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# Reconstructing Ukraine:

How the EU and Ukraine Can Mutually Benefit



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#### 1. Overview

As of January 2024, The Russian invasion of Ukraine has had a substantial impact on the Ukrainian economy, leading to approximately \$152 billion in overall direct damage to the Ukrainian economy. The energy (\$11 billion), transportation (\$34 billion), and housing and utilities (\$56 billion) sectors were among those that experienced the heaviest damage, constituting nearly 75% of the total damage. Ukraine is projected to require \$486 billion in recovery and reconstruction needs within a decade while considering economic factors like inflationary pressure and compliance with modern standards (e.g., low energy intensity). In this regard, the energy (\$47 billion), housing (\$80 billion), and transportation (\$74 billion) sectors would require funding for nearly half of these recovery needs during this period.

This report aims to understand Ukraine's key reconstruction needs, the response to them, and potential ways the EU can contribute to Ukrainian recovery. It seeks to identify critical areas where the EU can focus its reconstruction efforts for the near-term and long-term perspective and potential benefits for Ukraine and the EU.

This report also explores ways of enhancing collaboration between the Ukrainian government and the EU to speed up reconstruction efforts across Ukraine. It will touch upon the various funding instruments at the EU level and how to utilise them effectively to ensure transparent and sustainable support for the Ukrainian economic recovery.

This report is based on primary (e.g., laws and regulations) and secondary (e.g., think tank reports, damage and recovery needs assessments, as well as EU and official publications) data review and analysis.

## 2. Immediate Recovery Priorities and Existing Financial Support Mechanisms

## 2.1 Immediate Reconstruction and Recovery Priorities – Current State and Opportunities

Since the Russian full-scale invasion, the housing and utilities, energy, and transportation economic sectors have been some of the hardest-hit in the Ukrainian economy, experiencing a combined \$101 billion in damages, or nearly two-thirds of the overall damage as of early 2024.<sup>5</sup>

Ukraine's energy sector, in particular, oil and gas infrastructure and power grid network, have experienced severe damage, substantially impairing Ukraine's ability to

<sup>1</sup> World Bank, *Ukraine Rapid Damage Needs Assessment RDNA3* (February 2024), https://documents1.worldbank.org/curated/en/099021324115085807/pdf/P1801741bea12c012189ca16d95d8c2556a.pdf

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> See (n1)

maintain the functioning of the economy and ensure delivery of essential services to Ukrainians.<sup>6</sup>

The transportation sector, in particular, road, railway, and port infrastructure, has also been one of the primary targets of Russian attacks, suffering large-scale damage and adverse impact on Ukraine's GDP and trade links with the EU.<sup>7</sup>

Finally, housing and utilities (e.g., central heating, energy efficiency, municipal services, waste management, and water supply and sanitation) have also suffered widespread destruction due to constant Russian attacks.<sup>8</sup> This situation makes repairs impossible, leading to frequent and prolonged shutdowns of heating and water supply systems and hindering utility services and access to drinking water.<sup>9</sup>

The Ukrainian government is committed to recovering and modernising energy, transport, and housing infrastructure in line with EU sustainability standards. This process could be mutually beneficial and help foster energy security and closer economic integration between Ukraine and the EU.

#### 2.1.1 Energy

#### State of Damage

Before the Russian invasion, Ukraine could have generated 25 gigawatts (GW) of power, but it is currently struggling to produce nine.<sup>10</sup> Ukrainian cities have centralised systems for water, sewage, and heating, and power cuts threaten the provision of all three.<sup>11</sup>

Russian attacks destroyed around 90% of Ukraine's energy-generating capacity at thermal power plants and around 60% at hydroelectric facilities, creating a power deficit of approximately 35% and leading to almost daily planned and emergency power outages.<sup>12</sup>

Ukraine's oil and gas sector also experienced substantial damage due to intensive air strikes by the Russian Federation at large-scale facilities for oil and petroleum product refining and storage (e.g., Kremenchuk Oil Refinery and the Shebelinsky Oil Refinery). Moreover, frequent shelling inflicted comprehensive damage to infrastructure for the transportation and distribution of natural gas. <sup>14</sup> In addition, some

