DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

United Nations Development Project

PROJECT DOCUMENT

[Ukraine]

Project Title: Green Energy Recovery Programme in Ukraine
Project Number: 134106
Implementing Partner: UNDP
Start Date1[1]: 18 April 2024 **End Date:** 30 April 2029 **PAC Meeting date:** 18 April 2024

I. Brief Description

The UNDP Green Energy Recovery Programme is an integrated approach to address Ukraine's needs to accelerate efforts towards a more diverse energy mix, following the impact of the war and outdated energy system. It has been designed based on extensive consultations with the Government of Ukraine, local and regional authorities, and thorough analysis of barriers and instruments for urgent response to ongoing targeted attacks on the energy sector and green energy sector recovery. The Programme supports achieving objectives and priorities indicated in the National Energy Strategy, contributing to energy security and independence, supporting a green recovery and transition of the energy sector, promoting decarbonisation and facilitating further synchronisation with the EU energy markets.

The Programme expands the scope of UNDP's engagement in supporting reconstruction and recovery of the energy system, building on the partnerships, results and lessons learned under the multi-donor funded project "Winterization support to Ukraine". In line with the priorities of UN Ukraine Transitional Framework 2023 and UN Winterization plans of 2022-2023 and 2023-2024, UNDP is herein providing immediate and emergency support to the national and local governments to repair energy infrastructure in order to provide critical basic services to the population in war-affected areas.

The Green Energy Recovery Programme will contribute to distributing generation sources throughout the country and decentralizing the power system while increasing the share of renewable energy sources in an effort to contribute to gradually reducing coal generation, in line with Ukraine's national commitments in reducing Co2 emissions. This will have significant positive impact on people's access to energy from decentralized renewable energy capacities, economic empowerment and improved public governance of the energy sector. Outputs under the key objectives will thereby contribute to implementation of Ukraine's nationally determined contributions (NDCs) towards the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), in the effort for global reduction of greenhouse gas emissions.

Sustainable energy solutions provided through the pilot projects aligns with the UNDP nexus approach, contributing to risk reduction and increasing resilience of sub-national energy systems in war-affected communities in Ukraine. By increasing energy supply in the medium term and contributing to decentralization of the energy system, the proposed Project will furthermore reduce pressure on humanitarian aid for heat, water, and sanitation services, all which depend on electricity supply, in the war affected areas and reduce the vulnerabilities of the energy systems.

UNDP Strategic Plan Signature solution 5: Energy with contributing outcome 1 5.1 Energy gap closed 5.2 Transition to renewable energy accelerated	**Total resources required 2023-2029 (including PIP phase):** USD 274,062,034.60 **Total resources** USD 108,522,951.47[3]

[1] UNDP launched Project Initiation Plan "Support for Winterization and Repairing of Energy Sector Infrastructure Facilities" on 01 January 2023 which was transferred to extended Green Energy Recovery Programme as per decision of Project Board/ LPAC meeting conducted on 18 April 2024. The overall project duration (including initiation plan phase) is 01 January 2023 - 30 April 2029.

[3] The allocated budget amount should be used for the Programme state registration in accordance with Resolution of the Cabinet of Ministers of Ukraine No.153 as of 15 February 2002

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

capitalizing on technological gains, clean energy innovations and new financing mechanisms to support green recovery The United Nations in Ukraine Transitional Framework SP1: Saving Lives; SP 2: Strengthening Systems; SP 3: Building Resilience CPD 2018-2024: Output 3.2. Local authorities and communities adopt gender-responsive and sustainable solutions for increased energy efficiency and modern energy access, especially of renewable energy Indicative Output(s) with gender marker: **GEN 2**[2]	**allocated (including PIP phase):**	**UNDP:**	USD 27,624,956.70
		Donor:	Government of Japan: USD 70,000,000 Government of Denmark: USD 10,897,994.77 (final amount in USD may vary based on the actual date of installment transfer; financial agreement amount in DKK is 75,000,000)
		Government:	
		In-Kind:	
	Unfunded:	USD 165,539,083.13	

Agreed by (signatures):

Government	UNDP
Print Name:	Print Name: Mr. Jaco Cilliers, Resident Representative, UNDP Ukraine
Date:	Date: 20-May-2024

DocuSigned by: E882E40AA1B54B4...

DS IS DS MJ DS RS DS W DS LS DS

[2] The Gender Marker measures how much a project invests in gender equality and women's empowerment. Select one for each output: GEN3 (Gender equality as a principle objective); GEN2 (Gender equality as a significant objective); GEN1 (Limited contribution to gender equality); GEN0 (No contribution to gender quality)

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

II. DEVELOPMENT CHALLENGE (1/4 PAGE – 2 PAGES RECOMMENDED)

Russia's invasion of Ukraine has resulted in civilian casualties, displacement of millions of people, and widespread and significant destruction to homes, businesses, social institutions, and infrastructure. As shown in Ukrainian Energy Damage Assessment Report 2022 prepared jointly by UNDP and the World Bank with input from the Government of Ukraine and Towards a Green Transition of the Energy Sector in Ukraine Report published by the UNDP in June 2023, Ukraine's energy sector was the target of continuous attacks aimed at disrupting access to electricity supply for millions of Ukrainians as well as to critical social infrastructure, including heating, potable water, wastewater treatment and communication. The attacks resulted in power generation capacity halved to 51% and transmission capacity slashed by 45%, with 42 out of 94 high-voltage transformers damaged or destroyed.[4] From the third Rapid Damage and Needs Assessment (RDNA) published in February 2024, recovery and reconstruction costs for the energy and extractive industries totalled USD 47 billion, while water supply and sanitation needs totalled USD 11 billion. Resumed attacks in March and April of 2024 have targeted transmission capacities, e.g. substations and autotransformers, and energy generation facilities, both state/municipally owned and private, in all major cities. The attack on March 22 was the most devastating since the beginning of full-scale invasion. 7 major Thermal Power Plants (TPPs) and 3 Combined Heat and Power plants (CHPs) were damaged or destroyed in Kyiv, Kharkiv, Vynnitsya, Lviv, Ivano-Frankivks, Dnipropetrovks, Zaporizhya, Cherkassy and Poltava oblasts. Preliminary estimates as of mid-April 2024 indicate a further loss of 20-25% of generation capacity, along with the damage to 21 substations.

The impact of these attacks is significant, with ongoing disruptions causing power outages across the country. In Kharkiv 40% of residents, totaling 400,000 people, were left without heat, while facing ongoing attacks and full or partial blackouts, forced to operate on an 18/6 electricity schedule. The Kharkiv region is currently grappling with severe disruptions to essential services, particularly in the energy sector. As outlined in Annex 1 on the situation and needs for Kharkiv, the situation remains critical, with operational updates indicating a staggering number of consumers facing intermittent power outages, with no outlook of improvements without international support. The power disruptions has critical impact on basic services for the citizens of Kharkiv, which includes over 350 000 IDPs, of which 60% are women. Failure to rapidly restore power infrastructure can severely exacerbate health risks, compromising living conditions and cause displacement or secondary displacement among affected populations. The repercussions extend beyond the energy sector, impacting transportation and water supply services. Electric ground transport is operating at a mere 30% of its required capacity, while water supply disruptions persist for 6-10 hours following emergency power outages. Efforts to restore energy infrastructure are underway, albeit hindered by the extensive damage sustained by key facilities. The city's energy supply currently hovers at a fraction of its baseline consumption, with critical components such as cable lines, substations, and distribution points significantly affected. Immediate interventions are imperative to alleviate the plight of Kharkiv's residents and expedite the restoration of vital services essential for their well-being and livelihoods. While extensive analysis from UN agencies and partners show that Kharkiv remains the target area most in need as of April 2024, the cities of Kryvyi Rih and Kamianske of Dnipropetrovsk region, energy shortages is also causing disruptions for major industry production critical to the country's economy and war resilience. Recent attacks on the Trypilska Thermal Power Plant, the largest power generating facility in Kyiv region with an installed capacity of 1800 MW, pose a substantial risk to power supply in Kyiv and the surrounding region. Thermal power generation is critically needed for balancing the energy system operation of nuclear power plants and renewables.

Before the full-scale war, the energy sector was a crucial part of the Ukrainian economy, representing 7-8% of GDP and providing the electricity access to critical infrastructure, industries and the population.[5] In the beginning of the full-scale invasion, Ukraine even exported electricity to the EU in July-October 2022 due to lower consumption levels. The situation changed dramatically in October 2022, with targeted missile and drone attacks on the energy infrastructure. According to the National Security and Defence Council the Russian military fired more than 1,500 missiles, drones and shells at the energy infrastructure of Ukraine during October-December 2022, causing destruction

[4] UNDP and World Bank, March 2023. *Ukraine Energy Damage Assessment* https://www.undp.org/ukraine/publications/ukraine-energy-damage-assessment

UNDP, June 2023. *Towards a Green Transition of the Energy Sector in Ukraine* https://www.undp.org/ukraine/press-releases/undp-energy-damage-assessment-ukraine-reveals-continued-vulnerabilities

[5] National Institute for Strategic Studies under the Office for the President of Ukraine, 2023. "Determination of the Level of Energy Security of Ukraine."

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

and loss of access to the assets located on the temporarily occupied territories. This left 12 million households, more than 90% of the population, suffering across Ukraine with no or limited electricity, disrupted water supplies and heating systems at a time when temperatures have fallen below zero in most parts of the country. By the end of December 2022 the average Ukrainian household had to endure five cumulative weeks without electricity from 10 October to the end of December 2022 alone, according to estimates by the national Transmission System Operator (TSO), Ukrenergo..

The Government of Ukraine approved the revised National Energy Strategy of Ukraine in April 2023, based on damage assessments and reports on adequacy of power generation capacities. In response to the severe damage and loss in electricity generation capacity, Ukraine has identified a critical need for an ambitious rebuild and expansion of its energy sector. According to Ukrenergo an additional 15 gigawatts (GW) of new generation capacity is essential to not only fuel the country's economy and ensure its growth but also to potentially support Eastern Europe with export capacity. This substantial increase in generation capacity is seen as pivotal for Ukraine's economic recovery and long-term energy security. The second objective is green transition and decentralisation by means of further harmonisation with the EU markets to provide affordable, reliable, and modern energy, through building and installing new highly maneuvering generating capacities. This objective is further elaborated on in the National Energy and Climate Plan (NECP) of the Ministry of Finance defining Decarbonisation, as the development of renewable energy sources, and energy efficiency as national priorities.[6] To achieve these goals, the following tasks have been prioritised by the Government of Ukraine:

- Distributed generation capacity to augment decentralization of power system;
- Building up maneuvering capacities in the power system;
- Increasing the share of renewable energy sources in the power system;
- Gradual reducing and ultimately completely phasing out coal generation in line with Ukraine's commitments to reduce CO2 emissions; and
- Preserving and further developing nuclear power and increasing the efficiency of the use of installed capacities
- Strengthening public sector capacity to plan, prepare, and deliver reconstruction and recovery, including systems for public finance management, procurement and strategic and medium-term budget planning, institutional and technical capacity, and coordination

In UNDP and Kyiv School of Economics (KSE)'s recent paper for guidance and instruments for decision makers in the green recovery of Ukraine, green recovery is defined as the process of overcoming war by improving living conditions of both current and future generations in Ukraine. Here energy is highlighted as the key sector of which Ukraine can ensure a green recovery from the war, by building back greener[7]. While vast investments have already been made to rebuild and modernize the energy system since 2022, critical barriers remain for Ukraine's energy sector recovery and green transition in line with the National Energy Strategy. Firstly, the centralized energy system is outdated and in need of significant investments for recovery while ongoing attacks on energy infrastructure cause recurrent reconstruction needs. The immediate recovery and reconstruction needs for 2024 alone amounts to USD 2,7 billion[8]. Overall Ukraine needs about USD 40 billion in external financing to cover the state budget deficit in 2024, and the National Bank of Ukraine estimated that about 90% of energy companies won't be able to service their debts in a timely manner.[9] Based on analysis of Ukrenergo data and UNDP's reports the country's power system remains extremely vulnerable and continues to operate with hardly any safety margin for both power grids and generation. The generation capacity has drastically decreased, from 37.6 GW to 18.3 GW, and maneuvering generation capacities required to balance demand and supply in the power system, represented primarily by thermal power plants, have suffered most and decreased by 68 percent. As evidenced by the additional damages in Kharkiv in March/April 2024, as stipulated in Annex 7, the high reliance on centralised heat production for large and medium-sized cities creates additional risks for heat supply infrastructure in case of damage of co-generation heating powerplants (CHPs). There is an urgent need to prepare for winter seasons in Kharkiv and other vulnerable areas (see annex 2 and 7), decentralizing

[6] Ministry of Finance of Ukraine, 2024. National Energy and Climate Plan. https://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=f7088035-142e-4912-9aa0-6fe2def80c1b&title=ProektNatsionalnogoPlanuZEnergetikiTaKlimatuUkraini2025-2030

[7] UNDP and Kyiv School of Economics, 2023. *Green Recovery of Ukraine: Guidances and Instruments for Decision Makers*.

[8] UN, World Bank, Government of Ukraine, 2024. *Third Rapid Damage and Needs Assessment (RDNA 3)* https://ukraine.un.org/en/260758-updated-ukraine-recovery-and-reconstruction-needs-assessment-released

[9] International Energy Charter, 2023. Ukrainian energy sector evaluation and damage assessment VI.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

capacities and satisfying growing demand during the winter seasons with additional co-generation capacities. Reduction of temperature by 1 degree celsius require app. 200 MW of additional generation capacity. At -10 degrees Celsius, which is a common temperature during winter in Ukraine, the deficit of generation capacities is 10%, causing significant risks of power cuts and need for unsustainable and expensive import. Electricity import by private actors has been enabled by regulatory changes, however price caps and contract modalities did not permit the market participants to make use of this opportunity[10].

Secondly, Ukrainian energy sector actors both on national and municipal/ local level have limited experience with transformation projects of the scale required for the green transition. Local authorities and management of enterprises often lack experience and skills related to engage with investors and attract financing, while improving corporate governance of SOEs is one of the IMF benchmarks for Ukraine. Technical capacities on a local and municipal level are often limited, particularly, commercial competence and trading skills, investors relation and investments attraction, experience with working in the market conditions and with complex projects design, business planning and implementation. There's also limited knowledge of modern technologies particularly on renewable energy.[11] Furthermore, there is limited analysis and strategies to address gender impact in the energy sector since 2022. Research on conditions prior to the war highlighted restrictions of women's employment in certain professions with difficult or dangerous work conditions, lack of women in STEM-oriented fields, influence of traditional ideas on the distribution of gender roles in Ukrainian society, insufficient implementation of gender-sensitive recruitment strategies and absence of gender-based development goals in energy companies as main barriers to women's employment and empowerment in the energy sector.[12]

Ukraine needs to accelerate its trajectory towards the green energy transition while ensuring security of energy supply during and after the war. Prior to the war, most of Ukraine's wind and solar capacities were located in the east and south of the country, in territories which are now occupied by Russia or near the frontline and therefore severely exposed to security risks from active warfare. While the potential for wind and solar power are the greatest in these areas, the impact of the war requires development of renewable energy capacities in other regions also, which could greatly alleviate pressure on the national energy supply. Ukraine is considered to have the highest technical renewable energy sources potential among countries in Southeast Europe, totalling 874 GW, and sustainable development of energy supply necessitates further exploration of viability of the renewable technologies across all oblasts.[13] The European Union has established a rigorous goal of achieving a 32% share of renewable energy sources in its energy mix by 2030. For the EU acquis, Ukraine needs to accelerate efforts to adhere to those targets with current share of renewables according to the Ministry of Energy is 10,2% excluding large hydropower facilities (as of February 2024).

Thirdly, poor corporate governance in the energy sector erodes trust of financing partners and potential investors, resulting in limited access to funding, particularly on municipal level. Deficiencies in capacities necessary for effective participation in the energy market, from inadequate market-based business planning to the execution of a broader array of commercial operations, further compound the complexity of the situation. According to the Organisation for Economic Co-operation and Development (OECD), corporate governance reforms in the country are described as nascent and fragile.[14] Past reform efforts by previous governments have been inconsistent, often left incomplete, and sometimes reversed. Many legal requirements and established policy frameworks are not effectively implemented or are bypassed. These concerns are exacerbated by a lack of transparency and stakeholder consultation surrounding key government decisions and policies since 2022[15]. Furthermore, the absence of strong leadership and a stable long-term

[10] Consultations with Ukrenergo, July 2023 – February 2024

[11] UNDP, June 2023. *Towards a Green Transition of the Energy Sector in Ukraine* https://www.undp.org/ukraine/press-releases/undp-energy-damage-assessment-ukraine-reveals-continued-vulnerabilities
International Energy Agency, Ukraine energy profile. https://www.iea.org/reports/ukraine-energy-profile

[12] Heinrich Boll Stiftung, 2019. *Women and Men in the Ukranian Energy Sector: Equal Rights and Opportunities or a Sector of Discrimination* https://ua.boell.org/en/2019/07/22/women-and-men-ukrainian-energy-sector-equal-rights-and-opportunities-or-sector#:~:text=The%20research%20shows%20that%20even,oil%20and%20gas%20industry%20workforce.

[13] Renewable energy generation potential per KwH and region in Ukraine is available in Annex 1

[14] OECD Review of the Corporate Governance of State-Owned Enterprises (SOEs) https://www.oecd.org/corporate/soe-review-ukraine.htm

[15] Transparency International Ukraine, 2022. https://ti-ukraine.org/en/news/european-commission-recommendations-on-state-owned-enterprises-management/#:~:text=According%20to%20the%20Ministry%20of,losses%20of%20UAH%2091%20bln.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

policy framework, coupled with the weak enforcement powers of regulatory authorities and law enforcement bodies, increases the risk of politically-motivated decisions being made at the expense of SOEs' performance.

III. STRATEGY (1/2 PAGE - 3 PAGES RECOMMENDED)

The development challenges call for integrated approaches to urgent response and green recovery of the energy sector. Transformative change should be supported through strategic prioritisation of programming considering the need for decentralization for energy security and development of clean energy for acceleration of the green energy transition. While state capacities and capabilities (institutional, political, technical, organizational) have proven resilient in all dimensions throughout the conflict, there is lack of institutional and human capacity to identify, prioritize, structure and implement complex recovery projects, particularly on local level, which leads to bottlenecks for green locally led recovery and transformation. And while Ukraine has high levels of human capital with technological expertise, and there's great potential to increase its renewable energy capacity, the impact of the full-scale invasion significantly affected the reliability of access to energy for the population and capacities for progress towards the green energy transition.

In cities with a population of more than 200,000 people, most people live in apartment buildings and have no alternative to the centralised water supply and heating services available to residents of private houses. New geographical distribution of highly maneuvrable and transmission capacities should be concentrated in cities and agglomerations with the highest consumption. This will support uninterrupted and reliable power supply to the critical infrastructure of large cities, where most of the population are dependent upon district heating, water supply and sewerage service. Meanwhile there is a need to work on community-level to increase capacities and readiness for investment and governance of renewable energy, which can also provide more sustainable back-up generation energy sources for households and critical social infrastructure, including public buildings, schools and hospitals. To enable technological transformation, transition to renewable energy and a gradual shift to market financing, it is critical to support the development of institutional capacities on national and sub-national levels.

Since the beginning of the full-scale invasion, UNDP has been leading data consolidation efforts jointly with the Government of Ukraine partners within a broader recovery context to assure evidence-based decision-making on national level with the Energy Damage Assessments for 2022 and 2023 and the latest Rapid Needs and Damage Assessments published in 2024. Currently UNDP is also working on a draft Energy Decentralisation paper upon the request of the Ministry of Energy. UNDP has established a unique positioning in Ukraine's energy sector, because of proactive multidimensional engagement so far, with a team capable to design and deliver turn-key solutions supported by a robust and very transparent procurement process tailored to prioritize Ukraine's wartime energy needs while ensuring complete alignment with the Government of Ukraine long term goals and policies. UNDP is using its strong local network to engage with municipal and regional governments to customize its energy solutions to the needs of the local population in a collaborative manner. This has been established through design and implementation of winter resilience solutions for Kyiv and Odesa through procurement and delivery of equipment, including procurement and delivery of emergency back-up generators, high-voltage autotransformers for Ukrenergo and additional equipment to support immediate recovery of damaged substations. UNDP has also benefitted from its long-term engagement with energy focal points in municipalities throughout Ukraine from projects implementing energy efficiency solutions.

