>                          |            |                 |                   |
| Number of equipment for the transmission system operator delivered and installed or operational (Number) |            | 0.00            | 22.00             |
| <b>Heating equipment is procured and delivered</b>   |            |                 |                   |
| Number of heating equipment delivered and installed or operational (Number)                              |            | 0.00            | 50.00             |

**Intermediate Results Indicators by Components**

| <b>Indicator Name</b>   | <b>PBC</b> | <b>Baseline</b> | <b>End Target</b> |
|---|------------|-----------------|-------------------|
| <b>Component 1: Emergency equipment for the electricity transmission infrastructure</b> |            |                 |                   |





| Indicator Name   | PBC | Baseline | End Target   |
|--|-----|----------|--------------|
| Operational transformation capacity provided under the project (Kilovolt-Amphere(KVA)) |     | 0.00     | 2,000,000.00 |
| <b>Component 2: Emergency equipment for the heating services</b>                       |     |          |              |
| Operational heat-only-boiler capacity installed under the project (Megawatt)           |     | 0.00     | 100.00       |
| <b>Component 3: Project Management and Monitoring</b>                                  |     |          |              |
| Technical consultant hired (Yes/No)  |     | No       | Yes          |

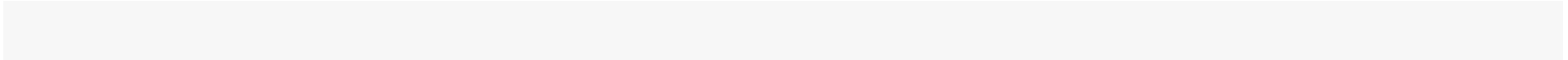
| Monitoring & Evaluation Plan: PDO Indicators  |  |           |   |   |                                    |
|---|--|-----------|---|---|------------------------------------|
| Indicator Name  | Definition/Description   | Frequency | Datasource                                | Methodology for Data Collection                                 | Responsibility for Data Collection |
| Number of equipment for the transmission system operator delivered and installed or operational | The indicator measures the number of equipment for Ukrenergo delivered and installed or operational. The equipment includes autotransformers, transformers, circuit breakers and disconnectors among others. | Annual    | Ministry of Energy and Ukrenergo          | Data to be provided by Ministry of Energy and Ukrenergo         | Ministry of Energy                 |
| Number of heating equipment delivered and installed or operational                              | The indicator measures the number of heating equipment delivered and installed or operational by   | Annual    | Ministry of Communities , Territories and | Data to be provided by Ministry of Communities, Territories and | Ministry of Energy                 |



|  |                             |  |                            |                            |  |
|--|-----------------------------|--|----------------------------|----------------------------|--|
|  | district heating companies. |  | Infrastructure Development | Infrastructure Development |  |
|--|-----------------------------|--|----------------------------|----------------------------|--|

**Monitoring & Evaluation Plan: Intermediate Results Indicators**

| Indicator Name  | Definition/Description   | Frequency | Datasource  | Methodology for Data Collection  | Responsibility for Data Collection |
|---|--|-----------|---|--|------------------------------------|
| Operational transformation capacity provided under the project    | The indicator measures the cumulative operational capacity of autotransformers and transformers delivered and operationalized under the Project. | Annual    | Ministry of Energy and Ukrenergo                                    | Data to be provided by Ministry of Energy and Ukrenergo                                    | Ministry of Energy                 |
| Operational heat-only-boiler capacity installed under the project | The indicator measures the cumulative capacity of operational heat-only-boilers installed under the project                                      | Annual    | Ministry of Communities, Territories and Infrastructure Development | Data to be provided by Ministry of Communities, Territories and Infrastructure Development | Ministry of Energy                 |
| Technical consultant hired  | The indicator measures the availability of technical consultant.   | Annual    | Ministry of Energy  | Data to be provided by Ministry of Energy  | Ministry of Energy                 |





## ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: Ukraine

Restoration Project of Winterization and Energy Resources Ukraine

- The World Bank's implementation support will focus on** (a) helping the MoE unblock potential operational bottlenecks and ensure timely implementation by providing advice and undertaking analytics to strengthen the technical quality of implementation and (b) ensuring compliance across fiduciary, social, and environmental domains.
- The project will be implemented by the MoE (Component 2) and Ukrenergo (Component 1 and 3).** The MoE has an existing PIU, which was created under the ongoing World Bank-financed project PTP2 (P146788). The PIU, which has implemented PTP2's Component 3, consists of the following full-time staff: head of the PIU, who is also a procurement specialist, an FM specialist, and an information support specialist supported by other administrative staff. The PIU will be responsible for the entire scope of the project. Given that Component 3 of PTP2 provides only technical assistance, the PIU will need to strengthen its capacity by hiring additional qualified experts to cope with the project scope, including environmental and social experts, who are not available in the current PIU structure, and coordination consultants to ensure that the project's procurement is coordinated with activities carried out by other donors. Ukrenergo has established the PIU under the first Power Transmission project and developed further under the Second Power Transmission Project. The UE PIU is well staffed with at least eight project managers, three FM specialists, three procurement specialists, two administrative staffs, at least ten technical experts and environment and social experts, and known as one of the best PIUs in Ukraine.
- For component 2 MoE will be supported by a fiduciary agency for carrying out procurement, contract management, and delivery of equipment. An appropriate agency such as a UN agency will be identified upon confirmation of funding for component 2 in consultation with the Government.** The Ministries in Ukraine have been overstretched due to the ongoing war soliciting funds and reaching various financiers and hence needs help in the implementation of this project. Furthermore, some foreign suppliers have expressed concerns about payments from Ukrainian authorities/companies due to the war related risks. Therefore, MoE would need to be supported by a fiduciary agency such as a UN agency, which can sign contracts with suppliers and make payments. The agency can also help transportation of goods as some suppliers are reluctant to arrange domestic transportation to sites. Under this arrangement, the MoE, through its existing PIU, will retain the entire implementation responsibility, including for the environmental and social safeguards functions. For that, the MoE will consolidate the capacities of its PIU by initially hiring an environmental specialist and a social specialist in the PIU, and subsequently, any other experts as required. The MoE PIU will also coordinate on procurement and transportation of goods with the donor community in close coordination with EnCS.
- Given the multiple parallel support initiatives, donor coordination is essential to avoid duplication of work and ensure proper prioritization of funding, supplier capacity, and logistics.** Immediately after the initial targeted attacks since September 2022, the MoE and UE compiled a list of urgent equipment and distributed it to foreign government agencies, utilities, and manufacturers. The MoE and UE have been receiving responses, which include information about when and what kind of equipment can be supplied and in what forms of support. The MoE and UE will prioritize support for quick delivery and grant funding. Given that the donor communities are



responding to the comprehensive list, it is critical to avoid duplications of supply and donations, particularly for larger, more costly, and custom-made equipment such as transformers. The MoE is developing a centralized database to track needs, donations received, pledges, and equipment under procurement. The baseline data for the new tool will come from the database system currently used by the Ministry for Communities, Territories, and Infrastructure Development. The MoE also organizes weekly coordination meetings, inviting all donors. Populating and maintaining this coordination tool and coordinating logistics and communications to donors and IFIs' systems will require dedicated resources. The proposed project will support coordination efforts.

5. **Given the limitations in carrying out supervision missions to Ukraine during war times, the World Bank will engage a third-party agency for in situ supervision and verification of the project activities.** The World Bank's Country Management Unit team evacuated and is now located remotely in Vienna. The energy team is also not allowed to carry out in-person missions. Given this situation, the World Bank team will hire a third party to help the team supervise and monitor the project activities to verify that the procured equipment and goods are delivered to the intended beneficiaries, installed, and commissioned duly and in compliance with the World Bank ESF. Qualified organizations and firms have been pre-identified during project preparation and the World Bank team will select and hire a local firm/organization to assist in supervision and verification of the project within 30 days from project effectiveness. In addition, the World Bank team will ensure that the project contracts require that suppliers and beneficiaries report on the delivery and installation of goods, including with photographic reports.