7 Ibid.

<sup>6</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> ReliefWeb, *Providing Communities with Drinking Water*, (27 June 2024), <a href="https://reliefweb.int/report/ukraine/providing-communities-drinking-water-encs">https://reliefweb.int/report/ukraine/providing-communities-drinking-water-encs</a>

<sup>10</sup> D. Watling and D. Dolzikova, *Fighting for the Light: Protecting Ukraine's Energy System*, RUSI (12 August 2024), <a href="https://rusi.org/explore-our-research/publications/commentary/fighting-light-protecting-ukraines-energy-system">https://rusi.org/explore-our-research/publications/commentary/fighting-light-protecting-ukraines-energy-system</a> 11 Ibid.

<sup>12</sup> E. Davlikanova, Saving Ukraine's Power Supply, (11 June 2024), CEPA <a href="https://cepa.org/article/saving-ukraines-power-supply/">https://cepa.org/article/saving-ukraines-power-supply/</a> and S.Matuszak, Ukraine: the Energy Infrastructure Crisis and the Potential for a New Wave of Refugees, OSW (24 June 2024), <a href="https://www.osw.waw.pl/en/publikacje/analyses/2024-06-24/ukraine-energy-infrastructure-crisis-and-potential-a-new-wave">https://www.osw.waw.pl/en/publikacje/analyses/2024-06-24/ukraine-energy-infrastructure-crisis-and-potential-a-new-wave</a>; K. Hodynova, Ukraine's Energy Supplier: Ukrainians May Have Electricity for 6-7 Hours Per Day in Winter, Kyiv Independent, (17 June 2024), <a href="https://kyivindependent.com/ukraines-energy-supplier-ukrainians-may-have-electricity-for-6-7-hours-per-day-in-winter/">https://kyivindependent.com/ukraines-energy-supplier-ukrainians-may-have-electricity-for-6-7-hours-per-day-in-winter/</a>

<sup>13</sup> I. Piddubnyi, Assessment of Damages and Losses to Ukraine's Energy Sector due to Russia's Full-Scale Invasion, KSE (May 2024), <a href="https://kse.ua/wp-content/uploads/2024/06/KSE\_Impact-of-the-war-on-energy\_ENG-1.pdf">https://kse.ua/wp-content/uploads/2024/06/KSE\_Impact-of-the-war-on-energy\_ENG-1.pdf</a>
14 Ibid.

gas extraction facilities were either occupied or remained under temporary occupation.<sup>15</sup> Also, over 200 km of gas transportation pipelines, numerous gas distribution and compressor stations, over 7,000 km of gas distribution networks, and 5,000 gas distribution points were severely damaged or eradicated across Ukraine.<sup>16</sup>

Ukraine's renewable energy sector has also suffered substantial damage. Before the war, the installed renewable energy sources (RES) capacity amounted to approximately 10 GW or 13% of the total energy mix.<sup>17</sup> Since the start of the Russian invasion, this capacity has dropped to 8.7 GW, or 10%, in early 2024.<sup>18</sup> Currently, 2.5 GW (25%) of RES facilities are under occupation, and about 6% of the total installed RES capacity is destroyed or damaged.<sup>19</sup> According to the Ukrainian Ministry of Energy, 30% of solar and 90% of wind plants have been disabled or occupied.<sup>20</sup>

As of 2024, Ukraine needs \$47 billion for the next decade to rebuild the energy sector, with most recovery funding required for the power sector (\$40.4 billion), the gas transportation system (\$2.9 billion), and the fuel oil sector (\$3.3 billion) segments.<sup>21</sup>

#### Current Ukrainian State Policy

The Ukrainian government has actively worked on liberalising its energy markets and moving closer to EU standards. The country's leadership has implemented several measures to move Ukraine towards further integrating electricity and gas markets with EU neighbours.