Ongoing attacks on the energy infrastructure makes it crucial to continue to provide immediate restoration of basic energy and utility services, while efforts must be accelerated towards a greener recovery of the energy sector. Energy policy decisions made during recovery will impact economic, energy security, and climate objectives and thereby socio-economic and environmental conditions for the people of Ukraine. Technological transformation and geographical dispersion of generation capacities can be achieved by enabling the development of clean energy at sub-national levels. With the five – year Energy Programme UNDP will accelerate access to energy and advance sustainable development together with national and international partners. Interventions for emergency support should be prioritised in line with Annex 2 and 7 where Kharkiv is among the most vulnerable and strategically important geographical target areas. Only by ensuring strategic interventions in these target areas, can UNDP and international partners contribute to ensure living conditions, particularly for the vulnerable communities of Kharkiv which are currently completely dependent upon allocation of additional support.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

In the initiation phase of the Energy Project the UNDP Energy team has conducted 22 missions across Ukraine, including Kyiv, Odesa, Mykolaiv, Kherson, Zaporizhzhia, Dnipro, Kharkiv, Lviv and Rivne to consult with local authorities and evaluate the status of critical municipal infrastructure to facilitate the resilience and decentralisation of energy supply. Winter resilience plans have been designed for Kyiv, Odesa, Mykolaiv and Zaporizhzhia. Jointly with the Kherson Military-Civilian Administration, the UNDP Energy team is also providing ongoing rapid response and emergency needs to restore provision of key utilities in the badly affected towns. UNDP has further engaged closely with project beneficiaries, including the Ministry of Energy, Ministry of Infrastructure, Ministry of Environmental Protection and non-governmental stakeholders at the national and sub-national levels, in the design of the project strategy. This allows the programmatic offer a spectrum of multifaceted and interdependent interventions both in the immediate and short term, while creating the enabling environment for agility and long term support needs. As such, the UNDP Energy Programme is complementary to UNDPs broader efforts in support to crisis response and recovery in war-affected areas in Ukraine. Consultations and analysis conducted in the initiation phase established initial criteria for selection of technologies and prioritization of target areas for interventions, including affordability of fuel, rapid start-up, sustained long-term operation at maximum capacity, deep power maneuverability, energy efficiency, safety, adequate centralization, environmental considerations, suitability for everyday use, and capability to operate in a "peak" mode. Area-based interventions will be established throughout project implementation by conducting feasibility studies in local communities. Criteria for selection of geographical areas with the highest needs and the most optimal technologies have been chosen and are further detailed in Annex 1 and 2. These criteria align with the Urgent Technology Catalogue developed by Danish Energy Agency and the Ministry of Energy of Ukraine, and include availability of equipment in the market for effective procurement, installation and commissioning, in how far the equipment can operate independently of weather conditions, maneuverability and readiness of the energy system, along with considerations of sustainable fuel sources, market compatibility, survivability through concealment and dispersion and speed of deployment.[16]

From decarbonisation and green recovery perspective, the increased use of renewables including wind, solar, geothermal energy, hydro power and bioenergy, is a clear priority for UNDP in Ukraine. A tailor-made approach on a local level is needed to address each city's and hromada's needs based on a unique combination of demand and power generation supply opportunities. The first step for creation of a portfolio of bankable projects is production of feasibility studies to identify the most appropriate solutions on local level. One promising area to explore is increased energy prosumption, where individuals and communities generate renewable energy for their own use. This could involve installing solar panels on homes and public buildings to provide electricity, including Building Integrated Photovolatics (BIPV). Wind turbines could also be erected in some areas to harness wind power. Waste heat recovery systems in industries and data centers should also be evaluated. The potential prosperity benefits are immense if hromadas can meet a significant portion of their energy needs through local renewable generation. This will require assessing the renewable resources available, infrastructure needs, financing options, and regulatory requirements, while initiating consultations and campaigns for promoting public acceptance and participation. Overall energy prosumption can play a key role in the green recovery if implemented in a feasible, cost-effective manner at the community level.

The use of renewable sources is one of the ways to significantly reduce fossil fuel consumption in thermal generation and cogeneration as well as significantly reduce CO2 emissions on industrial scale. The use of agricultural waste, primarily wheat and rye straw (biomass), should be considered to replace fossil fuels in thermal power generation and cogeneration. Ukraine has significant volumes of these wastes, most of which are currently not being used. Straw has a higher energy content than wood waste and is a much cheaper option than pellets, which have a similar energy content. Additional maneuvering capacities can also be obtained through the implementation of projects for the construction or reconstruction of thermal generation using biogas instead of fossil fuels. To do this, it is necessary to consider the possibility of reconstructing municipal sewage facilities in large cities with the introduction of a biogas capture mechanism (mainly pure methane) and the construction of power generation or cogeneration facilities. This will not only reduce the use of fossil fuels, but also reduce harmful emissions and overall environmental pollution from the municipal sewage system.

[16] Danish Energy Agency and the Ministry of Energy in Ukraine. Urgent Technology Catalogue, 2024. https://ens.dk/sites/ens.dk/files/urgent_technology_catalogue.pdf

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Further advancement of wind and solar power generation is an important component of green recovery in the mid-term perspective. A pre-requisite for the segment's further development is an increased maneuvering capacity in the system. Without sufficient maneuverability, the system will not be able to accommodate power generated e.g. by wind- and solar-powered generation facilities. Steps must be taken to modernise the grid and add storage capacity, such as pumped hydro and batteries, to balance supply and demand. The permitting process for new renewable projects should also be streamlined. Workforce training is needed to build technical expertise in green energy technologies, and emphasis should be made on attracting more women to the energy sector. Preparation of prefeasibility studies addressing the techno-commercial models followed by detailed feasibility including potential environmental and social impact studies for various bilateral, multilateral and financial institutions (international and domestic) to attract investments to spur innovation and financing for the energy transition. Realising the potential of wind and solar requires a systematic approach to advancing infrastructure, regulations, and human capital.

The development challenges in Ukraine has also demonstrated the need for sustainable financing solutions for green recovery of the energy sector. Because while significant grant financing is currently available for support to the Ukrainian energy sector, it is expected that this amount will gradually decrease. Sustainable financing, especially for greening the infrastructure, will be critical to accelerate in Ukraine. As well, there is a need to allocate sufficient resources for financing programs and actions related to the empowerment of women in a systemic manner. This includes supporting gender-based budgeting initiatives and ensuring that at least 15% of resources are allocated to initiatives that have gender-specific gender equality and the empowerment of women as primary objectives. Most of the committed funding is channelled through international financial institutions (European Bank for Reconstruction and Development (EBRD), World Bank (WB), and European Investment Bank (EIB)) who are generally risk averse and operate a broad portfolio beyond energy. Furthermore, there is an anticipation that a significant portion of the procurement process for complex power generation and transmission equipment will occur through international channels rather than relying solely on national systems, such as the Ukrainian public procurement platform ProZorro. On sub-national level, another barrier for attracting financing is that regional authorities are limited by law which financial instruments they can use as this is highly centralized. A sustainable financing strategy for energy transformation necessitates enhancements across various critical areas, including oversight, accountability, procurement, particularly from the international market, enforcement of regulatory frameworks and anti-corruption measures, corporate social responsibility, inclusiveness, civic engagement, transparency, and fact-based decision-making.

The UNDP Winterization project (considered initiation phase of the full-scale UNDP Energy Programme) provided analysis and procurement of back-up power generation sources for critical municipal infrastructure in Kyiv and Odesa. This model is ready for roll-out to the other vulnerable cities identified based on the selection criteria. Development of renewable energy generation facilities and energy storage systems is envisaged to start with a set of pilot projects financed with grants. While feed in tariffs for green energy used to be one of the highest globally in Ukraine and ensured high investments in the past, overregulation of the market and inefficient market mechanisms has caused debt and unsustainable financing schemes, exacerbated by the full-scale invasion. Future projects will introduce more sustainable financing instruments, Public Private Partnerships, and engagement with the Ukrainian and international private sector partners to encourage implementation of energy sector reform.

Support with implementation of good corporate governance is at a critical juncture with ongoing efforts from national and international partners to implement energy sector reforms. There are two target groups of companies where UNDP will offer support with advancement of corporate governance mechanisms. The first target group includes municipal enterprises owned by municipalities, those who receive equipment with the help of UNDP engagement. Those entities can be existing owners of CHPs or other entities with technical and managerial capacity to operate the equipment and a connection to the grid. The second target group are the national level companies who receive equipment with the help of UNDP engagement. Partners for project implementation will be selected jointly with municipal authorities of the priority agglomerations based on the set of pre-defined criteria, including location in the target agglomeration of communities; public sector entity; legal and technical capacity to operate power generation equipment to provide back up generation for critical infrastructure; availability of longer-term vision and development plans- proven willingness to transform and develop, including introduction of good government practice.

To enable technological transformation and a gradual shift to market financing, it is critical that institutional capacities, particularly on trading and commercial function, are strengthened. It is recommended to ensure that provision of equipment and grant financing are accompanied by capacity development, that enough resources are

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

allocated not only for projects' identification and scoping, but also for business-planning, design supervision and procurement support. Such an approach serves multiple purposes, from quality assurance and risk management to stakeholder engagement support and capacity development. Due to impact of the war on the demography of Ukraine, there is a need to conduct additional analysis of human capacities available in war-affected areas at national and sub-national level also considering necessary skills for accelerating green energy recovery at institutional level and among service providers along with gender impact in the energy sector.

Finally, UNDP Energy Programme is aligned with the UNDP Strategic Plan 2022-2025 as well as key priorities enshrined in the UNDP Ukraine Country Programme Document, alongside other relevant strategic documents of the UN in Ukraine in support of the Government response to the economic and social impact of the war. The Programme has been designed in accordance with UNDP's needs-driven, people-centred approach of reliable and affordable access to clean energy. As such, the Programme aligns with national commitments for climate action (NDCs) through the Paris Agreement, including the National Energy and Climate Plan (NECP), and achievement of SDG 7 through a shift towards sustainable energy solutions, access to electricity with increase in modern renewables capacity, and job creation in renewable energy sector. The Programme aims to facilitate investments in the energy system in Ukraine that are the least fossil fuel-intensive as possible, aligning with UN standards and best practice for long-term climate strategies. By building capacities and providing evidence of local municipalities' readiness for renewable energy technologies, the Programme will also accelerate the mobilization of private investments in the clean energy sector in the targeted areas, aligning with the Addis Ababa Action Agenda. Also, in line with UNDP Gender Equality Strategy 2022 – 2025, UNDP will address the specific needs of women, girls, men and boys from diverse groups in Ukraine. Additionally, UNDPwill facilitate girls and women empowerment and inclusion in the energy sector, in line with point 4 (Promote the participation and leadership of women and women's organizations in crisis and recovery) and 6 (Promote transformative and gender-responsive livelihoods and economic recovery) of the UNDP 10 Point Action Agenda for Advancing Gender Equality in Crisis Settings . Lessons learned will be captured and shared to improve practices on energy sector recovery, both on the ground in Ukraine and globally.

Theory of Change

The key objective of the UNDP Ukraine Green Energy Recovery Programme is to promote self-sufficiency and sustainability in energy provision, aiming for universal access for the people of Ukraine, emphasizing locally-led recovery efforts with optimal adaptation of green energy sources and technologies. Ensuring access to energy is critical to strengthen the resilience of the people and critical infrastructure of Ukraine during the war.

If the energy system is decentralized, enhancing generation and transmission and ensuring necessary human, institutional and financial capacities at sub-national level for development of RES, ***the green transition can be accelerated*** *with people and authorities benefiting from* ***reliable, clean energy.***

The ToC establishes the rationale for intervention and justification for funding. With the UNDP Energy Programme Ukraine's strategic objectives for the energy sector are supported, and relevant treaty obligations are met, in particular for the Paris Agreement and the EU Acquis. Progress towards these objectives is however also influenced by factors beyond the Programme and the sector's control, such as significant further escalation of security threats, which may provide additional barriers making some outputs unlikely to be achieved within the five-year duration of the outlined interventions. Still, strengthening of the energy system and capacities in the energy sector as outlined in the UNDP Programme will contribute to increased energy resilience in a critical time for Ukraine, based on the current situation analysis and considering UNDP's risk management procedures and additional measures for protecting assets and personnel in high-risk environments as detailed in the Risk Log (annex 5). Finally, interventions for green energy recovery at national and sub-national level will advance progress on SDG 7 Affordable and Clean Energy, while contributing to economic development and more resilient communities. Implementation will also align with recommendations of UNDP's Gender Analysis of the Energy sector (2024), ensuring gender-responsive capacity-building, communication, data collection and budgeting.

The Programme is targeting critical interventions under Outcome 1, assuring scalability and sustainability by identification of the intervention areas with the highest impact while establishing *prerequisites* (by strengthening the energy system manuevering and transmission capacities) for accelerating investment of green technologies through implementation of the pilot projects in the regions and municipalities of Ukraine. Meanwhile, under outcome 2 UNDP will accelerate development of clean energy, by means of providing renewable energy, energy efficiency, and carbon-neutral generation capacities, and promote investment in energy infrastructure and clean energy technology in

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Ukraine. The UN defines clean or renewable energy as energy derived from natural sources that are replenished at a higher rate than they are consumed.

Outcome 1: *People benefit from reliable access to energy*

Output 1.1. Energy infrastructure equipment provided to local authorities to cover urgent power generation and transmission needs (winterization)
Output 1.2. Power generation equipment and capacity development provided to targeted local authorities
Output 1.3. Substations rehabilitated, logistics and data management systems enhanced to increase resilience of transmission capacities in targeted areas

Outcome 2: *People and authorities have capacity to accelerate the green transition*

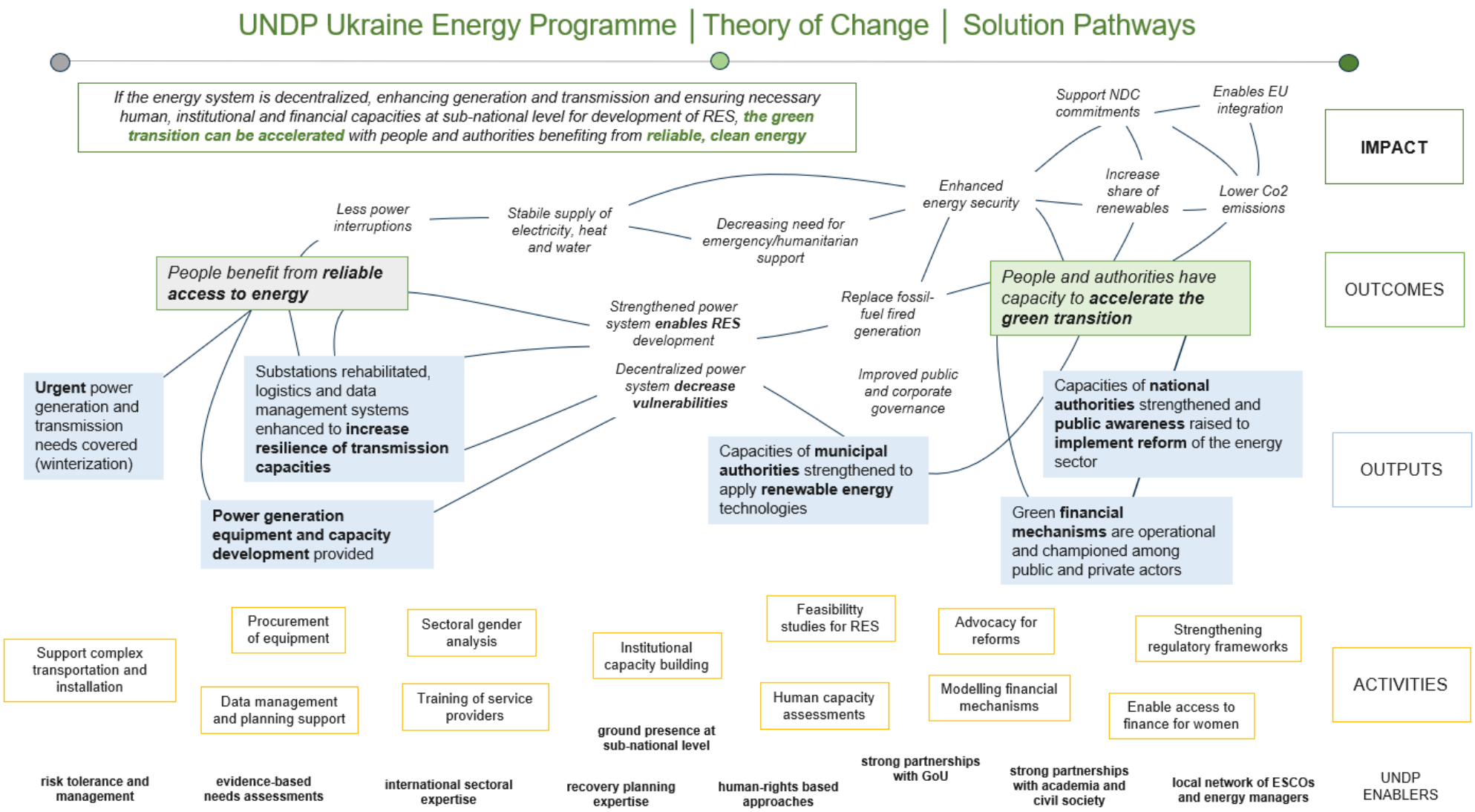
Output 2.1. Capacities of national authorities strengthened and public awareness raised to implement reform of the energy sector
Output 2.2. Capacities of municipal authorities strengthened to apply renewable energy technologies
Output 2.3. Green financial mechanisms are operational and championed among public and private actors

Illustration of the Theory of change is presented below. The outcomes, outputs and activities detailed complement and reinforce one another. Consequently, they should be understood as forming part of a comprehensive approach supporting efforts to strengthen and modernize the energy sector in Ukraine for the purpose of ensuring reliable and accessible energy for the people of Ukraine, and reduce Ukraine's Co2 emissions. Outcomes are less predictable, as they are about behaviour change and often rely on more than one output and hence may be dependent on the collective contribution of multiple stakeholders within, and sometimes external to, the energy sector. Partially attributable to the intervention, other factors - including other national and internationally funded initiatives - may also contribute to these outcomes. UNDPs increasing positioning within energy and climate action, leveraging off the overall green recovery process in Ukraine and close collaboration with line ministries, will ensure considerable impact in the sector with the proposed outputs.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

PROJECT DOCUMENT

[Ukraine]



DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

IV. RESULTS AND PARTNERSHIPS (1.5 - 5 PAGES RECOMMENDED)

Outcome 1: People benefit from reliable access to energy

With around 70 percent of Ukraine's population residing in urban areas, ensuring uninterrupted electricity, heat, water supply, and sewage systems in major cities becomes imperative to prevent essential service disruptions. To enhance the energy security, the highest priority should be given to maintaining power supply to critical infrastructure during grid failures. Accelerated development of RES for the green transition, also demands increasing maneuvering and transmission capacities as outlined under this outcome. The objective of the Outcome 1 is therefore to strengthen the power system, by ensuring uninterrupted and reliable power supply availability to the critical infrastructure across Ukraine starting with cities with a population of more than 200,000. The increase in power generation capacity would support district heating, power to water supply and sewerage treatment plants.

Target cities are selected based on evaluation criteria and the methodological approach produced during the initiation phase, as detailed in Annex 2. Selection of technologies is articulated in Annex 1. In a phased approach the population size and the needs assessment has been the basis for prioritization for the Programme. Among the parameters used for selection for urban or rural city/town has been based on the needs of the highest number of inhabitants, their vulnerability in terms of power supply and their strategic importance to the country.

Under this outcome, UNDP will primarily engage with Oblast and city administrations who serve as the key stakeholders and recipients of procured equipment, in addition to the Ministry of Energy and Ministry of Infrastructure. Municipal enterprises, including power utility companies, in energy and utilities sector owned by the municipalities may also be engaged, and service providers will receive training for operation and maintenance of the equipment.

Output 1.1. Energy infrastructure equipment provided to local authorities to cover urgent power generation and transmission needs (winterization)[17]

Results under this output reflects the immediate restoration of the critical energy infrastructure that UNDP has provided to the Government of Ukraine under the "Support for Winterization and Repairing of Energy Sector Infrastructure Facilities" project, considered as initiation phase of the UNDP Green Energy Recovery Programme. Equipment and services totalling USD 90 million have been procured and will be delivered throughout 2024, estimated to benefit more than 5,4 million people in Odesa, Lviv, Kyiv, Kharkiv and Mykolaiv. By providing this support, UNDP is addressing the immediate needs due to the impact of damages to the energy infrastructure based on the rapid needs assessment and validation processes conducted across Ukraine. The critical areas identified for intervention are power generation and transmission network. UNDP has supported both the sectors with quick and efficient procurement of equipment to support restoration of power transmission substations and with energy generation equipment to to restore power supply. The provision of power generation and transmission equipment for immediate repairs of damages, particularly, auto-transformers and gas-piston engines, are crucial to ensure the swift restoration of power generation and transmission infrastructure, essential for meeting the basic needs of affected populations in local communities across the country. Electricity is vital for hospitals, water treatment facilities, and other critical services, and swift repairs significantly mitigates the humanitarian impact of the attacks.

Leveraging expertise in early recovery from war, UNDP collaborates with authorities and power utility companies to assess damages, prioritize repairs, and estimate costs through a multi-step validation process, where data is collected from primary sources only and backed by primary evidence, including photos and/or video, satellite images where available, reports of technical violations within the system, site inspection reports, experts' conclusions, and reports. Technical experts triangulates data on damages with reports of the State Emergency Service, decentralized data from Oblast Military Administration and centrally collected data from the Ministry of Energy, Ukrenergo and other key stakeholders.

[17] The reporting to the donors (including the Government of Japan) will be done according to the task titles specified in the "Support for Winterization and Repairing of Energy Sector Infrastructure Facilities" Project initiation Plan/ Financial Agreements with the donors

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Output 1.2. Highly maneuverable power generation equipment and capacity development provided to targeted local authorities

Building on support provided under the initiation phase, UNDP will work with targeted Oblenergos to provide a high efficiency low cost green transition enegry generation capacity augementing the existing district heating system. The excess capacity would prove to be a critical support for the critical infrastructure and would be available to the grid to be diverted to areas in need of power within or across Oblasts. At the same time they would ensure that critical water supply heating system are able to operate even when the grid is down. Meeting basic needs for energy and access to critical infrastructure, including heat and water should be enabled so that socio-economic activities are maintained despite consistent attacks on energy infrastructure. Stability of energy supply results in public approval and growing trust to authorities, thus contributing to the society's resilience. These activities plan to enhance energy security and sector reform in urban areas by providing power generation equipment and capacity development on municipal levels. Additionally, efforts will focus on strengthening data management, analytical, and planning capabilities of authorities on sub-national levels, crucial for successful decentralization of the energy sector. Maneuvering capacity in the energy system refers to its ability to adjust and adapt to changes in supply and demand, which is crucial for effectively managing renewable energy sources.

Activity 1.2.1. Provide power generation equipment on municipal/ regional level
Procurement priorities are likely to include gas turbines, step-up transformers and the related auxiliary equipment to enable decentralized power generation. UNDP will provide its robust procurementand logistics planning support along with oversight required to monitor the installation and construction along with the beneficiary, which are both critical for winterization preparation efforts. In addition to procurement of UNDP with its extensive experience would review the specification of equipment and related the services (construction, installation, engineering etc), it's transport and logistics requirements. Logistics being extremely complex for this kind of procurements for Ukraine, e.g. one turbine might require 50 trucks to get transported given the limitation of the availability of port, and a portfolio of places of departure/ recieveing to be considered with relevant insurance weighing all the risk can be ably handled by UNDP to support the beneficiary. Installation and commissioning of equipment is also a complex task, considering that additional high-voltage lines might be needed, which influences both the costs and the timing of the intervention, UNDP can provide its support to the beneficiary along with supplier and the regional/municipal power entity.