Table 1.1. Type of Implementation Support

| Timeline         | Focus   | Skills Needed  | Resource Estimate  |
|------------------|---|--|--|
| 0–12 months      | Creating project implementation momentum through institutional capacity strengthening; support for the preparation of the new/expanded service packages, reimbursement methods, and data management; and preparation of critical procurement packages | Project management, operational, technical (including M&E), fiduciary, environment, and social | At minimum, 3 formal implementation support missions and just-in-time technical assistance |
| Midterm review   | Midterm review and identification of mid-course adjustments   | Project management, operational, technical (including M&E), fiduciary, environment, social     | Midterm review mission   |
| 12–24 months     | Continued institutional capacity enhancement, implementation monitoring, and operational and technical assistance to support implementation.  | Project management, operational, technical (incl. M&E), fiduciary, environment, and social     | 2 formal implementation support missions and just in-time technical assistance             |
| Completion phase | Implementation Completion and Results Report (ICR) and final payments   | Project management and fiduciary   | ICR mission  |

Table 1.2. Team Skills and Time Allocation

| Skills Needed | Staff Weeks | International Trips | Comments |
|---------------|-------------|---------------------|----------|
|---------------|-------------|---------------------|----------|



|                          |    |   |        |
|--------------------------|----|---|--------|
| Project management       | 24 | 0 | Remote |
| Technical specialists    | 12 | 0 | Remote |
| FM specialist            | 4  | 0 | Remote |
| Procurement specialist   | 4  | 0 | Remote |
| Environmental specialist | 4  | 0 | Remote |
| Social specialist        | 2  | 0 | Remote |
| Administrative support   | 6  | 0 | Remote |
| Legal                    | 1  | 0 | Remote |
| Communication            | 1  | 0 | Remote |



**ANNEX 2: Indicative Procurement Plan**

**COUNTRY: Ukraine**

**Restoration Project of Winterization and Energy Resources Ukraine**

|   | Selection method                        | Estimated cost (US\$) | Estimated contract signing | Estimated end date | Minimum number of equipment |
|---|---|-----------------------|----------------------------|--------------------|-----------------------------|
| <b>Component 1</b>                                |   |                       |                            |                    |                             |
| High voltage autotransformers (Lot 1)             | Request for Bids/Direct Selection       | 40,000,000            | Apr-23                     | Apr-24             | 10                          |
| High voltage autotransformers (Lot 2)             | Request for Bids/Direct Selection       | 40,000,000            | May-23                     | May-24             | 10                          |
| High voltage autotransformers (Lot 3)             | Request for Bids/Direct Selection       | 40,000,000            | April-23                   | May-24             | 10                          |
| High voltage transformers (Lot 1)                 | Request for Bids/Direct Selection       | 20,000,000            | April-23                   | Aug-23             | 10                          |
| High voltage transformers (Lot 2)                 | Request for Bids/Direct Selection       | 20,000,000            | April-23                   | Oct-23             | 10                          |
| High voltage substation equipment (Lot 1)         | Request for Bids/Direct Selection       | 15,000,000            | April-23                   | Aug-23             | 20                          |
| High voltage substation equipment (Lot 2)         | Request for Bids/Direct Selection       | 15,000,000            | April-23                   | Nov-23             | 20                          |
| Specialized machinery                             | Request for Bids/Direct Selection       | 9,700,000             | April-23                   | Sep-23             | 20                          |
| <b>Component 3</b>                                |   |                       |                            |                    |                             |
| Monitoring and evaluation technical consultancy   | Quality Cost Based Selection            | 100,000               | April-23                   | Dec-24             | 1                           |
| Two individual consultants for donor coordination | Selection of Individual Consultant (IC) | 100,000               | Mar-23                     | Dec-24             | 2                           |
| Environmental consultant for PIU                  | Selection of Individual Consultant (IC) | 50,000                | Aug-23                     | Dec-24             | 1                           |
| Social consultant for PIU                         | Selection of Individual Consultant (IC) | 50,000                | Aug-23                     | Dec-24             | 1                           |