In 2023, Ukraine introduced the Law "On Amendments to Certain Laws of Ukraine as to Prevention of Abuse in the Wholesale Energy Markets" (REMIT Law), which is essential in further integrating Ukraine's electricity and gas markets with its EU neighbours. <sup>22</sup> In particular, this Law serves as a significant step towards harmonising Ukrainian energy legislation with European legislation, ensuring equal conditions and rules of the game for all participants in the electricity and gas markets. <sup>23</sup> REMIT Law provides the necessary level playing field to facilitate increased commercial

16 Ibid.

<sup>15</sup> Ibid.

<sup>17</sup> M. Topalov, What is Left of "Green" Energy in Ukraine (24 May 2023), https://www.epravda.com.ua/publications/2023/05/24/700431/

<sup>18</sup> K. Belousova, In Ukraine, in 2023, the Capacity of Green Generation Increased to 8.7 GW (16 February 2024), https://ecopolitic.com.ua/ua/news/v-ukraini-u-2023-roci-potuzhnosti-zelenoi-generacii-zrosli-do-8-7-gvt-infografika/

<sup>19</sup> International Energy Charter, *Ukrainian Energy Sector Evaluation and Damage Assessment*, (24 May 2023), <a href="https://www.energycharter.org/fileadmin/DocumentsMedia/Occasional/2023">https://www.energycharter.org/fileadmin/DocumentsMedia/Occasional/2023</a> 05 24 UA sectoral evaluation and damage assessment Version X final.pdf

<sup>20</sup> L. Limb, *Ukraine's Green Fightback: Wind Farms, Solar Schools and Counting the Cost of 'Destroying Nature,* Euronews, (24 February 2024) <a href="https://www.euronews.com/green/2024/02/24/ukraines-green-fightback-wind-farms-solar-schools-and-counting-the-cost-of-destroying-natu">https://www.euronews.com/green/2024/02/24/ukraines-green-fightback-wind-farms-solar-schools-and-counting-the-cost-of-destroying-natu</a>

<sup>21</sup> See (n1)

<sup>22</sup> Energy Community, *The Secretariat Commends Ukraine's Adoption of REMIT Law*, (13 June 2023), <a href="https://www.energy-community.org/news/Energy-Community-News/2023/06/13.html">https://www.energy-community.org/news/Energy-Community-News/2023/06/13.html</a>; Energy Community, *Certification of Ukrainian Electricity Transmission System Operator Completed*, (21 December 2021), <a href="https://www.energy-community.org/news/Energy-Community-News/2021/12/21.html">https://www.energy-community.org/news/Energy-Community-News/2021/12/21.html</a>

<sup>23</sup> The National Commission Carrying Out State Regulation in the Spheres of Energy and Communal Services, *Implementation of REMIT Will Contribute to the Development of Ukrainian Energy Markets and Investment Attraction,* (31 May 2024), <a href="https://www.nerc.gov.ua/news/blog-valeriya-tarasyuka-na-interfaksi-vprovadzhennya-remit-spriyatime-rozvitku-ukrayinskih-energorinkiv-i-zaluchennyu-investicij">https://www.nerc.gov.ua/news/blog-valeriya-tarasyuka-na-interfaksi-vprovadzhennya-remit-spriyatime-rozvitku-ukrayinskih-energorinkiv-i-zaluchennyu-investicij</a>

exchanges, joint cross-border transmission capacity allocation, and subsequent energy market coupling between Ukraine and the EU.<sup>24</sup>

Ukraine's government also adopted the EU's Regulation on Wholesale Energy Market Integrity and Transparency, which bans insider trading and the abuse of market power.<sup>25</sup> It also implemented regulations that certified independent system operators in the electricity and gas markets.<sup>26</sup> In early 2024, the country's certified electricity operator, Ukrenergo, joined the European Network of Transmission System Operators for Electricity (ENTSO-E).<sup>27</sup>

Also, as part of the Plan for Implementation of Ukraine Facility 2024-2027, Ukraine's government outlined as top priorities the transition to low-carbon and RES sources, implementing energy efficiency measures to reduce environmental impact, and creating favourable investment conditions to integrate closer with the EU.<sup>28</sup>