Activity 1.2.2. Provide capacity development sub-national level
Provision of modernized, distributed equipment is also an entry point to advocate for energy sector market and anti-corruption reform in the collaboration with local authorities and institutions. Capacity development provides a critical link between provision of equipment, on the one hand, and the energy sector reforms, anti-corruption efforts and attraction of longer-term financing, including from private sector, on the other hand. This activity will also include making gender modules and trainings available for all government agencies and civil society, in line with UNDP's gender analysis of the energy sector and the Women's Leadership Programme activities for enabling women's leadership in the energy sector.

Sub-national level actors will get both support of UNDP technical experts with their tasks related to planning and data management and will also benefit from a thorough quality assurance process leveraging UNDP experience and expertise for monitoring and oversight of complex operations. Sub-national level actors will get both support of UNDP technical experts with their tasks related to planning and data management and will also benefit from a thorough quality assurance process leveraging UNDP experience and expertise for monitoring and oversight of complex operations. The traning and skill development for supporting the Programme is likely to spur the need for local MSME development to support the project sustainability and self-reliance both as a service provider and potentially as a supplier/manufacturer of goods to support the energy transition at municipal level and encourage support to women entrepreneurship in the energy sector.

Activity 1.2.3. Energy conservation awareness campaign in target areas
In parallel with infrastructure and capacity-building initiatives, UNDP will launch a targeted media campaign aimed at promoting energy conservation and efficiency in the affected areas in collaboration with relevant CSOs. Leveraging a mix of traditional and digital communication channels, including television, radio, social media, and community outreach programs, the campaign will raise awareness about the importance of prudent energy usage practices to reduce the risk of overloading the energy system. Educational materials, public service announcements, and interactive workshops will empower residents to adopt energy-saving habits and reduce their overall consumption. A gender analysis should precede the campaign so that communication materials is in parallel addressing gendered

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

challenges of energy conservation, as this may have particular negative impact on those carrying the brunt of domestic burdens. Through this activity UNDP aims to alleviate strain on the energy infrastructure and enhance the resilience of communities facing ongoing energy shortages.

Activity 1.2.4. Energy sector coordination at sub-national level
In response to the urgent energy needs amidst ongoing missile attacks, UNDP aim to establish an energy sector coordination mechanism to facilitate improved coordination of emergency response efforts through a nexus lens. Leveraging current capacities within energy, lessons learned from the Mine Action Area of Responsibility (former Mine Action sub-cluster) and a dedicated on-the-ground presence in Kharkiv, Odesa, Dnipro and Kyiv, UNDP will utilize its expertise to address critical energy infrastructure challenges and ensure a comprehensive approach. Collaborating closely with international partners and local authorities, UNDP will ensure a cohesive and efficient approach to response efforts. By coordinating response within the energy sector, UNDP mobilizes resources, expertise, and support mechanisms to provide immediate relief and assistance to affected communities, while also laying the groundwork for long-term recovery and resilience-building initiatives in the energy sector. This also entails ensuring evidence-based gender action in the energy sector, including the collection and analysis of sexgender-disaggregated data and the development of ecosystems and networks promoting gender mainstreaming, in line with Eurostat requirements and the 10-points Agenda for Gender Equality in Crisis 10-Point Action Agenda for Advancing Gender Equality in Crisis Settings.

Output 1.3. Substations rehabilitated, logistics and data management systems enhanced to increase resilience of transmission capacities in targeted areas
This output aims to enhance power supply resilience through decentralized generation solutions in major cities while providing power transmission equipment at the municipal/regional level to meet wartime needs, ensuring critical infrastructure access, enhancing socio-economic activities, and building public trust. Building on support provided under the initiation phase, UNDP will work with the power transmission system operator, Ukrenergo, to further develop criteria for prioritizing procurement of euipment's based on criticality of maintaining the transmission grid connectivity and resilience to the war time conditions. Along with suppliers, UNDP will identify the need for upgrading of equipment across transmission network across Ukraine to ensure modernization and upgrading obsolete technology, such as replacement of OIl Circuit breakers with SF6 Circuit breakers. Prioritization of equipment, logistics and contingency planning shall be done in close coordination with Ukrenergo. The second activity focuses on municipal-level capacity development to align equipment provision with energy sector reforms, anti-corruption efforts, and long-term financing, emphasizing mentorship and process accompaniment. Lastly, the third activity aims to enhance sub-national authorities' data management, analytical, and planning capabilities, vital for energy sector decentralization and aligned with national strategies, supported by UNDP experts.

Activity 1.3.1. Support rehabilitation of High Voltage (HV) substations
Rehabilitation of High Voltage (HV) substations is a critical pathway for strengthening Ukraine's energy system, as transmission of generated power enables reliable power supply. Damage caused by targeted attacks on transmission infrastructure have left the system extremely vulnerable, so addressing this vulnerability is critical both for war-time resilience-building and post-war reconstruction. UNDP has collected valuable relevant experience with the case of Volovets high voltage sub-station during the Programme initiation stage, ensuring grid connectivity for more than 3 million people, by supporting stability of power to hospitals, schools and critical infrastructure. This can be further upscaled, by procurement of Auto-transformers, Bushings, Circuit breakers and other High Voltage equipment. This activity must be initiated in parallel with other activities under this output, to ensure that procurements are based on identified needs and in coordination with national and international partners. Herein supporting Ukerenergo and local beneficiaries with logistics planning, and supplier support for installation and commissioning of equipments in a timely and efficient manner is key to ensure people's access to power by ensuring grid connectivity.

Activity 1.3.2. Enhance logistics capacities of Ukrainian energy system
Expanding interconnectors with Europe is on a critical path both for physical integration of the Ukrainian system, and development of competitive environment, which is the ultimate objective of the market reforms and energy sector competition. Physical expansion of interconnectors is an extremely complex task. The program foresees procurement of services of pre-feasibility study preparation for one interconnector, simultaneously with engagement of financial and investments experts and advisers, to accompany fundraising efforts of Ukrenergo. It is expected, that because of those capacity development efforts, Ukrenergo will be able to attract financing to produce a feasibility study for the

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

interconnector expansion, e.g. Slovakia or Poland, and successfully secure actual project funding. With this activity, UNDP can rely on robust relations established with Ukrenergo during the project initiation stage.

Activity 1.3.3. Enhance data management, analytical and planning capabilities on central level
Enhancing interconnections between the Unified Energy System of Ukraine and the energy systems of the EU countries is one of the energy sector reforms prioritized through the EU-led Ukraine facility. It foresees implementation of bilateral procedures for joint interconnector capacity allocation at the borders with the EU neighbouring countries, adoption by the Ukrainian side of the resolutions that approve procedures for interconnector capacity allocation, with the annexes on peculiarities of joint capacity allocation at long-term and daily auction, them entering into force after being positively assessed by the Energy Community.

Outcome 2: People and authorities have capacity to accelerate the green energy transition
While Ukraine's renewable energy sector was characterized by a significant public investment attracted in recent years, the war caused devastating damage of 77% of wind, 28% of bio-TPP's and 10% of solar generation capacity.[18] The damages on renewable energy facilities in the occupied territories are still unknown. The Ukrainian government set ambitious goals for carbon neutrality and green transformation in their revised national policies, including the National Energy Strategy, National Climate and Energy Action Plan, National Emission Reduction Plan. Key sectors for achieving those targets include renewable energy and the public sector, where the latter constitutes 5-6% of the total final energy consumption, resulting in approximately 5 mln. t of CO2 emissions annually.

Under this outcome UNDP will work with the Ministry of Energy, Ministry of Infrastructure, NGOs and state-owned companies and networks representing the private sector on national level, while emphasizing interventions on sub-national level in collaboration with hromada authorities and energy service companies. Activities within the energy sector that contributes to lowering emissions, thereby accelerating implementation of NDCs in Ukraine, are outlined. This includes improving public and corporate governance in the energy sector, addressing issues such as corruption and gender disparities while promoting renewable energy solutions, modernizing energy sector infrastructure by feasibility studies and means of introducing green technologies in local communities, enhancing energy efficiency, and developing green financial mechanisms to accelerate sustainable development in Ukraine. Building on and in parallel with technical assessments and capacity enhancement facilitated under Outcome 1, intervention at sub-national level is supported by feasibility studies identifying the most appropriate solutions on local level, enabling the creation of a portfolio of bankable projects with the aim of building capacities on RES and attracting additional investments.

Output 2.1. Capacities of national authorities strengthened and public awareness raised to implement reform of the energy sector
With international commitments such as the Association Agreement with the EU and the Paris Agreement, Ukraine has prioritized transforming its energy sector. Despite bold steps in recent years to establish policy agendas, national strategies for the green transition, legal frameworks, and transparency measures, corruption and poor governance continue to pose significant challenges, highlighting the ongoing vulnerability of Ukraine's energy sector. Activities under this output is directed at stakeholders on national and municipal level, and include strengthening oversight mechanisms and regulatory frameworks, conducting gender analyses to address barriers, including to women's empowerment and advocating for reforms to promote increased efficiency and renewable energy solutions. A better understanding of gender dynamics in the sector can improve governance by informing more inclusive and equitable policies. Through these efforts, the Programme aims to enhance governance, promote gender equality, and attract investment for sustainable development in Ukraine's energy sector.

Activity 2.1.1. Strengthening oversight mechanisms and regulatory framework
UNDP will ensure engagement with the Cabinet of Ministers under this activity as they are responsible for policy co-ordination and the oversight of state energy companies, while emphasizing Environmental, Social, and Governance (ESG) practices and digital services to streamline oversight and build trust between regulatory bodies, public sector, civil society and the financial community throughout capacity building engagements. UNDP will conduct analysis of the existing regulatory framework, identifying gaps and inefficiencies based on consultations and secondary data analysis. This will involve analyzing legislation, policies, and institutional structures related to energy governance.

[18] UNDP, June 2023. *Towards a Green Transition of the Energy Sector in Ukraine* https://www.undp.org/ukraine/press-releases/undp-energy-damage-assessment-ukraine-reveals-continued-vulnerabilities

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Following the assessments, targeted capacity-building initiatives is developed for relevant stakeholders, including government officials, regulatory bodies, civil society and industry representatives, to enhance their understanding of regulatory principles and best practices. UNDP will also support the development of robust oversight mechanisms, including monitoring and enforcement procedures, to ensure compliance with regulations and standards. This includes development of legal frameworks such as the law and other regulatory frameworks on green recovery, development of hydrogen and revision of Long-term low emissions strategy (LT-LEDS) and roadmap. Additionally UNDP will engage with all stakeholders in promoting ESG frameworks for transparency and accountability to drive responsible business conduct and foster gender equality, thus ensuring that businesses prioritise fair pay, fair treatment, diversity, and inclusion. Collaborative workshops and seminars will be organized to facilitate dialogue and knowledge sharing among stakeholders, between ministries, municipal authorities in different oblasts, and public and private sector, within Ukraine and with international partners and civil society.

Activity 2.1.2. Gender analysis on impact of the war on the energy sector
In line with UNDP guidelines the results of a gender analysis should provide concrete, action-oriented recommendations for governance, planning and policy from an intersectional perspective. Recommendations of the gender analysis under this activity include strategic action for women empowerment in the energy sector, taking into consideration the context of the war and projected increased share of renewables in the energy capacity. The gender analysis should further address key barriers to women's employment and empowerment identified in research, including restrictions on employment in professions with difficult or hazardous conditions, (under)representation in energy and renewable energy education and training programs, traditional gender role norms, inadequate gender-sensitive recruitment strategies, and the absence of gender-based development goals within energy companies. It will begin with a comprehensive examination of gender dynamics within the sector, focusing on employment, decision-making roles, and access to resources and services. Quantitative and qualitative data will be collected to identify disparities and their impact on sector development. Stakeholder consultations, including with women's civil society organizations, women working in the energy sector, and women in STEM education, will gather insights from women and men, informing the implementation of other activities under the Programme. The engagement with women working within the energy sector and women in communities impacted by energy projects should also concretely inform implementation of activities under the Programme.

Activity 2.1.3. Advocacy for acceptance of reforms including production of analytical products
UNDP will seek strategic partnerships and engagement to support the implementation of the Government of Ukraine's Women's Leadership Programme and the implementation of the National Strategy for Bridging the Gender Pay Gap until 2030, approved by the Cabinet of Ministers of Ukraine in 2023 with the energy sector as a pilot for implementation. UNDP will furthermore support with advocacy for renewable energy solutions targeting the people of Ukraine, business networks and national-level central authorities. Showcasing and promoting best practices along with recommendations for solving regulatory bottlenecks and additional capacity building will enhance further development of localized targeted solutions and attract investment in renewable energy technologies in Ukraine. UNDP will also engage with the EU4EMBLAS partners to advocate for increased participation of women in the energy sector using the regional STEM4ALL digital platform, along with national network of women in energy in Ukraine. UNDP should herein contribute with increased evidence and research on gender equality in the energy sector to enhance knowledge of barriers for women in STEM education and the energy sector.

Activity 2.1.4 Support gender audits in in the energy sector with state-owned enterprises and private sector
With this activity UNDP would support state-owned enterprises and private sector entities in the energy sector with gender audits and gender impact assessments, ensuring equal opportunities for women and men. This would commence under the framework of the Women's Leadership Programme implementation in the energy sector, by convening stakeholders including government bodies, state-owned enterprises, gender experts, and civil society representatives to co-create a gender audit framework tailored to the energy sector.

Output 2.2. Capacities of municipal authorities strengthened to apply renewable energy technologies
Activities under this output will enable strategic planning at sub-national level and increase readiness in targeted oblasts and hromadas to take on further investment in renewable energy. The outlined activities encompass

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

conducting feasibility studies to identify optimal energy technologies considering technical, economic, social, and environmental aspects, followed by collaboration with Ukrainian partners to design renewable infrastructure and equipment, focusing on grid enhancement and electricity access for households, communities, and public buildings. Capacity building initiatives for service providers and local authorities will involve surveys, educational programs, workshops, and networking activities, while provision of equipment and implementation support for green technologies will include construction of solar and wind generation capacities, electricity storage systems, and technical oversight. The sectoral gender analysis and recommendations will further inform feasibility studies and contribute to inclusive implementation, where women's increased participation and expertise can be leveraged to modernize infrastructure with green technologies. Evaluations will address technical and regulatory challenges, providing evidence for community readiness, policy recommendations, and environmental impact assessments, facilitating further investments in the energy sector.

Activity 2.2.1. Conduct feasibility studies of the technical, economic, social, and environmental aspects of local energy solutions

A special focus will be placed to the reduction of carbon emissions and utilization of renewable energy technologies (incl. battery storage systems) within various sectors at the local level. This will involve assessing the potential for decarbonization and determining which technologies can be effectively applied. Feasibility studies will be used to identify the most optimal energy technology in a target area considering the technical, economic, social, and environmental aspects, and based on criteria for prioritization of target areas and support provided under Outcome 1. It will also be used to estimate or validate costs and benefits, and establish plans for implementation. The feasibility studies will furthermore be critical to establish criteria for prioritizing interventions and supporting the local authorities in managing offers from investors. Analyses under will include assessing potential for modernization of the local utility enterprises (heat, water supply and sewage) with renewable technologies, incl. economic, social and environmental effects. This will ensure that renewable energy and energy efficiency solutions are targeted, tailor made and applied where most suitable to the local context. Moreover, ensuring a participatory sustainable and inclusive approach, the studies will be conducted together with the active engagement of local communities and CSOs, including women's led organizations. In this endeavor, the Programme may partner with civil society organizations building on previous collaboration with Center of Human Capital (CHC), ongoing work and methodology of UNDP's community mobilization tools to ensure a whole-of-community approach in identifying risks, priorities, and solutions for early recovery and return to development pathways. Initial assessments conducted by experts indicate substantial economic benefits from energy savings through the adoption of renewable energy technologies. For example, in water supply and sewage systems the estimated annual savings reaches approximately USD 1.38 billion, along with a reduction of around 1 million tons of CO2 emissions.

Activity 2.2.2. Human capacity needs assessment

Green energy transition requires different skill-sets than the traditional energy technologies. Under this activity UNDP seeks to conduct comprehensive surveys at national and local level to evaluate the current capacity and skills of various stakeholders in the energy sector, including local authorities, service providers, renewable energy professionals, as well as targeted, war-affected groups including women and veterans, based on data from national and local authorities, UN Ukraine population data on IDPs and returnees. These surveys will not only assess the existing capabilities but also identify capacity development needs among potential employees and entrepreneurs, building on assessments of socio-economic conditions as identified through feasibility studies. UNDP will engage with national and local authorities, UNDP networks of Small and Medium Enterprise (SMEs), energy associations, civil society and private sector networks of women in energy and UN organizations, such as ILO, in this endeavour.

The findings from the surveys will contribute to a wider analysis of capacities on renewable energy among targeted groups and in the Ukrainian population, and provide recommendations to national stakeholders for increasing the capacities of the energy sector while enhancing the employability of vulnerable groups within it. They will also provide a basis for developing trainings under UNDP activities at sub-national levels.

Activity 2.2.3. Design of development models and solutions

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Based on the feasibility studies, UNDP will collaborate with Ukrainian partners to support project identification and design, focusing on renewable infrastructure and equipment for prosument[19], enhancing grids, municipal power stations, and electricity access for households, local communities and public buildings including hospitals and schools. UNDP will provide design and implementation support for green technologies, such as solar and wind generation capacities and electricity storage systems, ensuring alignment with environmental standards and promoting sustainable practices. Models for biogas/biomass should also be developed under this activity based on feasibility studies and analysis of regulatory and other barriers.

In collaboration with national and sub-national partners, UNDP will determine the design and specifications of renewable infrastructure or equipment for strengthening grids, municipal power stations or electricity access through prosumement considering the feasibility of implementation in the target administrative areas. The model incorporates data analysis and visualization tools to provide insights into energy consumption patterns and efficiency improvements, enhancing the targeting of renewable energy solutions. This includes determination of the design and specifications of renewable distributed generation infrastructure or equipment for the target municipalities. Through this activtity, UNDP aims to catalyze funding for locally-based green solutions, ensuring actions are coordinated with local recovery planning in Ukraine. Through continuous damage assessment and recovery monitoring, UNDP will disseminate lessons learned, providing evidence for local community readiness and paving the way for further investments in the energy sector while mitigating risks and enhancing environmental impact assessments. International exchange of expertise will also be considered under this activity.

Activity 2.2.4. Capacity building for service providers and local authorities
Educational programs will be provided under this activity for service providers focusing on installation, operation, and management of renewable energy facilities, covering aspects of wind, solar energy, and energy storage. Demand surveys will inform the development of tailored educational plans, which will then be refined based on satisfaction survey results. Workshops will be organized for central authorities to disseminate lessons learned from pilot projects and best practices, while networking activities with the private sector will be conducted to share experiences and attract investments in renewable energy technologies, particularly at the local level.

Activity 2.2.5. Provision of equipment and implementation support for green technologies
This activity entails construction of new solar and wind generation capacities in disadvantaged communities, along with electricity storage systems based on high-capacity batteries and smart grids to balance the power system. Herein UNDP will provide procurement and installation of equipment for hromadas/communities which do not yet have the capacity to independently attract and manage investments in renewable energy. New wind capacities will be strictly linked and coordinated with assessment of maneuvering capacities in the system, following the recommendations of the UNDP-World Bank Energy Damage Assessments. Along with the installation, support to quality assurance and technical oversight will also be provided by UNDP through advisory services from technical experts in the UNDP Programme team, including regular inspections and consultations at the project implementation sites. UNDP will also facilitate international exchange of expertise to ensure that all potential and novel technological solutions are considered in line with international best practice, fit for purpose in the Ukrainian context. Through the studies and successful project implementation UNDP will provide further evidence for the readiness of local communities in Ukraine to take on investment within the energy sector, making opportunities, challenges and risks available and tangible for potential investors, including policy and regulatory bottlenecks and solutions to these. It will also pave the way for improved due diligence processes, mitigating risks of corruption, while the pilot projects will be key to demonstrating the viability of further investments from international and national development partners and the private sector.

Furthermore, UNDP will support hromadas/communities which are deemed ready to take on further investments in renewable energy, with quality assurance, visibility and integration within financial mechanisms and platforms as outlined in output 2.3. Coupled with natural resources and environmental impact assessments within the evaluation, this will also increase knowledge on environmental factors in renewable energy development in Ukraine, including the

[19] A "prosumer" in the energy sector refers to an entity, such as a household, business, or community, that both consumes and produces energy. With the rise of distributed energy resources consumers can have the capability to not only consume energy from the grid but also produce energy from their own renewable sources such as solar panels.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

existing environmental conditions, potential impact of the decentralized generation projects, and identification of suitable mitigation measures.

Output 2.3. Green financial mechanisms are operational and championed among public and private actors

Through this output, UNDP will accelerate affordable financing mechanisms for green energy investments at national and sub-national levels. Building on UNDP's work on establishing legal framework for implementing Article 6 of the Paris Agreement, UNDP will further support the Ministry of Environmental Protection in developing means of implementation in collaboration with environmental and climate NGOs, including Ecoaction and Dixi Group. Article 6 of the Paris Agreement establishes national mechanisms for international cooperation in addressing climate change, including emissions trading and cooperative approaches to achieving Nationally Determined Contributions (NDCs). It allows countries to voluntarily engage in emissions trading to meet their NDC targets, promoting cost-effective emission reductions and facilitating cooperation between nations. Article 6 emphasizes non-market-based approaches such as technology transfer and capacity-building to support countries in their climate action efforts.

Effective energy financing mechanisms are crucial for progress towards national decarbonization targets in Ukraine and for ensuring sustainability of interventions within the energy sector. There are various modalities of financing mechanisms supporting that can accelerate large-scale public and private investments in the green energy transition including:

- State-supported programs and direct public financing;
- Funding and grants from multiple agencies;
- Tax incentives and subsidies for energy efficiency retrofits;
- Commercial loans;
- Energy efficiency revolving funds;
- Structural investment funds;
- Guarantee funds;
- Capital subsidies for energy efficiency capital investments;
- Multilateral development programs;
- Energy service companies and Super ESCOs.

UNDP will support effective coordination within national authorities and with the private sector, which is essential under this output, particularly for managing risks and opportunities associated with carbon pricing, emissions trading and Carbon Border Adjustment Mechanism (CBAM) exemption to ensure coherence with EU norms and minimize price shocks. UNDP will also continue to support the development Ukrainian National Decarbonisation Platform (UANDP) where communities, population, CSOs (including women's led organizations) and businesses will be able to submit applications and receive knowledge, skills, technologies and equipment from global manufacturers, along with advise and support for project implementation. Furthermore, UNDP will strive to consider and address the distinct requirements, priorities, and obstacles experienced by both women and men, by integrating a gender perspective in green financial frameworks through gender-disaggregated data collection and analysis to the extent possible, gender-responsive financial products and services, integrate gender dimensions in capacity-building activities and monitoring and evaluation, along with policies, practices and partnerships.

Activity 2.3.1. Development and implementation of models for support to enhanced energy efficiency, development of renewable and gender equality

The activity will focus on establishing a Sustainable Financial Facility through the Business Development Fund (BDF) and National Decarbonization Platform to support Energy Service Companies (ESCOs) and other initiatives, such as technical assistance to national and local authorities for EIB loans facilitate private investments and financing from local commercial banks for energy renovation projects in public buildings and communal institutions across Ukraine. This initiative will promote the adoption of existing rehabilitation solutions, such as thermal modernization of buildings and installation of Individual Heating Substations (IHS) coupled with balancing of heating systems, which have been proven to achieve approximately 25% energy savings upon implementation. In the communal institutions, it is envisaged that the solar power technology will be used to partiality cover the electricity consumption. Additionally, the facility will catalyze efforts to restore public buildings affected by the war, further contributing to energy efficiency and sustainability goals in Ukraine. Moreover, specialized banking product will be designed together

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

with the BDF to change the vision of both banking employees and ESCO staff on providing loans to women entrepreneurs , as well as have an impact on the market in to increased accessibility and uptake.

To ensure sustainability of support to the energy sector and energy efficiency in Ukraine and attract further investments, there is a need to enable de-risking projects through blended finance and strong alignment with public and private local actors. UNDP will also seek to develop pathways for de-risking investments in collaboration with Government of Ukraine, building on projects such as the government-led Ukraine Development Fund (UDF).

Activity 2.3.2. Development of a Green Finance System

Under this activity UNDP will conduct a baseline analysis of environmental taxes and existing financial instruments and mechanisms. The analysis of the environmental taxes will include the environmental tax rates, structures, allocation of environmental damages and fines for non-compliance with relevant regulations and their distribution across different sectors and regions. Based on this the existing Ukrainian environmental tax framework will be compared with the same frameworks in other countries/regions to identify benchmarks and best practices. As the next step, the assessment of the effectiveness of current environmental taxes in achieving emission reduction goals will be conducted. This involves evaluating the existing taxes design, economic incentives, revenue generation, compliance, environmental impact, and distributional effects. Based on this evaluation, recommendations to optimize the environmental tax system for achieving targeted emission reductions while ensuring fairness and efficiency will be provided.

The analysis of the existing financial instruments and mechanisms will include the following:

- Compilation of a comprehensive list of financial instruments utilized for environmental protection, encompassing grants, subsidies, loans, and investment funds.
- Conducting a performance review to evaluate the effectiveness of these instruments in advancing sustainable development and environmental conservation goals;
- Identification of gaps within the existing financial mechanisms and proposing areas for the development of new instruments to address these deficiencies.

Within this activity UNDP will develop a National Green Finance Strategy, that aligns green finance with Ukraine's climate and environmental goals. It will encompass recommendations for enhancing fiscal policy schemes, conducting pre-feasibility studies on potential green financial instruments, and strengthening the environmental liability system. Following the development of the Strategy, an Action Plan will be implemented to operationalize it. This includes creating the necessary regulatory frameworks, engaging stakeholders through consultations and awareness campaigns, and commissioning feasibility studies for specific green financial products and services. To build capacity among government, municipal, and private sector entities, a Green Finance Academy will be established. This platform will facilitate dialogue, training programs, and knowledge sharing on accessing and deploying green finance effectively.

2.3.3. Development of carbon financing and other green investments incentivization programs;

Carbon financing is a key financial mechanism to incentivize and support projects that reduce greenhouse gas (GHG) emissions or remove carbon dioxide (CO_2) from the atmosphere. By supporting the development of alternatives for creating economic value for activities that mitigate climate change, such as carbon offsets, UNDP will support the reduction of emissions or enhancement of carbon sequestration. UNDP would primarily assist Ukraine in introducing carbon offsets by facilitating access to the carbon market, and supporting monitoring and verification processes. This support would involve training sessions to understand carbon finance principles, aiding in the selection and development of projects eligible for carbon credits, and connecting project developers with potential buyers. Additionally, UNDP would assist in establishing robust monitoring and verification systems to ensure the credibility of carbon credits generated by Ukrainian projects.

UNDP will put the efforts to create the enabling environment for a bilateral emissions trading system in Ukraine aligned with Article 6 of the Paris Agreement. This includes developing a portfolio of eligible projects that can participate in such a system and generate carbon credits.

2.3.4. Development of enhanced state support system for decarbonization

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Under this activtity, UNDP will conduct research on the feasibility of establishing an e-cluster system in Ukraine. This research encompasses several key components, beginning with a market analysis to identify the potential size of the e-cluster system, key stakeholders at regional and local levels, and prevalent trends within the industry. A legal and regulatory assessment will be conducted to identify any barriers or challenges that may impede the establishment and operation of the e-cluster system, ensuring compliance with relevant laws and regulations. Additionally, a financial analysis will be undertaken to estimate the initial investments required for developing and launching the e-cluster system, including a comprehensive cost-benefit analysis to evaluate the economic viability of the project.

The further step involves development of an action plan for the implementation of the e-cluster system, which includes defining clear objectives, scope, targeted industries, and geographic regions. It also entails establishing governance structures, such as boards or committees, to oversee cluster operations and make strategic decisions. Furthermore, the activity involves assessing and describing the infrastructure requirements of cluster members at both regional and local levels to ensure effective implementation and operation of the e-cluster system. The activity also includes the implementation of at least three pilot projects as part of the e-cluster system initiative trough the project selection and planning, monitoring, capacity building and evaluation for scaling up and replication.

2.3.5. Communication campaigns and Gender-Responsive Green Financial Systems

UNDP will undertake a comprehensive strategy to promote green investment in Ukraine through effective public communication initiatives. Utilizing social media campaigns and public events UNDP will educate and inform the public about the advantages of green investment and its potential for fostering sustainable recovery. By showcasing successful green projects and their positive impacts, UNDP aims to create awareness and generate enthusiasm among stakeholders, including government stakeholders, private investors, and local communities. Furthermore, UNDP will facilitate knowledge-sharing platforms and forge partnerships to connect stakeholders with expertise, resources, and funding opportunities, thereby catalyzing the implementation of green initiatives.

Moreover, UNDP will conduct an intersectional gender analysis of roles, experiences, expectations, and opportunities of women and men with recommendations for increasing inclusivity in the energy efficiency sector. The results of analysis will be used to tailor the awareness activities to ensure active women's participation in the energy and energy efficiency interventions. Gender-responsive green finance can enhance the effectiveness and sustainability of environmental investments by addressing gender inequalities and promoting women's participation and women's economic empowerment in green sectors. This contributes to achieving both environmental and gender equality objectives. The activity will consider ensuring that financial products, services, and institutions consider gender-specific constraints and opportunities. This will include tailored financial products for women entrepreneurs and improving women's access to financial services. Special attention will be paid to promoting women's participation in Green Finance, which will include the targeted capacity building, financial literacy programs, and access to mentorship and networking opportunities. Additionally, ensuring women's representation in decision-making processes is essential for designing inclusive green energy financing mechanisms.

Resources Required to Achieve the Expected Result

UNDP Technical Assistance: The Programme implementation team will consist of Project Manager, Technical Leads, Project Analysts, Project Associate, Procurement Associate and technical specialists consisting of national and international advisors. The recruitment of posts will be phased against donor contributions, with a proposed, draft organogram included in the annexes. The Project will also coordinate with the UNDPs Istanbul Regional Hub (IRH), contributing to and benefitting from exchanges and sharing of experience and expertise within UNDPs regional support.

UNDP Country Office: UNDP Country Office, herein the Energy and Environment Portfolio Programme team and CO experts on procurement, quality assurance and gender, will provide oversight and advisory support for implementation and progress of the project, particularly in relation to procurement processes, monitoring, evaluation, cross-cutting issues such as gender mainstreaming and inclusion. The UNDP Country Office will provide overall quality assurance functions as per the UNDP Planning, Monitoring and Evaluation guidelines. Additionally, UNDP will mobilize its internal experts from the regional hub and headquarters to support programmatic outputs should assistance be required.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Partnerships and Stakeholder Engagement

UNDP will build on its presence and broad partnerships it has nationally, regionally and internationally and will enhance them. At the country level, leveraging its strong and extensive relations with the government and other stakeholders, UNDP will work in close collaboration with line ministries, to ensure that government authorities own and lead the entire implementation process, so as to ensure the sustainability of the project. Close collaboration on the local level with public authorities, state/municipality enterprises, civil society organizations, especially those and community representatives will support the effective implementation of the project, allowing to identify the context-specific priorities for the needs and detect implementation risks and concerns at an early stage. These partnerships help leverage expertise, resources, and networks for effective implementation, and will include the following:

Central Government Agencies: Collaboration with government agencies, such as the Ministry of Energy, with whom UNDP already has a memorandum of understanding, Ministry for Communities, Territories and Infrastructure Development of Ukraine, Ministry of Environmental Protection and Natural Resources and regulatory bodies, is essential. These partnerships facilitate effective and impactful project implementation, policy coordination, regulatory support, and alignment with national development strategies. Working closely with government entities helps ensure the project's integration intoч the national energy agenda.

Local Authorities: UNDP will engage with regional and municipal authorities, leveraging the presence on the ground through field offices in Kharkiv, Dnipro, Odesa and Lviv. Engaging with local authoritiesis key for effective programme implementation. UNDP already has a memorandum of understanding with several of them. Local governments play a crucial role in energy planning, permitting processes, and community engagement. Collaborating with local authorities helps align the program with local priorities and ensures its relevance, participatory and inclusive approach at the grassroots level.

Recovery coordination mechanisms and platforms: UNDP will ensure aligned actions and donor coordination based on existing platforms, including the Multi-Donor Coordination Platform (MDCP), IFI Coordination Group, G7+ Ukraine Energy Coordination Group, along with the UNDP-supported Ukraine Decarbonization Platform and Business Development Fund. A proposal for additional coordination mechanism for UN and NGO partners to improve nexus response of needs to the energy sector has been included under Outcome 1.

Energy Companies: Partnerships with energy companies, particularly, with state- and municipal- owned enterprices, is necessary to leverage their expertise, infrastructure, and resources e.g. Ukrenergo has been a valuable beneficiary of a number of UNDP intervenetions since the beginning of the full-scale invasionand there is an active memorandum of understanding guiding the engagement.

Non-Governmental Organizations (NGOs): UNDP will continue to partner with key environmental and climate actors in civil society, both international and national organizations, including but not limited to Ecoaction and Dixi Group. NGOs women's led organizations and volunteer organizations working in the local communities are critical partners to ensure social inclusiveness, and promote sustainable practices. Besides, partnerships with NGOs promoting transparency and energy reform will bring value in promotion of good corporate practices and overall capacity development.

Academic and Research Institutions: Collaborating with academic institutions e.g. Kyiv School of Economics, which is one of the leading actors in the area of damagae assessment and recovery, including the energy sector, is important to assure inclusivity and local engagement. UNDP has already partnered with them during the energy sector damage assessment exercise in 2022 and through engagements in other portfolios.

Financial Institutions: Partnering with financial institutions, including development banks and commercial banks, can assist in mobilizing financial resources for energy projects. These institutions can provide access to loans, grants, and investment mechanisms to support renewable energy development, energy efficiency initiatives, and sustainable infrastructure projects. The Global Environment Facility (GEF) is among UNDP's key partners for green financing initiatives.

International Organizations: UNDP project might involve partnerships with other international organisations, such as the World Bank, International Energy Agency (IEA), European Bank for Reconstruction and Development (EBRD),

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

European Investment Bank (EIB) and European Union (EU). These partnerships can provide technical expertise, financial support, and access to best practices from other countries or regions.

International Development Partners: Collaborating with international donor agencies is critical to ensure financial support and access to global networks. These partnerships can help leverage additional resources, technical assistance, and expertise for program implementation. A wide range of international partners have already supported UNDP engagement in energy sector since the outbreak of the full-scale engagement, including, but not limited to Japan, Korea, Denmark, Norway and Sweden.

Risks and Assumptions

Risk analysis was conducted through a detailed assessment of potential risks, their causes, impacts, and the likelihood of occurrence, thereby determining their overall significance as per UNDP corporate risk register methodology and Social and Environmental Screening Procedure (SESP) which specifically outlines risks related to social and environmental impact of the project, with descriptions of means for risk management. Monitoring risks is an integral part of the Programme. Initial potential risks have been identified and mitigation strategies proposed, in the SESP and Risk Log attached as Annex 3 and 4. On a regular basis, risks will be monitored, reviewed, and if necessary new risks will be added and further mitigation strategies developed, through the mechanisms of UNDP Programme oversight and project boards with national and international stakeholders. Key assumptions include that the war situation does not deteriorate to the extent that makes UNDP unable to implement activities as planned, and the line ministries and subnational governments remain cooperative and supports UNDP in implementing the planned activities.

Implementation will be done in line with United Nations Security Management System (UNSMS) recommendations so that escalating security threats do not surpasses UNDP's risk appetite as outlined through the UNDP POPP. With significant, escalated attacks on the energy infrastructure, additional available resources may have to be redirected from Outcome 2 to Outcome 1.

South-South and Triangular Cooperation (SSC/TrC)

Ukraine has the potential to both benefit from and contribute to South-South and Triangular Cooperation initiatives. This could entail various advantages such as knowledge and technology transfer, achieved through the deployment of international experts from the Global South or the participation of Ukrainian experts abroad, thus facilitating valuable exchanges. Additionally, capacity development stands as a significant opportunity, with Ukrainian experts sharing their experiences in integrating equipment provision with corporate governance improvements and spearheading energy sector reforms at the grassroots level, thereby contributing to nationwide reform efforts. Furthermore, participation in such cooperation efforts could lead to increased investment opportunities and the strengthening of economic ties. For instance, attracting investments from the Global South to Ukraine or sharing experiences in private sector involvement in post-war recovery could foster economic growth. Moreover, the procurement and delivery of energy equipment from Global South countries to Ukraine could further enhance opportunities for South-South and Triangular Cooperation.

Digital Solutions[5]

Digital solutions must adhere to UNDP Digital Standards, which prioritize starting with the need, bridging the digital divide, and testing early and often while considering the possibility of not building solutions. Additionally, these solutions must adhere to UNDP principles, which emphasize safeguarding personal data, upholding ethical standards, responsibly managing data, defaulting to openness, and planning for long-term reusability and interoperability while being aware of data limitations. Diverse digital solutions will certainly be utilized during the Programme implementations, however development of dedicated tools is not foreseen, considering a wide range of instruments already available in Ukraine including cybersecurity, databases, satellite imagery, and development of databases. The team will make every effort to help advance available digital tools which enable transparency both in the context of anti-corruption, and also monitoring of damage, evaluation and learning (MEL). Data will be managed and disclosed with maximum caution, in light of security considerations related to the ongoing war.

Knowledge

Assessment, policy recommendations, feasibility studies, capacity development recommendations will be developed in the course of the Programme including on gender analysis and research on women in STEM and the energy sector,

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Green Recovery methodology and other relevant research and knowledge products relevant to the green energy recovery. Knowledge documents containing sensitive information on the energy infrastructure will be appropriately disclosed, balancing security considerations on one hand, and the value of transparency, on the other hand. Every effort will be made to go beyond stand-alone instances of knowledge production and dissemination as a way to contribute to broader joint action, donor coordination and peer learning. Various trainings and other forms of knowledge transfer will be conducted under this project, which include producing training curricula and training toolkits, promoting continuous educational use by relevant professional development and education institutions. Analyses and thematic professional guidance produced by experts, recommendations (related to policies, institutional development, legislation, etc.) will be made available to direct beneficiaries, depending on topics and as agreed with relevant institutions and beneficiaries, to limited or broader expert public, or to the public at large. A variety of information materials (such as leaflets, info kits, online content) produced for the purpose of awareness raising and facilitation of access to justice will be disseminated to large categories of indirect beneficiaries or specific groups (e.g. victims of specific crimes and human rights violations). The project will pay attention to extending access to the products for the beneficiaries living with disabilities. Lessons learned and best practices will be digested in thematic reports or compiled and shared otherwise. A repository of knowledge products will be maintained by programme and project staff.

Sustainability and Scaling Up

The Project's sustainability and exit strategy shall be built into project approaches and activities, while UNDP will undertake a review of its overall strategy, with a view to developing a detailed plan for transition and exist. The exit strategy will also be informed by the findings of Project evaluations, including the upcoming evaluation of the intiaition phase (Support to Winterization).

The Programme has been designed in a way that enables systemic changes in the energy sector and sustainability of action, by combining infrastructure, financing, governance and capacity development considerations both during the design and the implementation phases. UNDP has an ambitious plan based on lessons learned from the assessment of 2022-2024 implementation. At the same time, UNDP is aiming to play a catalytic role, developing, implementing and documenting a number of "model solutions" for various types of municipalities depending on their initial set-up of municipal energy sector and other critical infrastructure, generating experience and evidence, which at a later stage can be re-used by the other actors in the other municipalities in Ukraine, thus scaling up what UNDP has started. Furthermore, UNDP invests in strengthening institutional capacities across the different components of the project that would take the areas of work forward in each Output. The strengthened institutional capacity and mechanisms will remain in place after the project's end. These achievements will build resilience at individual, community, and national levels as well as create a pool of knowledge within institutions that could be further disseminated through peer-to-peer knowledge transfer and applied in future. The foreseen national systems change should occur through a combination of top down and bottom up interventions.

The following key principles of implementation are expected to further strengthen sustainability of efforts under the Programme:

- Maximization of synergies and joint action with the other funding partners, and alignment with EU integration process
- Focus on local communities development with decentralization as a basic principle
- Alignment of all interventions with the National Energy Strategy, National Climate and Energy Action Plan, National Emission Reduction Plan and in coordination with Ukrainian Facility activities and priorities.

V. PROJECT MANAGEMENT (1/2 PAGES - 2 PAGES RECOMMENDED)

Cost Efficiency and Effectiveness

Cost efficiency and effectiveness in the programme management will be achieved through adherence to the UNDP Programme and Operations Policies and Procedures (POPP) and reviewed regularly through the governance mechanism of the UNDP Country Programme for Ukraine. In addition, there are specific measures for ensuring cost-efficient use of resources through using a portfolio management approach. This approach by UNDP Ukraine deployed by its three portfolios – Democratic Governance, Inclusive Development, Recovery and Peacebuilding, and Environment and Energy - ensures synergies and leverages activities and partnerships among several initiatives and

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

projects that are implemented through the Portfolios by UNDP Ukraine. In addition, the Project will coordinate its activities with other UN agencies through inter-agency cooperation to ensure the coherence of the interventions. As this full-scale project is based on the initiation phase Winterization project", its design is based on good practices and lessons learned from the project initiation phase and ensures that activities are specific and clearly linked to the expected outputs, and that there is a sound results management and monitoring framework in place with SMART and gender sensitive indicators. The project aims to balance cost efficient implementation and best value for money with quality delivery and effectiveness of activities.

As proven in past programme delivery, UNDP Ukraine has established arrangements and measures not only to ensure smooth implementation of the activities but also to flexibly adjust the planned activities to meet unexpected needs under highly uncertain and volatile situations by adopting special measures granted to the country office, undertaking close monitoring and follow-up actions and networking with the relevant stakeholders to coin a solution. Leveraging these experiences and established mechanisms, UNDP Ukraine will continue its effort to improve efficiency and effectiveness of the project activities. On the financial side, UNDP Ukraine will prepare financial report annually, which will constitute the official report of project expenditures for a year implementation. As the project is multi-donor one, the UNDP Ukraine will consult with each donor on the particular requirements for the reporting format. For any balance at the end of the particular financial agreement, the UNDP Ukraine will be guided by the respective stipulations in the agreement. The same will be applicable for how the interest income should be treated.

Project Management

This project will be implemented under the framework of UNDP Country Program Document for Ukraine, applying the Direct Implementation (DIM) modality, where UNDP Ukraine will act as the Implementing Partner. Implementation of the Programme may entail the creation of separate projects, while these should adhere to the overall strategic principles, outcomes and outputs and identified under the comprehensive Green Energy Recovery Programme. Furthermore all activities should comply with policies, procedures and practices of the United Nations Development Programme in accordance with UNDP's Programme and Operations Policies and Procedures (POPP) as well as social and environmental sustainability through application of the UNDP Social and Environmental Standards. The standard ToR for UNDP Programmes and Projects is available in Annex 6.