In 2024, the Ukrainian government also introduced a separate National Action Plan (NAP), which includes the strategic objective of increasing renewable RES share from around 10% in 2024 to 27% in the country's energy mix by 2030.<sup>29</sup> This Plan aligns with the previous EU's Directive 2018/2001, which foresees a 27% target share of RE-based gross final energy consumption but is behind the RED III Directive with 42.5% by 2030.<sup>30</sup> The Ukrainian government seeks \$20 billion in investments to boost its RES sector following the NAP and intends to announce several tenders for constructing the first new generating capacities of 700 megawatts and 5 to 80 megawatts by the end of 2027.<sup>31</sup>

Also, in May 2024, the Ukrainian Energy Ministry published a project of hydrogen strategy until 2050, which foresees the achievement of hydrogen production in Ukraine up to 1.3 million tons in 2035 and up to 3 million tons in 2050.<sup>32</sup> The project also contains a detailed operational plan with steps needed for Ukraine's green transformation and entry into the European hydrogen energy market.<sup>33</sup> By 2027-30, the Ukrainian government intends to introduce a plan of measures regarding Ukraine's

<sup>24</sup> See (n 22) and Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> Ukrainian Parliament, On Making the Final Decision on the Certification of the Transmission System Operator, (22 February 2022), <a href="https://zakon.rada.gov.ua/rada/show/v2589874-21#Text">https://zakon.rada.gov.ua/rada/show/v2589874-21#Text</a>

<sup>27</sup> Entso, *Ukrainian Transmission System Operator, NPC Ukrenergo, Joins ENTSO-E as a New Member*, (14 December 2023) <a href="https://www.entsoe.eu/news/2023/12/14/ukrainian-transmission-system-operator-npc-ukrenergo-joins-entso-e-as-new-member/28">https://www.entsoe.eu/news/2023/12/14/ukrainian-transmission-system-operator-npc-ukrenergo-joins-entso-e-as-new-member/28</a> Ukraine Facility, *Economic Support Program 2024-2027*, <a href="https://www.ukrainefacility.me.gov.ua/en/">https://www.ukrainefacility.me.gov.ua/en/</a>

<sup>29</sup> Reuters, *Ukraine Approves* \$20 Billion Plan to Increase Renewable Energy Production by 2030, (13 August 2024), <a href="https://www.reuters.com/sustainability/ukraine-approves-20-bln-plan-increase-renewable-energy-production-by-2030-2024-08-13/">https://www.reuters.com/sustainability/ukraine-approves-20-bln-plan-increase-renewable-energy-production-by-2030-2024-08-13/</a>; Energy Community, *Post War Development of the Renewable Energy Sector in Ukraine*, (April 2024), <a href="https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec">https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec</a> UA postwar RESDeveloment.pdf; European Business Association, *Ukrainian Government Approves National Renewable Energy Action Plan, 110 MW RES Auction, and Contest to Construct 700 MW of High Maneuverable Generation*, (27 August 2024), <a href="https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec">https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec</a> UA postwar RESDeveloment.pdf; European Business Association, *Ukrainian Government Approves National Renewable Energy Action Plan, 110 MW RES Auction, and Contest to Construct 700 MW of High Maneuverable Generation*, (27 August 2024), <a href="https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec</a> UA postwar RESDeveloment.pdf; European Business Association, *Ukrainian Government Approves National Renewable Energy Action Plan, 110 MW RES Auction, and Contest to Construct 700 MW of High Maneuverable Generation*, (27 August 2024), <a href="https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec</a> UA postwar RESDeveloment.pdf; European Business Association, https://www.energy-community.pdf</a> (27 August 2024), <a href="https://www.energy-community.org/dam/jcr:063d888c-dd3d-469c-a2b3-68d6130b30f5/intec</a> (27 August 2024), <a href="https://www.energy-community.org/dam/jcr:063d88e-dd3d-469c-a2b3-6

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> The Ukrainian Energy Ministry, Notice on the Publication of the Draft Hydrogen Strategy of Ukraine for the Period up to 2050 and the Report on its Strategic Environmental Assessment, (17 May 2024),

https://www.mev.gov.ua/proyekt-normatyvno-pravovoho-aktu/povidomlennya-pro-oprylyudnennya-proyektu-vodnevoyi-stratehiyi 33 Y. Valova, *Ukraine's Green Hydrogen Potential*, Emerging Europe (2 May 2024), <a href="https://emerging-europe.com/analysis/ukraines-green-hydrogen-potential/">https://emerging-europe.com/analysis/ukraines-green-hydrogen-potential/</a>

integration into the European Network of Network Operators for Hydrogen and facilitate the implementation of projects involving renewable energy transportation to EU Member States.<sup>34</sup>