Programme and project implementation will consist of experts and specialists for the respective technical areas as well as project and office operations, including M&E and communications, led by Project Manager and managed by UNDP Energy and Environment Portfolio Team. The project implementation team will also benefit from wider support services of the Operations Team of UNDP Ukraine, including Procurement, Human Resources, Finance and other operational aspects. Furthermore, the implementation team will have the technical support of the UNDP GPN if such need arises. This support will focus on providing technical assistance to the project through GPN ExpRes Roster by deploying Immediate capacity needed for the implementation of the project activities in areas of analysis, capacity development, monitoring and evaluation. The programme implementation team will also coordinate with the UNDP's Istanbul Regional Hub (IRH), contributing to and benefitting from exchanges and sharing of experience and expertise within UNDP's regional support.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

RESULTS FRAMEWORK[20]

Intended Outcome as stated in the UNSDCF/Country [or Regional] Project Results and Resource Framework: UNDP CPD 2018-2024: Output 3.2. Local authorities and communities adopt gender-responsive and sustainable solutions for increased energy efficiency and modern energy access, especially of renewable energy
Outcome indicators as stated in the Country Project [or Regional] Results and Resources Framework, including baseline and targets: 3.2. Share of energy produced from renewable sources in the total final energy consumption (SDG) Baseline (2015): 4.9% Target (2020): 11%. 3.3. Share of population benefiting from improved coverage by cost-efficient and sustainable energy in the public sector, by sex [IRRF 1.4.] Baseline (2016): 0 Target (2022): 15% (women), 15% (men)
Applicable Output(s) from the UNDP Strategic Plan: 5.1 Energy gap closed and 5.2 Transition to renewable energy accelerated capitalizing on technological gains, clean energy innovations and new financing mechanisms to support green recovery
Project title and Quantum Project Number: Green Energy Recovery in Ukraine

EXPECTED OUTCOMES/OUTPUTS	OUTPUT INDICATORS[1]	DATA SOURCE	BASELINE		TARGETS						DATA COLLECTION METHODS & RISKS
			Value	Year	2024	2025	2026	2027	2028	FINAL	
Outcome 1		**People benefit from reliable access to energy**									
Output 1.1 Energy infrastructure equipment provided to local authorities to cover urgent power generation and transmission needs	Number of people benefitting from enhanced transmission and maneuvering capacities	*Ukrenergo / Oblenergo*	0	2023	4.6 million	0	0	0	0	4.6 million	Ministry of Energy/Ukrenergo, assuming continued availability

[20] UNDP publishes its project information (indicators, baselines, targets and results) to meet the International Aid Transparency Initiative (IATI) standards. Make sure that indicators are S.M.A.R.T. (Specific, Measurable, Attainable, Relevant and Time-bound), provide accurate baselines and targets underpinned by reliable evidence and data, and avoid acronyms so that external audience clearly understand the results of the project.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

(winterization)											
Output 1.2. *Power generation equipment and capacity development provided to targeted local authorities*	Share of the male and female population in target areas benefitting from improved access to basic services (heating, electricity and water supply)	*Population statistics, Project records*	0	2023	TBD	TBD	TBD	TBD	TBD	TBD	Ministry of Energy/Ukrenergo, assuming continued availability
Output 1.3 *Substations rehabilitated, logistics and data management systems enhanced to increase resilience of transmission capacities in targeted areas*	Hours of power supply interruption	*Ukrenergo / Oblenergo*		2023	TBD	TBD	TBD	TBD	TBD	TBD	Ministry of Energy/Ukrenergo, assuming continued availability
	Share of male and female population benefitting from access to energy through enhanced transmission capacities	*Population statistics, Project records*	0	2023	1 million	1,5 million	1,5 million	0	0	4 million	Project records
Outcome 2		**People and authorities have capacity to accelerate the green transition**									
Output 2.1 *Capacities of national authorities strengthened and public awareness raised to implement reform of the energy sector*	Gender analysis conducted (yes/no)	*Project records*		2023	Yes	Yes					Project records
	Number of men and women who participated in training(s)	*Project records*	0	2023	300	600	600	600	200	2300 (at least 50% women)	Project records, survey reports
	Number of men and women surveyed for skills and capacity on RES	*Project records*	0	2023	100	100	1500	1400	3200	6300 (at least 30% women)	Project records, survey reports
	Share (%) of male and female participants who reported enhanced capacity from trainings	*Project records*	0	2023	80%	80%	80%	80%	80%		Surveys pre - and post-training

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Output 2.2. Capacities of municipal authorities strengthened to apply renewable energy technologies	Number of urban and rural hromadas covered by feasibility studies	*Project records*	0	2023	5	15	20	10	0	50	Project records
	Number of people in rural and urban settings, who gained access to renewable energy	*Project records, Ukrenerg/ Oblenergo*	0	2023	200 000	300 000	400 000	800 000	200 000	1,9 million	Ministry of Energy/Ukrenergo, assuming continued availability
	Number of people (service providers) who participated in training(s) for operation and maintenance (disaggregated by sex)	*Project records*	0	2023	50	100	400	400	400	1350 (at least 30% women)	Project records
	Cumulative installed capacity of renewable energy (MWt)	*Ukrenergo / Oblenergo*	0	2023	162	250	350	500	700	1962	Project records
Output 2.3. Green financial mechanisms are operational and championed among public and private actors	Number of engaged companies	*Project records*		2023	4	6	6	8	12	36	Project records
	Amount of energy saved (in megajoule)			2023	TBD	TBD	TBD	TBD	TBD	TBD	
	Volume of investment leveraged to support green recovery (in million, US dollars)	*Ministry of Energy, Ministry of Economy, Project records*		2023	5	45	135	270	225	680	*Ministry of Energy, Ministry of Economy, Project records*
	Number of people in urban and rural settings reached by dissemination events/campaigns	*Project records*		2023	5000	10 000	10 000	40 000	45 000	130 000	Project records, Social Media monitoring

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

[1] It is recommended that projects use output indicators from the Strategic Plan IRRF, as relevant, in addition to project-specific results indicators. Indicators should be disaggregated by sex or for other targeted groups where relevant.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

MONITORING AND EVALUATION

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans: *[Note: monitoring and evaluation plans should be adapted to project context, as needed]*

Monitoring Plan

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
Track results progress	Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.	Quarterly, or in the frequency required for each indicator.	Slower than expected progress will be addressed by project management.		
Monitor and Manage Risk	Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.	Quarterly	Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.		
Learn	Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.	At least annually	Relevant lessons are captured by the project team and used to inform management decisions.		
Annual Project Quality Assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform management decision making to improve the project.	Annually	Areas of strength and weakness will be reviewed by project management and used to inform decisions to improve project performance.		
Review and Make Course Corrections	Internal review of data and evidence from all monitoring actions to inform decision making.	At least annually	Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections.		
Project Report	A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary, an updated risk long with mitigation measures, and any evaluation or review reports prepared over the period.	Annually, and at the end of the project (final report)			

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
Project Review (Project Board)	The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of project review to capture lessons learned and discuss opportunities for scaling up and to socialize project results and lessons learned with relevant audiences.	Annually	Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.		

Evaluation Plan[21]

Evaluation Title	Partners (if joint)	Related Strategic Plan Output	UNSDCF/CPD Outcome	Planned Completion Date	Key Evaluation Stakeholders	Cost and Source of Funding
e.g., Mid-Term Evaluation						

[21] Optional, if needed

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

MULTI-YEAR WORK PLAN [22][23]

All anticipated programmatic and operational costs to support the project, including development effectiveness and implementation support arrangements, need to be identified, estimated and fully costed in the project budget under the relevant output(s). This includes activities that directly support the project, such as communication, human resources, procurement, finance, audit, policy advisory, quality assurance, reporting, management, etc. All services which are directly related to the project need to be disclosed transparently in the project document.

Description		Responsible Party	Funding Source	Budget, USD					Total
				2024	2025	2026	2027	2028 (incl. Q1 2029)	2024-2028 (incl. Q1 2029)
Output 1.1.: Energy infrastructure equipment provided to local authorities to cover urgent power generation and transmission needs (winterization) GEN 2	Activities under PIP 2023-2024 (based on the Winterization/ Energy PIP budget for 2023-2024, including Management cost)	UNDP	UNDP/ Japan	39,951,957	-	-	-	-	39,951,957
Output 1.2.: Power generation equipment and capacity development provided to targeted local authorities GEN 2	Activity 1.2.1. provide power generation equipment on municipal/ regional level	UNDP	Denmark, UNDP, TBD	25,000,000	20,000,000	10,000,000	9,000,000	-	64,000,000
	Activity 1.2.2. capacity development on sub-national level	UNDP	Denmark, TBD	100,000	100,000	50,000	-	-	250,000
	Activity 1.2.3. Energy conservation awareness campaign in target areas	UNDP	TBD	20,000	80,000				100,000
	Activity 1.2.4. Energy sector coordination at sub-national level	UNDP	TBD	300,000	400,000	400,000			1,100,000

[22] Cost definitions and classifications for project and development effectiveness costs to be charged to the project are defined in the Executive Board decision DP/2010/32

[23] Changes to a project budget affecting the scope (outputs), completion date, or total estimated project costs require a formal budget revision that must be signed by the project board. In other cases, the UNDP project manager alone may sign the revision provided the other signatories have no objection. This procedure may be applied for example when the purpose of the revision is only to re-phase activities among years.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Output 1.3.: Substations rehabilitated, logistics and data management systems enhanced to increase resilience of transmission capacities in targeted areas GEN 2	Activity 1.3.1. support with rehabilitation of HV substations	UNDP	TBD	1,550,000	1,550,000	1,550,000	1,550,000		6,200,000
	Activity 1.3.2. enhancing logistics capacities of Ukrainian energy system	UNDP	TBD	-	1,325,000	1,325,000	1,325,000	1,325,000	5,300,000
	Activity 1.3.3. enhancing data management, analytical and planning capabilities on national level	UNDP	TBD	-	132,500	132,500	132,500	132,500	530,000
Sub-Total (Outcome 1)				**66,921,957**	**23,587,500**	**13,457,500**	**12,007,500**	**1,457,500**	**117,431,957**
Output 2.1.: Capacities of national authorities strengthened and public awareness raised to implement reform of the energy sector GEN 2	Activity 2.1.1. Strengthening oversight mechanisms and regulatory framework	UNDP	UNDP, TBD	80,000	200,000	200,000	200,000	200,000	880,000
	Activity 2.1.2. Gender analysis on impact of the war on the energy sector	UNDP	TBD	20,000	100,000	100,000	50,000	50,000	320,000
	Activity 2.1.3 Advocacy for acceptance of reforms including production of analytical products	UNDP	TBD	-	200,000	200,000	200,000	200,000	800,000
	Activity 2.1.4 Support gender audits in the energy sector with state-owned enterprises and private sector	UNDP	TBD		80,000	50,000	50,000		180,000
Output 2.2.: Capacities of municipal authorities strengthened to apply renewable energy technologies GEN 2	Activity 2.2.1. Conduct feasibility studies of the technical, economic, social, and environmental aspects of local energy solutions	UNDP	UNDP, TBD	300,000	190,000	190,000	190,000	190,000	1,060,000
	Activity 2.2.2. Human capacity needs assessment	UNDP	TBD	10,000	100,000	100,000	50,000	50,000	310,000
	Activity 2.2.3. Design of	UNDP	TBD		203,000	200,000	230,000	237,500	870,500

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

	development models and solutions			-					
	Activity 2.2.4. Capacity building for service providers and local authorities	UNDP	TBD	-	10,000,000	29,000,000	28,500,000	10,000,000	77,500,000
	Activity 2.2.5. Provision of equipment and implementation support for green technologies	UNDP	TBD	-	570,000	570,000	570,000	570,000	2,280,000
Output 2.3.: Green financial mechanisms are operational and championed among public and private actors GEN 2	Activity 2.3.1. Development and implementation of models	UNDP	TBD	200,000	400,000	400,000	400,000	- -	1,400,000
	Activity 2.3.2. Development of a Green Finance Framework	UNDP	TBD	-	100,000	100,000	100,000	100,000	400,000
	Activity 2.3.3 Development of green incentivization tools	UNDP	TBD	150,000	50,000	30,000			230,000
	Activity 2.3.4. Provison of enhanced state support for decarbonization	UNDP	TBD	210,000	150,000	50,000	50,000	50,000	510,000
	Activity 2.3.5. Communication programs and green investment promotion campaigns	UNDP	TBD	20,000	100,000	100,000	100,000	100,000	420,000
Sub-Total (Outcome 2)				**990,000**	**12,443,000**	**31,290,000**	**30,690,000**	**11,747,500**	**87,160,500**
Sub-Total (Programme Budget)				**67,911,957**	**36,030,500**	**44,747,500**	**42,697,500**	**13,205,000**	**204,592,457**
Project Management cost (to be incorporated into the technical outputs in the detailed AWP)	Project Management Staffing Costs, incl. Programme manager, Procurement Specialist, Project Analyst, IM Analyst, M&E Analyst/ Officer, Communication/Outreach Analyst, Operation Analyst,	UNDP	Multiple	500,000	1,000,000	1,000,000	1,000,000	1,000,000	4,500,000

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

	Finance Analyst, Procurement Officer, 3 Project Associate, Gender Analyst/ Gender Associate, Driver/ Clerk and other functions required for effective programme management as defined by the Org Chart)								
	Project Management Costs (travel, office equipment and office rent, comms, M&E, etc.)	UNDP	Multiple	250,000	250,000	250,000	250,000	250,000	1,250,000
	Evaluation	UNDP	Multiple			50,000		50,000	100,000
	Audit cost (0.4%)	UNDP	Multiple	271,648	144,122	178,990	170,790	52,820	818,370
	DES (3%)	UNDP	Multiple	2,068,008	1,122,739	1,386,795	1,323,549	436,735	6,337,825
	Security cost (2%)	UNDP	Multiple	100,000	100,000	100,000	100,000	100,000	500,000
	GMS (8%)			5,688,129	3,091,789	3,817,063	3,643,347	1,207,564	17,447,892
Total budget				**73,600,086**	**39,122,289**	**48,564,563**	**46,340,847**	**14,412,564**	**222,040,349** [24]

[24] Total budget for 2023-2029 is USD 274,062,034 as indicated on the Face Sheet. The total budget amount includes Project Initiation Plan budget (USD 52,021,686 for PIP Year 2023)

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

LEGAL CONTEXT

Option a. Where the country has signed the Standard Basic Assistance Agreement (SBAA)

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of (country) and UNDP, signed on (date). All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

This project will be implemented by [name of entity] ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

GOVERNANCE AND MANAGEMENT ARRANGEMENTS

UNDP (DIM)

1. UNDP as the Implementing Partner will comply with the policies, procedures and practices of the United Nations Security Management System (UNSMS.)

2. UNDP as the Implementing Partner will undertake all reasonable efforts to ensure that none of the [project funds][25] [UNDP funds received pursuant to the Project Document][26] are used to provide support to individuals or entities associated with terrorism , that the recipients of any amounts provided by UNDP hereunder do not appear on the United Nations Security Council Consolidated Sanctions List, and that no UNDP funds received pursuant to the Project Document are used for money laundering activities. The United Nations Security Council Consolidated Sanctions List can be accessed via https://www.un.org/securitycouncil/content/un-sc-consolidated-list. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

3. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

4. UNDP as the Implementing Partner will: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

5. In the implementation of the activities under this Project Document, UNDP as the Implementing Partner will handle any sexual exploitation and abuse ("SEA") and sexual harassment ("SH") allegations in accordance with its regulations, rules, policies and procedures.

6. In line with the PSEA Inter-Agency Action Plan for the Ukraine UN Humanitarian Country Team, all ICs, contractors, responsible parties, and grantees must complete a SEA course prior to (or during 1st month after) signing contracts

7. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

8. UNDP as the Implementing Partner will ensure that the following obligations are binding on each responsible party, subcontractor, and sub-recipient:

[25] To be used where UNDP is the Implementing Partner
[26] To be used where the UN, a UN fund/programme or a specialized agency is the Implementing Partner

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

a. Consistent with the Article III of the SBAA *[or the Supplemental Provisions to the Project Document]*, the responsibility for the safety and security of each responsible party, subcontractor and sub-recipient and its personnel and property, and of UNDP's property in such responsible party's, subcontractor's and sub-recipient's custody, rests with such responsible party, subcontractor and sub-recipient. To this end, each responsible party, subcontractor and sub-recipient shall:
   i. put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
   ii. assume all risks and liabilities related to such responsible party's, subcontractor's and sub-recipient's security, and the full implementation of the security plan.
b. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the responsible party's, subcontractor's and sub-recipient's obligations under this Project Document.
c. Each responsible party, subcontractor and sub-recipient (each a "sub-party" and together "sub-parties") acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the sub-parties, and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.
   (a) In the implementation of the activities under this Project Document, each sub-party shall comply with the standards of conduct set forth in the Secretary General's Bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse" ("SEA").
   (b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, each sub-party, shall not engage in any form of sexual harassment ("SH"). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment. SH may occur in the workplace or in connection with work. While typically involving a pattern of conduct, SH may take the form of a single incident. In assessing the reasonableness of expectations or perceptions, the perspective of the person who is the target of the conduct shall be considered.
d. In the performance of the activities under this Project Document, each sub-party shall (with respect to its own activities), and shall require from its sub-parties (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, sub-parties will and will require that their respective sub-parties will take all appropriate measures to:
   (i) Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;
   (ii) Offer employees and associated personnel training on prevention and response to SH and SEA, where sub-parties have not put in place its own training regarding the prevention of SH and SEA, sub-parties may use the training material available at UNDP;
   (iii) Report and monitor allegations of SH and SEA of which any of the sub-parties have been informed or have otherwise become aware, and status thereof;
   (iv) Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and
   (v) Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. Each sub-party shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is not in contravention of any laws applicable to it. Following the investigation, the relevant sub-party shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.
e. Each sub-party shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the relevant sub-party to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

f. Each responsible party, subcontractor and sub-recipient will ensure that any project activities undertaken by them will be implemented in a manner consistent with the UNDP Social and Environmental Standards and shall ensure that any incidents or issues of non-compliance shall be reported to UNDP in accordance with UNDP Social and Environmental Standards.
g. Each responsible party, subcontractor and sub-recipient will take appropriate steps to prevent misuse of funds, fraud, corruption or other financial irregularities, by its officials, consultants, subcontractors and sub-recipients in implementing the project or programme or using the UNDP funds. It will ensure that its financial management, anti-corruption, anti-fraud and anti money laundering and countering the financing of terrorism policies are in place and enforced for all funding received from or through UNDP.
h. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to each responsible party, subcontractor and sub-recipient: (a) UNDP Policy on Fraud and other Corrupt Practices (b) UNDP Anti-Money Laundering and Countering the Financing of Terrorism Policy; and (c) UNDP Office of Audit and Investigations Investigation Guidelines. Each responsible party, subcontractor and sub-recipient agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.
i. In the event that an investigation is required, UNDP will conduct investigations relating to any aspect of UNDP programmes and projects. Each responsible party, subcontractor and sub-recipient will provide its full cooperation, including making available personnel, relevant documentation, and granting access to its (and its consultants', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with it to find a solution.
j. Each responsible party, subcontractor and sub-recipient will promptly inform UNDP as the Implementing Partner in case of any incidence of inappropriate use of funds, or credible allegation of fraud, corruption other financial irregularities with due confidentiality.
   Where it becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, each responsible party, subcontractor and sub-recipient will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). It will provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.
k. UNDP will be entitled to a refund from the responsible party, subcontractor or sub-recipient of any funds provided that have been used inappropriately, including through fraud corruption or other financial irregularities, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the responsible party, subcontractor or sub-recipient under this or any other agreement.

   Where such funds have not been refunded to UNDP, the responsible party, subcontractor or sub-recipient agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to such responsible party, subcontractor or sub-recipient for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud, corruption or other financial irregularities, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

   Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

l. Each contract issued by the responsible party, subcontractor or sub-recipient in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from it shall cooperate with any and all investigations and post-payment audits.
m. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project or programme, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.
n. Each responsible party, subcontractor and sub-recipient shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to its subcontractors and sub-recipients and that all

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

the clauses under this section entitled “Risk Management Standard Clauses” are adequately reflected, *mutatis mutandis*, in all its sub-contracts or sub-agreements entered into further to this Project Document.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

ANNEXES

Annex 1: Criteria for Selection of Technical Solutions

The selection of technological solutions will be based on criteria established by the Urgent Technology Catalogue for the Ukranian Power Sector (Danish Energy Agency and Ministry of Energy of Ukraine) and UNDP's consultations with stakeholders.

Implementing Speed for Quick Installation and Launch: The preferred equipment should be readily available on the market, facilitating swift deployment, installation and commissioning.

Weather Independence: The solution should operate independently of weather conditions and associated challenges, eliminating the need for auxiliary energy storage systems.

Technology Resilience with high Maneuverability and Readiness: The system should exhibit a high degree of maneuverability and readiness to activate promptly upon command from the Transmission System Operator Ukrenergo.

Sustainable Fuel Source: It should rely on constantly available and accessible fuel, with a preference for environmentally friendly options.

Market Compatibility: The solution should work seamlessly within existing market conditions without necessitating special budget support or preferences.

Extent of Risk Mitigation: Equipment should be characterized by high level of resilience in that they can be sheltered and protected more effectively due to their smaller size and flexibility in location. This will also contribute towards cost effectiveness

Annex 2: Criteria for Selection of Geographical Target Areas

The risk of emergency and scheduled power outages during the heating season is quite high. The priority in the development and implementation of technical solutions should be given to large cities and agglomerations, with a special focus on solutions for backup power supply of municipal critical infrastructure. This is because in Ukraine, the share of the population living in cities, according to the State Statistics Service, is about 70% and had been growing even before the full-scale invasion. At the same time, according to the same data, as of January 1, 2022, more than a third of the country's total population lived in just 25 cities with a population of 200,000 or more. As of mid-2023, given the significant internal migration because of Russia's full-scale aggression, the actual number of people living in these large cities and agglomerations is much higher and, according to various sources, ranges from 40 to 50% of the country's population.

The population of such cities needs significant amounts of centralized heat, water and sewage services concentrated in a relatively small area and, as a rule, does not have alternatives to these services available to rural residents (wells and septic tanks, stoves, individual heating systems, etc.). The de-energization of critical infrastructure in cities leads to a prolonged lack of access to basic services, a radical decline in the quality of life of the population, and can lead to large-scale technological, environmental, and humanitarian disasters.

Therefore, in the face of a significant risk of Russia resuming missile attacks on energy infrastructure, the main problem remains the need to ensure power supply to municipal critical infrastructure in the event of systemic failures caused by both direct attacks and related accidents in trunk and/or distribution power grids. For this purpose, enough additional generating capacities should be installed in large cities with the ability to both operate in the grid and supply only critical infrastructure facilities.

Brief Description

The project involves developing recommendations and selecting a technical solution to ensure power supply to critical infrastructure facilities in Ukrainian cities, regardless of the presence or absence of power supply from the grid and considering a sufficient level of energy and economic efficiency of the proposed solutions.

Based on international experience and consultations with stakeholders, several criteria were identified that the technical solution must meet, including fuel availability, quick reaching of operating capacity, maneuverability, environmental friendliness, safety, ability to start generators in "peak" mode, etc. In accordance with these criteria,

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

a solution based on gas turbine and/or gas piston generating units is proposed to provide power to critical infrastructure facilities.

In a stable power grid, gas turbines can operate as additional maneuvering capacities, which are currently lacking to improve the stability and security of the power grid. At the same time, during power outages, the equipment will ensure autonomous operation of critical infrastructure facilities. In the mid- and long-term perspective of the post-war restoration of the energy system, the availability of additional maneuvering capacities will help to increase the volume of generation from renewable energy sources.

An additional advantage of the technical solution using natural gas as the main fuel is the availability of our own natural gas production, a powerful gas transportation system, and almost 100% gasification of large and medium-sized cities.

The importance of a separate consideration of municipal critical infrastructure is because the centers of electricity consumption are currently large cities and agglomerations. More than 60% of Ukraine's population lives in cities and requires a significant amount of electricity,heat, and water supply, as well as sewage services concentrated in a relatively small area. At the same time, more than 50% of the population lives in the 17 largest agglomerations, and the viability of large cities is crucial for the country's economic recovery.

The population of large cities has virtually no alternative options other than centralized water supply, heating, and sewage services, so the lack of such services in each city will lead to a significant deterioration in the living conditions of its population and an increase in the risk of spreading a few diseases.

Given that the possibility of raising financial resources for the program is limited, there is a need to select and prioritize cities where the proposed technical solutions will be implemented. The selection of cities should be based on transparent and clear criteria.

VI. THE PURPOSE OF THE SELECTION

The purpose of cities selection with the highest priority for inclusion in the project for the deployment of additional generating capacities is to identify the cities with the most vulnerable energy systems, whose inclusion in the project will help to improve energy security, in particular, stable energy supply to critical infrastructure facilities, which will ensure the provision of waterand heat supply services to the maximum possible number of people.

VII. INFORMATION BASE

The information base for the selection of cities with the highest priority for inclusion in projects forthe deployment of additional generating capacities is:

- National Security and Defense CouncilState Statistics Service of Ukraine
- NPC Ukrenergo
- Ministry of Energy of Ukraine
- City and regional military administrations
- Additional sources

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

VIII. CITY SELECTION CRITERIA

The selection of cities with the highest priority for inclusion in the project for the deployment of additional generating capacities should be based on the following criteria:

4.1 Number of people permanently residing in the city

Official statistics on the population by city in Ukraine are currently unavailable due to restrictions on statistical observations during martial law. However, since the start of the full-scale invasion, there have been significant changes in the size and distribution of the population due to large- scale internal migration and the out-migration of some people. The most recent available data from the State Statistics Service of Ukraine on the population of individual cities (as of January 1, 2022)is no longer relevant for most cities. Therefore, the process of selecting cities to be included in the project for the deployment of additional generating capacities involves, among other things, an approximate estimate of the population by the largest cities of Ukraine.

4.2. Vulnerability of the city in terms of the danger of hostilities and shelling

In Ukraine, because of Russia's full-scale invasion, there are no completely safe places, the threat of rocket attacks remains throughout the territory, but the level of danger varies significantly depending on the region and the importance/significance of the settlement and/or region for the country. The following factors should be considered when determining the level of vulnerability of a city:

i. the location of the city in relation to the war zones and temporarily occupied territories, in particular, the location in the area of impact of shells of cannon artillery and missiles of ground-based missile and anti-aircraft systems;
ii. the city's location relative to the borders with the Russian Federation and the Republic of Belarus;
iii. the importance and significance of the city for the country in terms of economy, logistics, political factors, etc.

4.3. Vulnerability of the city's energy hub

The vulnerability of a power node is determined by the level of risk of a city's blackout and disconnection from the high-voltage grid in the event of direct attacks or systemic failures. The following factors should be considered when determining the level of vulnerability:

4.3.1. the degree of development of the city's electricity infrastructure (the number of main substations that supply electricity to the city, the level of duplication of high-voltage lines, etc);
4.3.2. the extent of damage to the main substations and high-voltage lines that supply the city with electricity;
4.3.3. availability of generation facilities in or near the city that can fully or partially meet the city's electricity needs.

5. SELECTION METHODOLOGY

Prioritization of cities for inclusion in the project for the deployment of additional generating capacities is carried out by ranking cities in accordance with the integrated rating scores, which are calculated as the sum of the rating scores calculated for each criterion.

5.1 CALCULATION BY THE CRITERION "POPULATION"

The approximate population of the city can be determined:

- According to the data provided by Ukrainian mobile operators on the number of simultaneously registered SIM cards in the city. To increase the accuracy of the estimate, the data obtained from mobile operators should be adjusted for the number of users who have two or more SIM cards (data provided by

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

mobile operators), as well as for theestimated number of children under the age of 5 who, as a rule, do not have their own SIM cards. To calculate the approximate number of children under 5, it can be used the data of the State Statistics Service of Ukraine on the age structure of the population for 2021 (in 2021, the share of children under 5 in the total population was 4.1%).

- According to the municipal authorities' estimates of the number of people actually living in the city. This estimate should also include the population that is in the city as internally displaced persons.

At the same time, the calculation of the population should consider the official data of the State Statistics Service of Ukraine on the city's population as of January 1, 2022. This will allow to consider the scale of the city's critical infrastructure enterprises and the possibility of a part of the population returning to the city before the winter season.

The number of people permanently residing in a city is defined as the arithmetic mean of the population according to the State Statistics Service as of January 1, 2022, the population determined by mobile operators and the population according to municipal authorities.

The rating assessment for the criterion "Population" (P) is based on the following principle:

Population, thousand people	**Rating score (R)**
More than 500	0
250 - 500	1
Up to 250	2

5.2 Calculation by the criterion "Vulnerability of the city in terms of the risk of hostilities and shelling"

The criterion " Vulnerability of the city in terms of the risk of hostilities and shelling" determinesthe risks of shelling of the city and its critical infrastructure and consists of two components:

- the risk of shelling from ground-based weapons, which actually determines the city's distance from the territories from which shelling can be carried out - the war zone, temporarily occupied territories, borders with Russia and Belarus.
- increased risks of air attacks - missile attacks (cruise, ballistic and aerial ballistic missiles) and attacks by combat UAVs - which are significantly higher for cities that are of great importance and significance to the country, such as economic (port infrastructure, important logistics hub, important storage hub for strategic goods, etc.), political (decision- making center, newly liberated territories, etc.), or social (center of internal migration, hub for foreign travel, etc.).

Given that even in those border regions where active hostilities are not currently taking place (for example, Chernihiv and Sumy regions), there is a constant increased risk of shelling, the entire border line with Russia and Belarus is considered a zone of hostilities for the purpose of calculatingthe rating for this criterion.

In determining the ranges for calculating the rating score for this criterion, the maximum radius of destruction of the main types of ground weapons used by the Russian army to shell the territory ofUkraine (MLRS "Grad" - 20 km, MLRS "Uragan" - 35 km, MLRS "Smerch" - 70 km, etc.) was taken into account.

The distance to the city from the war zone or temporarily occupied territories is calculated according to the minimum possible trajectory and may include areas of water bodies.

The rating score for the criterion "Vulnerability of the city in terms of the risk of hostilities and shelling" (W) is calculated using the formula:

$$W = W1 + W2$$

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

where W1 - rating score of vulnerability to shelling from ground weapons

W2 - rating score of increased risks of vulnerability to missile attacks

The W1 score is determined according to the following principle:

Distance from the city to the war zone, temporarily occupied territories, borders withRussia and Belarus, km	**Rating score (W1)**
Up to 100	0
100 - 300	1
More than 300	2

The W2 score is determined according to the following principle:

Economic, political, or social significance for the country	**Rating score (W1)**
Special	0
Normal	1

Cities located up to 100 km from the war zone, as well as cities of particular importance/significance for the country, have the highest priority for inclusion in projects for the deployment of additional generating capacities. However, when locating generating facilities in such cities, it is necessary to develop measures to ensuretheir protection from targeted, especially air attacks (underground location, installation in different parts of the city, etc.).

5.3 Calculation by the criterion "Vulnerability of the city's energy hub"

The criterion "Vulnerability of the city's energy hub" characterizes the state of the city's energy system and its ability to provide energy supply in the event of renewed shelling of energy infrastructure. This criterion is complex and requires a separate assessment for each factor (the number and degree of damage to the main substations that supply the city with electricity, the presence of generation facilities in the city, etc).

The rating score for the criterion "Vulnerability of the city's energy hub" (E) is calculated using the following formula:

$$E = E1 + E2 + E3$$

where E1 - rating score on number of main substations through which the city is supplied with electricity

E2 - rating score on degree of damage to the main substations thatsupply the city with electricity

E3 - rating score on availability of generation facilities in or near the city that canfully or partially meet the city's electricity needs

Assessment of the number of main substations that supply the majority of the city's electricity determines the presence or absence of alternative energy supply routes and the speed of reconnecting consumers in case of damage to one or more substations. This indicator does not consider substations that are out of service due to damage or operate at the lowest possible capacity.

The E1 score is determined according to the following principle:

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Number of main substations that supply electricity to the city, units	Rating score (E1)
1	0
2	1
More than 2	2

The assessment of the degree of damage to the main substations that supply the city with electricity determines the condition of the key substations and their ability to provide power to the city. The damage assessment is based on the number of missile and drone hits to the substation, the criticality of the hits to the substation's performance, available information on repairs and data on the substation's performance. The result of the assessment is the averagelevel of lost substation performance.

The E2 score is determined according to the following principle:

Degree of damage to the main substations thatsupply electricity to the city, %	Rating score (E2)
More than 70% of	0
30 - 70	1
Up to 30	2

The presence of undamaged generation facilities in the city or directly near it that can fully or partially meet the city's electricity needs means that in the event of significant damage to the main substations and the grid, the city's power system can receive electricity directly from the nearest generation facilities. This will help avoid blackouts in the city, including its critical infrastructure.

The condition of sufficiency for the conclusion that a city has generation facilities is the ability of the existing generation to ensure the operation of critical infrastructure (water supply, sewerage, heat supply) for the entire population.

The E3 score is determined according to the following principle:

Availability of generation facilities in the citythat can meet the city's electricity needs, yes/no	Rating score (E3)
No	0
Yes	1

5.4 Calculation of the integral rating score

The integrated rating score (IR) is used to rank cities by priority for inclusion in projects for the deployment of additional generating capacities.

The calculation of the integral rating score (I) is carried out according to the formula:

$$I = P + W + \frac{}{E}$$

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

where P - rating score by the criterion "Population"

W - rating score by the criterion "Vulnerability"

E - rating score by the criterion "Vulnerability of the city's energy hub"

6. Ranking of Cities by Priority Level for Inclusion in Projects for Additional Generating Capacities

Prioritization of cities for inclusion in projects for the deployment of additional generating capacitiesis carried out in accordance with the calculated integrated rating of the city (I).

The LOWEST rating score obtained gives the HIGHEST priority for the deployment of additional generating capacity.

If two or more cities have the same priority based on the results of the integrated rating score calculation, the ranking decision is made by experts based on additional information.

Below is the total score broken down into four groups by priority for cities with more than 200,000inhabitants.

City	Priority *(April 2024)*
Odesa	3
Kyiv	4
Kharkiv	4
Mykolaiv	4
Dnipro	4
Zaporizhzhia	4
Kryvyi Rih	4
Kherson	4
Kremenchuk	4
Lviv	5
Chernihiv	5
Poltava	5
Zhytomyr	5
Sumy	5
Kropyvnytskyi	5
Vinnytsia	6
Chernivtsi	6
Kamianske	6
Lutsk	6
Bila Tserkva	6

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Khmelnytskyi	7
Cherkasy	7
Rivne	7
Ivano-Frankivsk	7
Ternopil	7

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

ANNEX 3: OFFLINE PROJECT RISK REGISTER

Project Title: Green Energy Recovery Project	Project Number:	Date: 07-Mar-24

#	Event	Cause	Impact(s)	Risk Category and Sub-category *(including Risk Appetite)*	Impact, Likelihood & Risk Level *(see Annex 3 Risk Matrix)*	Risk Valid From/To	Risk Owner *(individual accountable for managing the risk*	Risk Treatment	Current status of Risk Treatment(s)
1	Escalation of attacks and further deterioration of security situation in Ukraine	As a result of the ongoing war in Ukraine, specifically spread of open hostilities and attacks by Russian/Pro-Russian forces and of continued or escalated targeted attacks to energy infrastructure.	(1) enhanced security restrictions, that may restrict staff movement, direct consultations with stakeholders/partners and implementation of project activities. (2) potential risk of injury or detention to project staff, contractors, partners, grantees or beneficiaries impacting partners' ability and commitment to execute activities (3) potential risk of damage to assets during transportation, storage and installation	**8. SAFETY AND SECURITY (8.1. Armed conflict) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 3 - Moderately likely** **Impact: 4 - Extensive** **Risk level: SUBSTANTIAL (equates to a risk appetite of OPEN)**	From: 01-Jan-23 To: 01-Jan-28	Risk Owner: Project Manager Risk Treatment owner: National/Local Authorities, Project Security Specialist/ UNDP Security, UNDSS	Risk Treatment 1.1: UNDP (security and project security specialist) will work in close coordination with UNDSS and the national government while ensuring Regular negotiations with military, formal and informal authorities, and community leaders to secure a safe environment for implementing partners and community members themselves. Project activities will take into account security situation in Ukraine and the necessary revisions will be made to ensure that project activities continue to the extent possible. This may entail scale down of project activities in affected areas until acceptable level of stability is restored or amend procurement strategy e.g. recognizing the vulnerability of large-scale infrastructure to targeted assaults, UNDP may opt to prioritize the procurement of smaller-scale equipment, such as gas pistons and solar panels. By diversifying energy generation sources and distributing smaller, more maneuverable assets, UNDP aims to minimize the impact of potential attacks on critical energy infrastructure.	Risk identified during the design stage; treatment hasn't been started yet.
								Risk Treatment 1.2: Work with implementing partners with local knowledge and presence for community-based security systems (e.g. for early warning) for each target area. UNDSS/UNDP security coordination and effective information sharing on both current and emerging threats	Risk identified during the design stage; treatment hasn't been started yet.
								Risk Treatment 1.3: Added security measures to be considered such as procurement of armored vehicles for required locations, building adequate local security costs into the budget of the programme. Tested business continuity and security plans and standard operating procedures in place and updated regularly to mitigate	Risk identified during the design stage; treatment hasn't been started yet.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

								the impact of existing and potential threats to UNDP staff. Provide security training to UNDP staff and implementing actors.	
2	There is a risk of lack of willingness of stakeholders to cooperate with the project or that changes may occur at the partner government institutions during or after the war, leading to a substantial revision of strategic priorities and a potential lack of commitment to project objectives	As a result of political instability, decrease in public support to government due to inadequate crisis management, growing economic hardships and deteriorating social conditions. High expectation from government partners for the project.	Which will impact in delays in project activities or inability to achieve project's expected results, especially slowdown of policy and institutional work and weakened sustainability of project interventions	**1. SOCIAL AND ENVIRONMENTAL (1.12. Stakeholder engagement) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 3 - Moderately likely** **Impact: 3 - Intermediate** **Risk level: LOW (equates to a risk appetite of CAUTIOUS)**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	Risk Treatment 2.1: Project will foster strong relationships and regular communication with partner government institutions to build trust and maintain a shared understanding of project goals and objectives. UNDP CO will also actively advocate for green recovery in the energy sector as a necessary priority for Ukraine to achieve its strategic goals for energy security and decarbonisation.	Risk identified during the design stage; treatment hasn't been started yet.
3	Delays in delivery or deficit of relevant energy equipment in the market	As a result of global supply chain risks due to the need for international procurement, and the complex nature of production and transportation of some of the equipment which takes months to	Which will impact in delays in project activities or inability to achieve project's expected results, especially weakened sustainability of project interventions	**4. ORGANIZATIONAL (4.9. Procurement) - UNDP Risk Appetite: EXPLORATORY TO OPEN**	**Likelihood: 3 - Moderately likely** **Impact: 3 - Intermediate** **Risk level: MODERATE (equates to a risk appetite**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	Risk Treatment 3.1: Retaining sufficient logistics capacity to ensure due planning of transportation of energy equipment, choosing the route that can be used to transport heavy and over-sized equipment, processing the cross-border transportation, and arranging security escort services to move the equipment within Ukraine.	Risk identified during the design stage; treatment hasn't been started yet.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

		manufacture after ordering.			**of EXPLORATORY)**				
4	There is a risk that project interventions are not implemented in a gender-sensitive manner and that the full participation of women in the project planning and implementation, and their access to benefits provided by the project may be limited	As a result of low awareness or lack of capacity of project staff and partners of gender equality and women empowerment issues; low interest of women beneficiaries in participation in project activities; pre-existing social and cultural norms in the project target areas; lack of regularly updated gender and vulnerability segregated statistical data.	Which will have implications for project approaches, design, and activities. These implications include the inadequate incorporation and reflection of the views, priorities, and constraints of women and girls, as well as the limited opportunities for their involvement in implementation and access to opportunities and benefits. As a result, equitable opportunities may not be provided, hindering the inclusion and empowerment of women and girls in the project.	**1. SOCIAL AND ENVIRONMENTAL (1.2. Gender equality and women's empowerment) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 2 - Low likelihood** **Impact: 4 - Extensive** **Risk level: MODERATE (equates to a risk appetite of EXPLORATORY)**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	Risk Treatment 4.1: The project will uphold the target for women's participation in all project activities to ensure their active involvement and representation; engage and support women's organizations in advocacy efforts, local planning, and budgeting participation, empowering them to voice their perspectives and priorities; allocate a minimum budget specifically dedicated to women's activities, ensuring that sufficient resources are allocated to address their specific needs and promote gender equality within the project.	Risk identified during the design stage; The Gender Analysis was conducted prior the rpoject.
								Risk Treatment 4.2: The project will ensure that its staff and partners uphold the highest standards of conduct for PSEA, which includes familiarizing themselves with UNDP's policies and procedures on PSEA and being informed about the channels available for reporting misconduct. Awareness-raising and training: 100% of partners and their staff undergo the online PSEA training Risk Treatment 4.3: The project will set a target for women's participation in all programme activities to ensure their active involvement and representation; engage and support women's organizations in advocacy efforts, local planning, and budgeting participation, empowering them to voice their perspectives and priorities; allocate a minimum budget specifically dedicated to women's activities, ensuring that sufficient resources are allocated to address their specific needs and promote gender equality within the project.	Risk identified during the design stage; treatment hasn't been started yet.
5	There is the risk that project	As the response for the crisis	Which results in the increased emissions	**1. SOCIAL AND ENVIRONMENTAL**	**Likelihood: 5 - Expected**	**From: 01-Jan-23**	Project Manager	The project will procure only equipment which could be easily converted to use alternate energy sources after the	Risk identified during the

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

	will contribute to the GHG emissions	setting in Ukraine, it's envisioned that new generation capacities are needed immediately. As the respective equipment is powered by fossil fuels it leads to CO2 emissions.	of CO2 from power generations sites such as gas-pistons.	**(1.5. Climate change and disaster risks) - UNDP Risk Appetite: CAUTIOUS**	**Impact: 3 - Intermediate** **Risk level: SUBSTANTIAL (equates to a risk appetite of OPEN)**	**To: 01-Jan-28**		crisis end, such as biogas and hydrogen. In addition, project will conduct Environmental and Social Impact Assessment (ESIA) to properly manage and communicate this risk.	design stage; treatment hasn't been started yet.
6	There is a risk of restricted access to public services, social tension at municipalities and potential inconveniences .	As a result of re/construction activities initiated by the project.	This will possibly cause social tension and grievances among affected local communities.	**1. SOCIAL AND ENVIRONMENTAL (1.3. Grievances (Accountability to stakeholders)) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 2 - Low likelihood** **Impact: 3 - Intermediate** **Risk level: MODERATE (equates to a risk appetite of EXPLORATORY)**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	Project will perform communication campaigns explaining the long-term benefits of implementation of energy efficiency measures. The project will also ensure that the contractors are equipped with best practices and standards for social responsibility and apply them during the reconstruction (including the availability of grievances plan/hotline, etc.)	Risk identified during the design stage; treatment hasn't been started yet.
7	Workers involved in implementing the construction or infrastructure related activities could be subjects to discriminatory working and labour conditions, including inadequate health and	As a result of non-compliance of contractors with the norms on working and labor conditions	Workers who will be contracted by UNDP wouldn't enjoy good working and labor conditions, which includes ensuring their safety	**1. SOCIAL AND ENVIRONMENTAL (1.10. Labour and working conditions) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 2 - Low likelihood** **Impact: 4 - Extensive** **Risk level: MODERATE (equates to a risk appetite of EXPLORATORY)**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	The project shall ensure the contractors commit to, in writing, to comply with the relevant working and labor, including occupational health and safety (OHS) requirements, prior the project funds are allocated for the relevant project activity: building construction, renovation, infrastructure construction and operation, etc. Workers may raise their concerns (safety, potential violations of existing rights and entitlements as provided for in legislation, employment contracts or else) through the Grievance Mechanism. The workers will be informed of the grievance mechanism at the time of recruitment and be protected against any reprisal for its use.	Risk identified during the design stage; treatment hasn't been started yet.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

	safety conditions.								
8	Project supported construction activities may have negative impact on environment and local communities' health, safety and well-being	Building renovations as well as establishing of new power generation capacities may involve construction works related to, for instance walls and roofs insulation, heavy construction etc.	Which results in environmental pollution (air, water and soil) with hazardous materials such as fuel (natural gas) for power stations, transformers' oil, etc.	**1. SOCIAL AND ENVIRONMENTAL (1.11. Pollution prevention and resource efficiency) - UNDP Risk Appetite: CAUTIOUS**	**Likelihood: 3 - Moderately likely** **Impact: 3 - Intermediate** **Risk level: MODERATE (equates to a risk appetite of EXPLORATORY)**	**From: 01-Jan-23** **To: 01-Jan-28**	Project Manager	All construction related action will be screened against UNDP SES standards to identify whether and what further SE impact assessment is required. In case significant risks are expected the environmental impact assessment shall be conducted, following the national EIA legislation (if applicable) or UNDP SES required ESIA. ESIA shall be followed by the ESMP including impact avoidance or mitigation measures	Risk identified during the design stage; treatment hasn't been started yet.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Annex 4: Project Quality Assurance Report (available in separate attachment)

Annex 5: Social and Environmental Screening (available in separate attachment)

Annex 6: Project Board Terms of Reference

UNDP Standard Terms of Reference (ToR) for the
Project Board of UNDP Green Energy Recovery Programme

I. Background

All UNDP projects must be governed by a multi-stakeholder board or committee established to review performance based on established monitoring and evaluation metrics and high-level implementation issues to ensure quality delivery of results. For the purpose of this ToR and to ensure standardization, henceforth, as regards project documentation, such a body shall only be referred to by one of two names: 'Project Board' or 'Project Steering Committee.' The Project Board is the most senior, dedicated oversight body for a UNDP 'Development Project', which is defined in the PPM as an instrument where UNDP "Delivers outputs where UNDP has accountability for design, oversight and quality assurance of the entire project."

II. Duties and Responsibilities

The two prominent (mandatory) roles of the Project Board are as follows:

1) **High-level oversight of the project**. This is the primary function of the Project Board. The Project Board reviews evidence of project performance based on monitoring, evaluation and reporting, including progress reports, monitoring missions' reports, evaluations, risk logs, quality assessments, and the combined delivery report. The Project Board is the main body responsible for taking corrective actions as needed to ensure the project achieves the desired results. And its function includes oversight of annual (and as-needed) assessments of any major risks to the programme or project, and related decisions/agreements on any management actions or remedial measures to address them effectively.

   The Project Board also carries the role of quality assurance of the project taking decisions informed by, among other inputs, the project quality assessment. In this role the Board is supported by the quality assurer, whose function is to assess the quality of the project against the corporate standard criteria. This function is performed by a UNDP programme or monitoring and evaluation officer to maintain independence from the project manager regardless of the project 's implementation modality.

   The Project Board reviews updates to the project risk log.

2) **Approval of key project execution decisions**. The Project Board has an equally important, secondary role in approving certain adjustments above provided tolerance levels, including substantive programmatic revisions (major/minor amendments), budget revisions, requests for suspension or extension and other major changes (subject to additional funding partner/donor requirements).

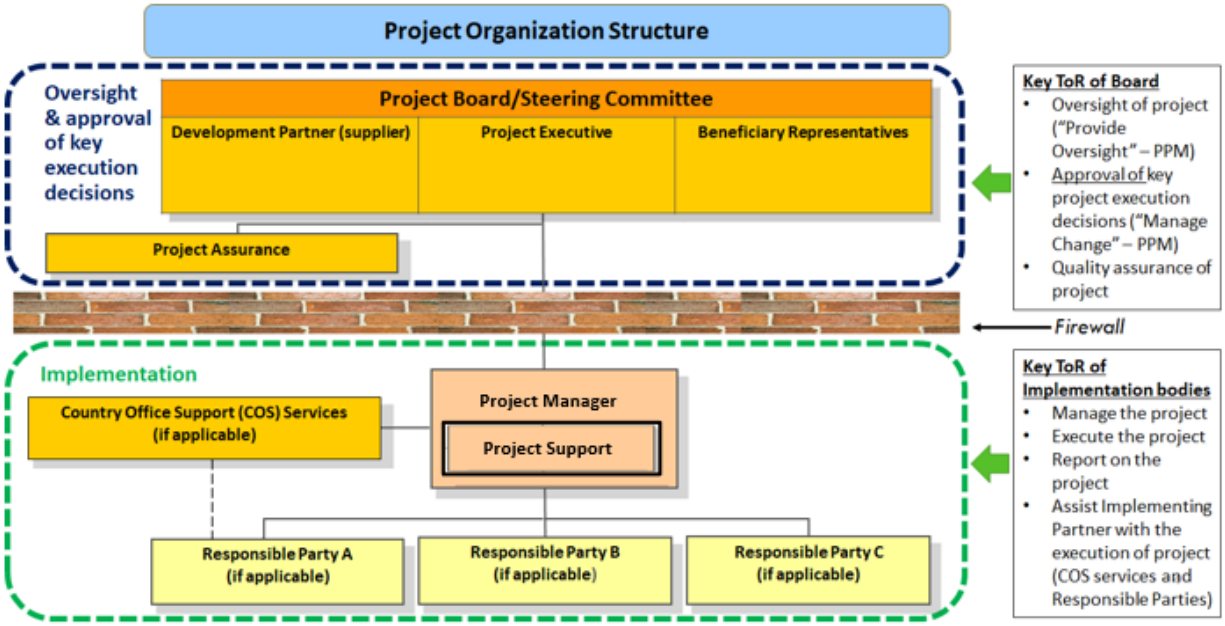
The Project Board is responsible for making management decisions by consensus when required, including the approval of project plans and revisions, and the project manager's tolerances. The Project Board approves annual work plans and reviews updates to the project risk log.

Within the overall governance and management arrangements of the project, the role of the Project Board as regards these two key functions *('High-level oversight of the project' and 'Approval of key project execution decisions')* is distinct from the roles of entities involved in the implementation of the project, namely the implementing partner (IP), responsibilities parties (if applicable), service providers and project staff.

The diagram below outlines the main entities involved (and their respective responsibilities) in the 'oversight/approval of key execution decisions' layer and the 'implementation' layer of the project structure.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Diagram 1 – Standard Figure of Project Organization Structure vis-à-vis oversight & approval and implementation roles



In order to ensure UNDP's ultimate accountability, the Project Board decisions should be made in accordance with the Quality Standards for Programming that shall ensure management for development results, best value money, fairness, integrity, transparency and effective national and international competition. An effective Project Board needs credible data, evidence, quality assurance and reporting to aid decision making (see next section on supporting functions to the Board). The Project Board also needs to be accountable to protect against conflicts of interest and fraud.

Specific responsibilities of the Project Board include the following:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints, and promote gender equality and social inclusion (LNOB) in the project implementation;
- Review project performance based on monitoring, evaluation and reporting, including standard quality assurance checks, progress reports, risk logs, spot checks/audit reports and the combined delivery report;
- Address any high-level project issues as raised by the project manager and project assurance;
- Provide guidance on emerging and/or pressing project risks and agree on possible mitigation and management actions to address specific risks (including ensuring compliance with UNDP's Social and Environmental Standards, Fraud/corruption, Sexual Exploitation and Abuse and Sexual Harassment);
- Agree or decide on project manager's tolerances as required, within the parameters set by UNDP (Manage Change in the PPM) and the donor, and provide direction and decisions for exceptional situations when the project manager's tolerances are exceeded;
- Advise on major and minor amendments to the project within the parameters set by UNDP and the donor;
- Agree or decide on a project suspension or cancellation, if required; (note that for GEF and GCF projects it is UNDP that decides to suspend or cancel and project and the Project Board is informed/consulted only).
- Provide high-level direction and recommendations to the project management unit to ensure that the agreed deliverables are produced satisfactorily according to plans.
- Receive and address project level grievance, including overseeing whatever specific compliance and stakeholder response (or grievance) mechanisms have been put in place so that individuals and communities

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

potentially affected by the project have access to effective mechanisms and procedures for raising concerns about the social and environmental performance of the project[27].

- Engage in the low value grant selection process where there is no Grant Selection Committee, as guided by the Low Value Grants – UNDP Operational Guide.

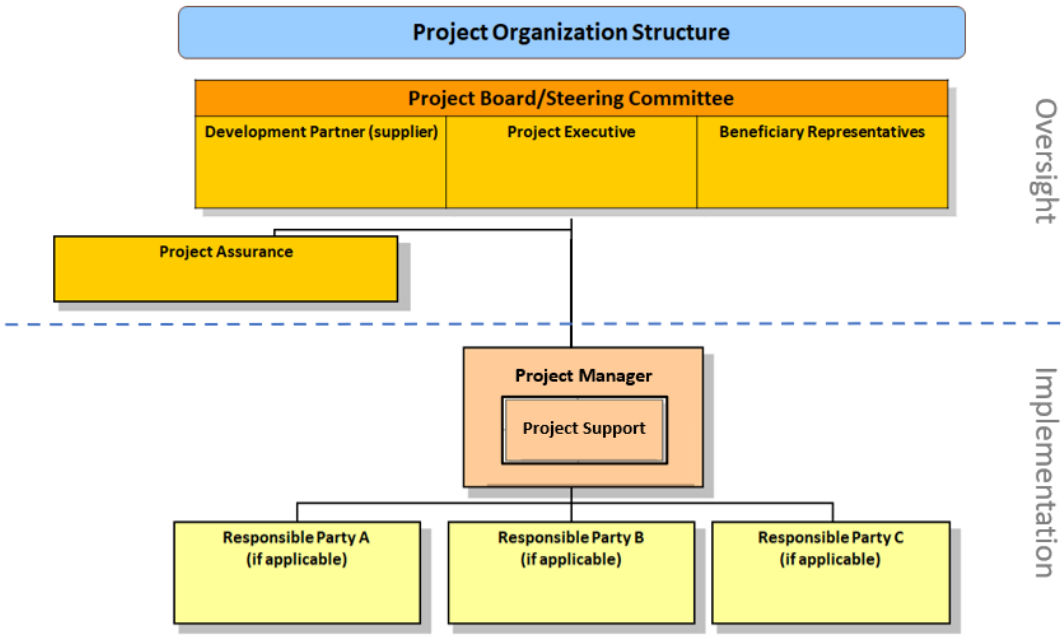
Additional responsibilities of the Project Board can include, but are not limited to, the following:

- Ensure coordination between the various donors and government-funded projects and programmes;
- Report to relevant inter-ministerial bodies or higher-level oversight bodies;
- Ensure coordination with multiple government agencies and their participation in project activities;
- Track and monitor co-financing for this project;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Act as an informal consultation mechanism for stakeholders;
- Approve the Project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up;
- Providing guidance or reporting protocols to technical committees or sub-bodies reporting to the Board (if applicable);

III. Composition of the Project Board

As noted in the diagram below, every Project Board in a UNDP project has three categories of formal members (e.g. voting members). The role of every formal Project Board must correspond to one of these three roles and be identified accordingly in the project documentation.

Diagram 2 – Standard Figure for a Project Organization Structure



[27] The responsibilities of the board in this regard should follow UNDP's Social and Environmental Standards (SES) as codified in the PPM. It should be noted that while a project board can play a role in addressing or assisting with the compliance and stakeholder response (or grievance) mechanisms put in in place for a given project (as part of their quality assurance and oversight function), this will be in addition to and does not substitute for UNDP's core responsibility to ensure compliance with the SES throughout the project management cycle as part of UNDP's Programming Quality Assurance system.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

The three categories of Project Board members are the following:

1) **Project Director/Executive(s):** This is an individual(s) who represents ownership of the project and chairs (or co-chairs) the Project Board. The executive usually is the most senior national counterpart for nationally implemented projects (typically from the same entity as the Implementing Partner), and it must be UNDP for projects that are direct implementation (DIM). In exceptional cases, two individuals from different entities can co-share this role and/or co-chair the Project Board. If the project executive co-chairs the Project Board with a representative of another category, it typically does so with a development partner representative. The Project Executive is: the First Deputy Prime Minster – Minister of Economy.

2) **Beneficiary Representative(s):** This is an individual(s) representing the interests of those groups of stakeholders who will ultimately benefit from the project. Their primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. Often representatives from civil society, industry associations, community groups or other government entities benefiting from the project can fulfil this role. If the project has a specific geographic focus, often representatives from the government entities in the targeted area/region will play this role. There can be multiple beneficiary representatives in a Project Board. The Beneficiary Representative(s) are: Deputy Minister of Defence, Deputy Minister of Interior Affairs, Depty Minister for Reintegration of Temporarialy Occupied Territories, Deputy Minister Economy, Deputy Minister for Agriculture, and NMAA Chair.

3) **Development Partner(s):** Individuals representing the interests of the parties concerned that provide funding, strategic guidance and/or technical expertise to the project. There can be multiple development partners representatives in a Project Board. The Development Partner(s) representative(s) are all current and future donors of the MAP.

A **UNDP representative must always be represented in the Project Board** as part of the project executive.The level of representation by UNDP on the Board is determined on a case-by-case basis but typically, for national projects, the board member is either the Resident Representative or the Deputy Resident Representative.]

Where applicable, representatives from responsible parties to the project cannot sit on the Project Board as a formal voting member; they can (if requested) attend board meetings as observers. Since the chief responsibility of the Board is to provide high-level oversight of project implementation, to avoid any conflicts of interest, it is not appropriate for representatives of third party entities engaged by the project to provide services – whether responsible parties or contractors/service providers – to concurrently sit on the Board. Representatives of responsible parties can attend board meetings (as observers) but can have no official role in board decision-making. The same principle applies to the project manager who in attending and presenting at board meetings, does so in a non-voting capacity.

In cases where the inputs and guidance of responsible parties or other entities formally engaged in providing goods or services to the project are needed by the Board on a recurring basis, it is recommended to establish appropriate advisory or technical committees or working groups composed of those entities that can formally report to the Board, while ensuring the impartiality and integrity of board decisions happening independent of those bodies (see Section V of the ToR).

IV. Standard Project Board Protocols

The Project Board must meet one time annually at a minimum**.** It is recommended that the timing of board meetings be agreed upon in advance and corresponds to key project reporting or work planning milestones. Noting the rapidly evolving landscape within Ukraine currently, it is proposed Project Board meeting occur more frequently to allow for adaptive programming and responsiveness. Outside of Project Board meetings, it is proposed time sensitive decisions can also be made in writing through email, with decision able to be reached through no objection.

Project Board members cannot receive remuneration from project funds for their participation in the Board. However, it is allowable for board members to be reimbursed from project funds for certain reasonable, qualified expeses related to travel or lodging to attend board meetings. Such protocols are outlined in this ToR and the benefits are applicable to all eligible board members.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

All Project Boards must have rules for quorum and documentation/minuting of board decisions. All board decisions and minutes should be kept by the project management unit and UNDP. Guidelines on decisions taken in between board meetings or virtually should be clearly elaborated in the Terms of Reference (ToR) of the Project Board.

Unless otherwise specified, Project Board decisions are made by unanimous consensus. If a consensus cannot be reached within the Board, the final decision shall rest with the UNDP representative on the Project Board or a UNDP staff member with delegated authority as the programme manager.[28]

It is required that as per internationally recognized professional standards and principles of sound governance, conflicts of interest affecting board members in performing their duties must be formally disclosed if not avoidable. Where a board member has a specific personal conflict of interest with a given matter before the board, he/she must recuse oneself from their participation in a decision. No board member can vote or deliberate on a question in which he/she has a direct personal or pecuniary interest not common to other members of the board.

All board members should be presented with a ToR for the Project Board, which will include the responsibilities already outlined and indicate agreed board practices and logistics.

V. Standard Outputs of Project Board Meetings

In its oversight function, the Project Board will (at a minimum) review and assess the following project-related evidence at each meeting:

- Assessment of project progress to date against project output indicators (as documented in the project document results framework)
- Approval/review of annual work plans
- Assessment of the relevant Monitoring & Evaluation mechanisms, including all evaluations[29]
- Review and assessment of the Project Risk Log (with updating/amendments as needed)
- Assessment of project spending, based on a review of the combined delivery report
- Review of required resources versus available funding (if applicabel) and steps taken to reduce funding gap identified at the project design stage

This will be in addition to the review and approval of any required project execution decisions.

The output of every Project Board should be a written record (minutes) that captures the agenda and issues discussed and the agreed upon action items and decisions (if applicable). Each report should clearly document the members attending the meeting (as well as all participants in the meeting) and the modality used to agree on a certain action or decision (whether formal voting or no-objection or other mechanism). All records of board meetings should be documented and kept by UNDP in their quality assurance function (see next section).

VI. Support Functions to the Project Board

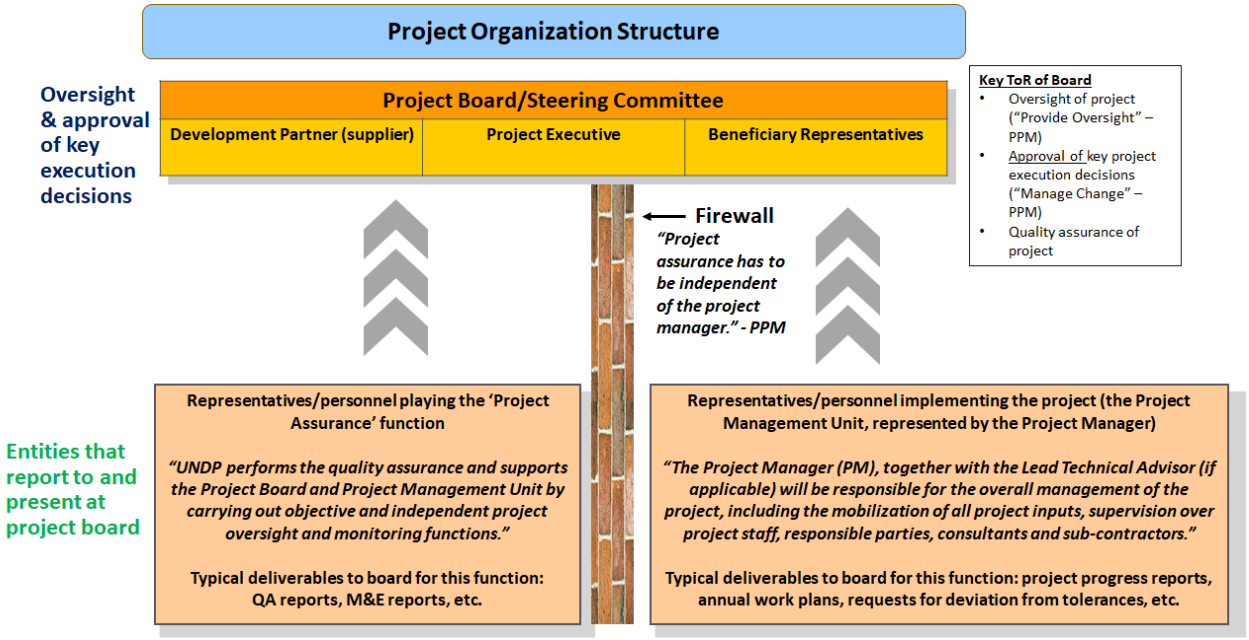
There are two main entities/functions outside the Project Board structure whose role is to report to the Project Board and support board members in effectively fulfilling their roles: project assurance and project management.

The diagram below explains the primary role of these two entities in the context of their support to Board operations. A description of these two entities follows.

Diagram 3 – Standard Figure of Project Organization Structure – Board Support Entities

[28] UNDP has this special right since the ultimate legal and fiduciary accountability for a UNDP project, irrespective of modality, rests with UNDP and UNDP must (in line with its obligations to donors and to the Executive Board) be able to ensure that no action is taken by any body in a UNDP project that contravenes UNDP rules and regulations.
[29] Including audit reports and spot checks.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B



Project Assurance: Project assurance is the responsibility of each Project Board member; however, UNDP has a distinct assurance role for all UNDP projects in carrying out objective and independent project oversight and monitoring functions. UNDP performs quality assurance and supports the Project Board (and Project Management Unit) by carrying out objective and independent project oversight and monitoring functions, including applying UNDP's social and environmental management system to ensure the SES are applied through the project cycle. The Project Board cannot delegate any of its quality assurance responsibilities to the project manager. Project assurance is totally independent of project execution.

A designated representative of UNDP playing the project assurance role is expected to attend all Project Board meetings and support board processes as a non-voting representative. It should be noted that while in certain cases UNDP's project assurance role across the project may encompass activities happening at several levels (e.g. global, regional), at least one UNDP representative playing that function must, as part of their duties, specifically attend board meetings and provide board members with the required documentation required to perform their duties.

The UNDP representative playing the main project assurance function is the responsibility of Country Office.

Project Support, this function is often covered by the Project Management Unit: The Project Manager (PM) (also called project coordinator) is the senior most representative of the Project Management Unit (PMU) and is responsible for the overall management of the project on behalf of the Implementing Partner, including the mobilization of all project inputs, supervision over project staff, responsible parties, consultants and sub-contractors. The project manager typically presents key deliverables and documents to the Board for review and approval, including progress reports, annual work plans, adjustments to tolerance levels and risk logs.

A designated representative of the PMU is expected to attend all board meetings and present the required progress reports and other documentation needed to support board processes as a non-voting representative.

The primary PMU representatives attending board meetings are the Energy and Environment Portfolio Team Leader and the UNDP Green Energy Recovery Project Manager.

On-Granting Provisions Applicable to the Implementing Partner[30]. On-granting clauses for non-UNDP Implementing Partners can be found here.

[30] Applicable for non-UNDP Implementing Partner as Grant Making Institution facilitating on-granting.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Annex 7: Crisis Response to Urgent Energy Needs for Kharkiv

Crisis Response to Urgent Energy Needs

UNDP Ukraine Concept Note - April 2024

Preliminary Damage Assessments **- Escalation of Targeted Attacks on Energy Infrastructure**

The war has inflicted severe damage on Ukraine's energy infrastructure, as detailed in the Energy Damage Assessment from June 2023, with power generation capacity halved to 51% and transmission capacity slashed by 45%, with 42 out of 94 high-voltage transformers damaged or destroyed. Resumed attacks in March 2024 have targeted transmission capacities, e.g. substations and autotransformers, and energy generation facilities, both state/municipally owned and private, in all major cities. The attack on March 22 was the most devastating since the beginning of full-scale invasion. 7 major Thermal Power Plants (TPPs) and 3 Combined Heat and Power plants (CHPs) were damaged or destroyed in Kyiv, Kharkiv, Vynnitsya, Lviv, Ivano-Frankivks, Dnipropetrovks, Zaporizhya, Cherkassy and Poltava oblasts. Preliminary estimates indicate a further loss of 20-25% of generation capacity, along with the damage to 21 substations.

The impact of these attacks is significant, with ongoing disruptions causing daily power outages across the country. In Kharkiv 40% of residents, totaling 400,000 people, are left without heat, while facing ongoing attacks and full or partial blackouts, forced to operate on an 18/6 electricity schedule. In the cities of Kryvyi Rih and Kamianske of Dnipropetrovsk region, energy shortages is causing disruptions for major industry production critical to the country's economy and war resilience. Recent attacks on the Trypilska Thermal Power Plant, the largest power generating facility in Kyiv region with an installed capacity of 1800 MW, pose a substantial risk to power supply in Kyiv and the surrounding region. Thermal power generation is critically needed for balancing the energy system operation of nuclear power plants and renewables.

Effective repair and reconstruction of damaged facilities and deployment of distributed backup generation systems in major cities is imperative to mitigate Ukraine's energy infrastructure vulnerability and minimize the impact on critical social services, crucial for Ukraine's resilience amid the ongoing war.

Needs Assessment **for Kharkiv**

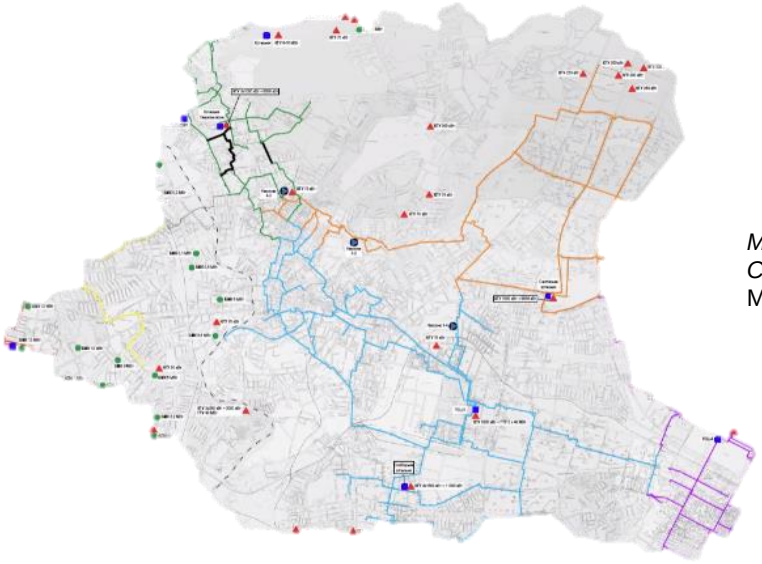
A needs assessment has been conducted in collaboration with the Ministry of Energy, Ministry of Infrastructure, Ukrenergo and in the field with sub-national authorities. Furthermore, geographical areas and technological solutions are chosen based on a set of criteria for prioritization and due risk mitigation. A set of criteria was established for selecting technical solutions, further detailed in Annex 1. These criteria align with the Urgent Technology Catalogue developed by Danish Energy Agency and the Ministry of Energy of Ukraine, and include availability of equipment in the market for effective procurement, installation and commissioning, in how far the equipment can operate independently of weather conditions, maneuverability and readiness of the energy system, along with considerations of sustainable fuel sources, market compatibility, survivability through concealment and dispersion and speed of deployment.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Geographical target areas have been selected based on evaluation criteria and the methodological approach detailed in Annex 2, produced by data collection and consultation with the National Security and Defense Council, State Statistics Service of Ukraine NPC, Ukrenergo, Ministry of Energy and city and regional military administrations. In cities with a population of more than 200,000 people, most people live in apartment buildings and have no alternative to the centralised water supply and heating services available to residents of private houses. The parameters used for selection of the target areas thus include areas with highest number of inhabitants with the highest consumption, vulnerability in terms of power supply and areas of strategic importance to the country.

Kharkiv – Estimate *population 1,3 million*

As of March 22, Kharkiv and its surrounding region continue to grapple with severe disruptions to essential services, particularly in the energy sector. The situation remains critical, with operational updates indicating a staggering number of consumers facing intermittent power outages. This has critical impact on basic services for the citizens of Kharkiv, which includes over 350 000 IDPs, of which 60% are women. Failure to rapidly restore power infrastructure can severely exacerbate health risks, compromising living conditions and cause displacement or secondary displacement among affected populations.



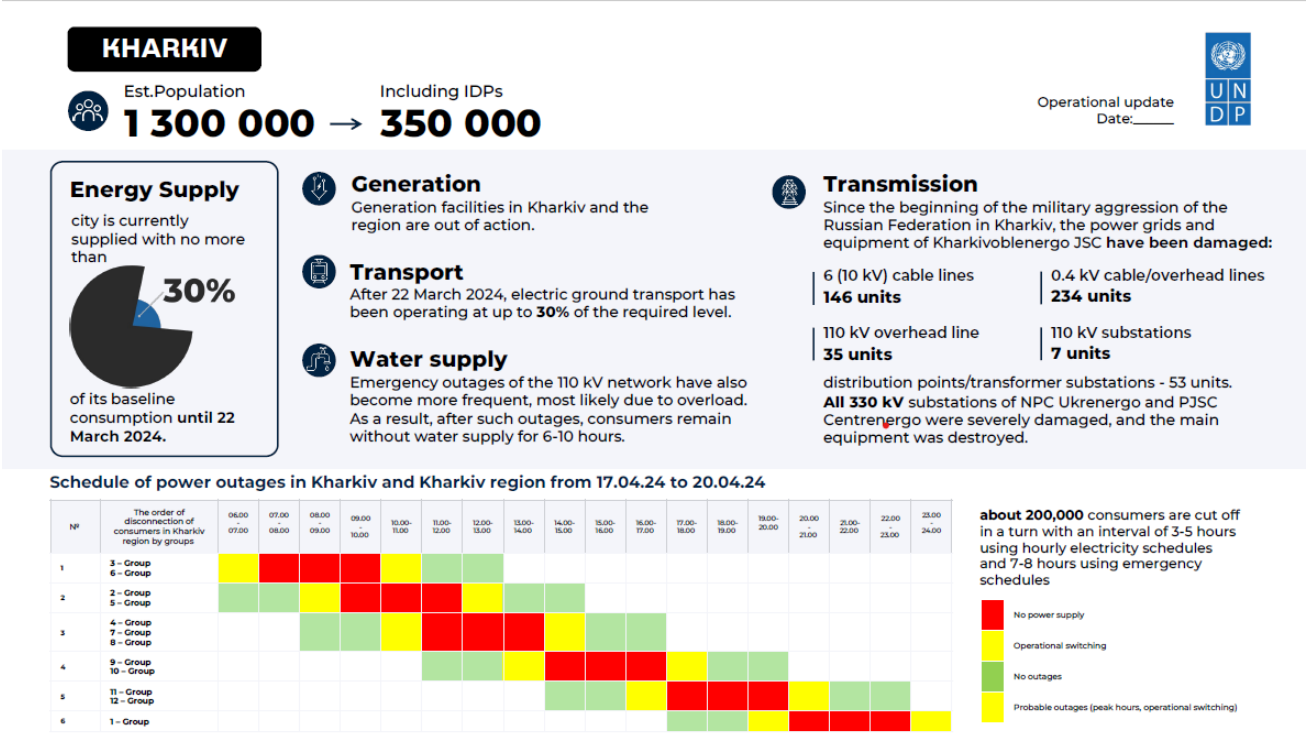
Map figure 1: Kharkiv Critical Infrastructure, Ministry of Restoration,

The disconnection of consumers follows a scheduled pattern, with groups experiencing prolonged periods without electricity, compounded by operational switching challenges. Unfortunately, generation facilities in Kharkiv and the surrounding area are incapacitated, exacerbating the power supply crisis. The transmission infrastructure, notably belonging to Kharkivoblenergo JSC, has suffered extensive damage since the onset of Russian Federation's military aggression. This damage has resulted in significant outages, affecting approximately 200,000 consumers in rotation, with intervals ranging from 3-5 hours as per hourly schedules and 7-8 hours under emergency protocols. The repercussions extend beyond the energy sector, impacting transportation and water supply services. Electric ground transport is operating at a mere 30% of its required capacity, while water supply disruptions persist for 6-10 hours following emergency power outages. Efforts to restore energy infrastructure are underway, albeit hindered by the extensive damage sustained by key facilities. The city's energy supply currently hovers at a fraction of its baseline consumption, with critical components such as cable lines, substations, and distribution points significantly affected. Immediate interventions are imperative to alleviate the plight of Kharkiv's residents and expedite

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

the restoration of vital services essential for their well-being and livelihoods. Additional technical information is provided in Annex 4.

The cogeneration network is managed by Municipal Enterprise "Kharkiv Heating Grids" and will ensure the autonomy of the heating system of the city districts by disconnecting them from the centralized heating and hot water supply system both from Kharkiv CHP-5 and other major heating facilities of the city. This will allow Kharkiv to decentralize its heating supply system and to minimize the risk of major impact on the system from targeted attacks.



According to the information from Kharkivvodokanal, 6 gas cogeneration units (with an electric capacity from 0.1 to 7 MW) and 1 diesel generator with a capacity of 5 MW are required to ensure the operation of the facility during power outages. In addition, 3 complete transformer substations (6/0.4 kW) are required to install the equipment. More detailed information is provided in Annex 5.

Kharkiv does not fall under the "Ray of hope project" (implemented by the Energy Community Fund) and therefore there is a need for support to install solar power on at least 7 Kharkiv hospitals, which will facilitate for the power supply of maternity and surgical wards in key hospitals of Kharkiv. Currently UNDP is facilitating the installation of solar panels for Hospital #8 in Kharkiv, however, 7 more hospitals should become part of this intervention. More detailed information is provided in Annex 6.

Proposed Interventions

The proposed interventions respond to the urgent needs for citizens of Kharkiv for electricity, clean water and sanitation, as identified in the needs assessment. The interventions builds on UNDP's capacity, strong partnerships at international, national and sub-national level in Kharkiv and lessons learned during the initiation phase of the UNDP Energy Programme. In this initiation phase, UNDP is addressing immediate needs due to the impact of damages to the energy infrastructure in Odesa, Kyiv, Kharkiv and Mykolaiv with support totaling USD 90 million from 2023 – 2024. As demonstrated by the needs assessment following the most recent series of attacks on the energy infrastructure, the needs surpass current support and available resources.

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

The proposed activities encompass procurement of equipment, installation support and training of service providers and recipient institutions e.g. hospitals for maintenance of equipment, training of local authorities to enhance data management, analytical and planning capabilities and media campaigns to increase awareness of energy conservation in target areas. *Recognizing the vulnerability of large-scale infrastructure to targeted assaults, UNDP is opting to prioritize the procurement of smaller-scale equipment, such as gas pistons and solar panels. By diversifying energy generation sources and distributing smaller, more maneuverable assets, UNDP aims to minimize the impact of potential attacks on critical energy infrastructure.* UNDP will ensure risk management and contingency planning to mitigate risks associated with the deployment and operation of these assets, including enhanced monitoring, rapid response protocols, and collaboration with local authorities. Through these proactive risk management efforts, UNDP seeks to ensure the resilience and sustainability of energy supply systems in targeted areas, even amidst ongoing security challenges.

Overall Outcome: People benefit from reliable access to energy
Outcome Indicator: Share of the population in Kharkiv benefitting from improved access to basic services (heating, electricity and water supply)

Output: Distributed power generation equipment and capacity development provided to Kharkiv

The overall outcome and output of the proposed activities align with the UNDP Energy Programme (Outcome 1, output 1.2) and thus the UNDP Country Programme Document 2018-2024 (output 3.2) and UNDP Strategic Plan (output 5.1), ensuring reliable and accessible energy access for the Ukrainian people. Implementation will also align with recommendations of UNDP's Gender Analysis of the Energy sector (2024), ensuring gender-responsive capacity-building, communication, data collection and budgeting. The outlined activities will contribute to ensure living conditions, particularly for the vulnerable communities of Kharkiv which are currently completely dependent upon allocation of additional support.

Activity 1: Project Design and Procurement of Equipment

UNDP will facilitate project design of emergency energy supply for critical infrastructure and initiate procurement of essential equipment and build upon ongoing procurements of small gas turbines, gas pistons, solar panels, water supply, sewage, and heating circulation equipment for Kharkiv. Procurement will be based on the preliminary and ongoing needs assessments, UNDP's solid procurement capacities, methodology of prioritizing technical solutions and coordination with national and international partners, particularly to mitigate risks for assets and personnel. UNDP is currently coordinating its efforts with the Ministry of Energy, Ministry of Infrastructure and Kharkiv city and municipal authorities, as well as with municipal enterprises, which are seen as recipients for further assistance. This is to ensure targeted interventions, avoid duplicating efforts and mitigate risk.

The workplan reflects preliminary analysis of the market and UNDP's procurement capacity, where e.g. UNDP will be able to build on current processes and procure 11 additional pistons, along with solar panels and heating auxiliary equipment, with additional new tenders for water supply and sewage equipment.

UNDP is also coordinating efforts with other international organizations via the G7+ platform, Ministry of Energy of Ukraine, Ministry of Communities, Territories and infrastructure development of Ukraine, Energy Community Fund, where the latter is mainly concentrated on immediate rapid repairs. Furthermore, UNDP will ensure that equipment is carefully selected to ensure compatibility with the local infrastructure and the ability to swiftly restore essential services to affected communities.

Activity 2: Installation Support and Training for Maintenance

To ensure the successful implementation and long-term sustainability of the procured equipment, UNDP will provide comprehensive installation support and training programs. These initiatives will focus on building the capacity of service providers and beneficiaries, particularly for vital institutions such as hospitals. Training sessions will cover installation procedures, maintenance protocols, and troubleshooting

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

techniques, empowering local actors to effectively manage and utilize the equipment. Through hands-on training and ongoing technical assistance, UNDP aims to maximize the operational efficiency and lifespan of the equipment, minimizing disruptions to essential services.

Activity 3: Training of Local Authorities to Enhance energy management, data management, analytical and planning Capabilities

Recognizing the importance of informed decision-making in crisis response and recovery efforts, UNDP will conduct tailored training programs for local authorities. These capacity-building initiatives will enhance energy management, data management, analytical capabilities, and strategic planning skills, equipping officials with the tools needed to navigate complex energy-related challenges, specific to their local context and security conditions. Training modules will cover various aspects of energy infrastructure management, including risk assessment, resource allocation, and emergency preparedness. By strengthening the capacity of local authorities, UNDP seeks to foster more resilient and adaptive governance structures capable of effectively managing energy crises and mitigating future risks.

Activity 4: Energy Conservation Awareness Campaign in Target Areas

In parallel with infrastructure and capacity-building initiatives, UNDP will launch a targeted media campaign aimed at promoting energy conservation and efficiency in the affected areas. Leveraging a mix of traditional and digital communication channels, including television, radio, social media, and community outreach programs, the campaign will raise awareness about the importance of prudent energy usage practices to reduce the risk of overloading the energy system. Educational materials, public service announcements, and interactive workshops will empower residents to adopt energy-saving habits and reduce their overall consumption. A gender analysis should precede the campaign so that communication materials is in parallel addressing gendered challenges of energy conservation, as this may have particular negative impact on those carrying the brunt of domestic burdens. Through this activity UNDP aims to alleviate strain on the energy infrastructure and enhance the resilience of communities facing ongoing energy shortages.

Activity 5: Energy Sector Coordination at Sub-national level

In response to the urgent energy needs in Kharkiv amidst ongoing conflict and missile attacks, UNDP will establish an energy cluster to facilitate coordination of emergency response efforts through a nexus lens. Leveraging current capacities within energy, lessons learned from the Mine Action Area of Responsibility (former Mine Action sub-cluster) and a dedicated on-the-ground presence in Kharkiv, UNDP will utilize its expertise to address critical energy infrastructure challenges and ensure a comprehensive approach. Collaborating closely with international partners and local authorities, UNDP will ensure a cohesive and efficient approach to response efforts. By coordinating the energy cluster, UNDP mobilizes resources, expertise, and support mechanisms to provide immediate relief and assistance to affected communities, while also laying the groundwork for long-term recovery and resilience-building initiatives in the energy sector.

Project Management, Monitoring and Evaluation

The activities will be implemented under the framework of UNDP Country Program Document for Ukraine, applying the Direct Implementation (DIM) modality, where UNDP Ukraine will act as the Implementing Partner. Implementation will adhere to the overall strategic principles, risk management procedures, outcomes and outputs and identified under the comprehensive Green Energy Recovery Programme. Furthermore, all activities should comply with policies, procedures and practices of the United Nations Development Programme in accordance with UNDP's Programme and Operations Policies and Procedures (POPP) as well as social and environmental sustainability through application of the UNDP Social and Environmental Standards. Programme and project implementation will consist of experts and specialists

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

for the respective technical areas as well as project and office operations, including M&E and communications, led by Project Manager with oversight from the UNDP Energy and Environment Portfolio Team and UNDP country office, regional and international resources on quality assurance. The project implementation team will also benefit from wider support services of the Operations Team of UNDP Ukraine, including Procurement, Human Resources, Finance and other operational capacities. Furthermore, the implementation team will have the technical support of the UNDP Global Policy Network and resources at regional and central level.

OUTCOME: People benefit from reliable access to energy								
Output: ***Distributed power generation equipment and capacity development provided to target areas***								
Indicators: *Share of the population in target areas benefitting from improved access to basic services (heating, electricity and water supply)*, aligned with SDG 7 Affordable and Clean Energy and UNDP Country Programme Document 2018-2024, IRRF, 3.3. Share of population benefiting from improved coverage by cost-efficient and sustainable energy in the public sector								
PLANNED ACTIVITIES	**Timeframe**					**RESPONSIBLE PARTY**	**PLANNED BUDGET**	
	Q2 2024	**Q3 2024**	**Q4 2024**	**Q1 2025**	**Q2 2025**		**Budget Description**	**Amount (USD)**
Activity 1. Procurement of Equipment	X	X	X			UNPD, Municipal Energy Enterprises, and respective Government authorities at national and sub-national level	Contractual Services	35,000,000
Activity 2. Installation support and Training for Maintenance			X	X			Contractual Services	3,150,884
Activity 3. Training of Local Authorities to Enhance Data management, Analytical and Planning Capabilities		X	X	X			Contractual Services	180,000
Activity 4. Energy Sector Coordination at Sub-national level	X	X	X	X	X		Contractual Services	120,000
Total								**38,450,884**
Project Management (incl. DPC, monitoring and donor visibility activities)	X	X	X	X	X	UNDP	Security	150,000
							DPC 3%	1,221,991
							Project management/ Operational cost	1,922,544
							Audit	167,152
							Evaluation	50,000
GMS (8%)								3,356,402
TOTAL								**45,318,973**

DocuSign Envelope ID: 44DE0875-0F9A-40C3-83FA-3771A8DB441B

Stakeholder Engagement

UNDP will build on its presence and broad partnerships on sub-national, national and international levels to ensure effective delivery and impact. UNDP will collaborate closely on the sub-national level with local authorities, state/municipality enterprises and civil society through our sub-national presence in Kharkiv/Dnipro, Odesa and Kyiv to ensure efficient implementation and assessment of social and environmental impact of interventions. Nationally, leveraging its strong and extensive relations with the government and other stakeholders, UNDP will work in close collaboration with line ministries, to ensure that government authorities own and lead the entire implementation process, increasing sustainability of interventions. Key stakeholders here include Ministry of Energy of Ukraine and the Ministry of Communities, Territories and infrastructure development of Ukraine. With international partners, UNDP will ensure close coordination via the G7+ platform and donor visibility on physical infrastructure, public acknowledgment in communications materials, and involvement in high-profile launch or handover events.

Highlights from UNDP's support to the energy sector 2022-2024

With funding from Japan, Norway, Denmark, Korea, Sweden, Germany, Denmark and Iceland totaling over USD 130 million in allocations and implementation throughout 2022 – 2024 within the Energy and Environment Portfolio, UNDP is supporting the Government of Ukraine and partners in the energy sector in addressing immediate impact of damages to the energy infrastructure by providing equipment and support transportation and installation to restore power supply. The power system is vital for hospitals, water treatment facilities, and other critical services, and swift repairs significantly mitigates further displacement and humanitarian impact of the attacks. Stories from the impact of UNDP's support is further highlighted below.

- Bringing light to people against all odds: the story of a Ukrainian energy worker
- Keeping the lights on, the heat flowing and public services operating across Ukraine
- Japan, UNDP deliver equipment to secure power supply for over 5.5 million Ukrainians
- Denmark and UNDP are enhancing energy sustainability and the responsiveness of the police and emergency services in Mykolaiv Oblast
- Enhancing Ukraine's capacity to prepare for next winter
- UNDP and Japan deliver high-power autotransformers to Ukraine, ensure unbroken energy supplies to over a half a million people

For More Information

Roman Shakhmatenko
Team Lead, UNDP Energy and Environment Ukraine
roman.shakhmatenko@undp.org

Christophoros Politis
Deputy Resident Representative, UNDP
christophoros.politis@undp.org