Among these steps are the laying down of the legal, economic, and organisational principles of hydrogen energy's functioning in Ukraine and, in particular, detailed plans for developing hydrogen technologies in electric power, heat supply, transport, and industrial economic segments by 2025.<sup>35</sup> As part of this plan, the Ukrainian government is also considering exempting customs equipment intended for hydrogen production and equipment that runs on hydrogen, including equipment used for storage, transportation, and distribution of hydrogen by 2025.<sup>36</sup>

#### Opportunities per segment

#### A. Oil and Gas Sector

Ukraine has a century-long oil and gas production experience and has vast conventional and unconventional hydrocarbon reserves, estimated at 9 billion tonnes of oil equivalent.<sup>37</sup> The country is estimated to have proven reserves of 1.1 trillion cubic meters of natural gas, the second-largest gas reserves in Europe, behind Norway.<sup>38</sup> The country's gas production is also the second largest in Europe after Norway and, despite the war, remains at a relatively high level (12.5 billion cubic meters in 2022 and 13.8 billion cubic meters in 2023).<sup>39</sup> Ukraine can potentially double or triple this production and help the EU to overcome dependence on Russian gas imports.<sup>40</sup>

Ukraine also has an extensive gas network that could benefit the EU as it diversifies its sources of supply.<sup>41</sup> To this end, this network could help transport gas from the Black Sea or Caspian region via the Trans-Balkan pipeline.<sup>42</sup>

The Ukrainian gas transport system has a strategically important role in the European gas market, with good access to interconnection points across Poland, Slovakia, and Hungary.<sup>43</sup>

<sup>34</sup> See (n32)

<sup>35</sup> lbid.

<sup>36</sup> Ibid.

<sup>37</sup> IEA, *Ukraine Energy Profile*, (August 2024), <a href="https://www.iea.org/reports/ukraine-energy-profile/energy-security">https://www.iea.org/reports/ukraine-energy-profile/energy-security</a>; Naftogaz Ukraine *is Now Self-sufficient in Gas – Challenges*, (9 May 2024), <a href="https://www.naftogaz.com/en/interviews/ukraine-is-now-self-sufficient-in-gas-challenges">https://www.naftogaz.com/en/interviews/ukraine-is-now-self-sufficient-in-gas-challenges</a>

<sup>38</sup> Ibid.

<sup>39</sup> Expro Consulting, "*Ukrgazvydobuvannya*" in 2022 Reduced Commercial Gas Production by 3% - to 12.5 billion Cubic Meters, (2 January 2023), <a href="https://expro.com.ua/novini/ukrgazvidobuvannya-u-2022r-skorotilo-vidobutok-tovarnogo-gazu-na-3-do-125-mlrd-kub-m">https://expro.com.ua/novini/ukrgazvidobuvannya-u-2022r-skorotilo-vidobutok-tovarnogo-gazu-na-3-do-125-mlrd-kub-m</a>

<sup>40</sup> P. Katinas, June 2024 — Monthly Analysis of Russian Fossil Fuel Exports and Sanction, Center for Research of Energy and Clean Air (12 July 2024), <a href="https://energyandcleanair.org/june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/">https://energyandcleanair.org/june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/</a>; D. Francis, Ukrainian Victory "Could Help Ensure Europe's Future Energy Security", Atlantic Council (14 April 2023), <a href="https://energyandcleanair.org/blogs/ukrainealert/ukrainian-victory-could-help-ensure-europes-future-energy-security/">https://energyandcleanair.org/june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/</a>; D. Francis, Ukrainian Victory "Could Help Ensure Europe's Future Energy Security", Atlantic Council (14 April 2023), <a href="https://energyandcleanair.org/june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/">https://energyandcleanair.org/june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/</a>; D. Francis, Ukrainian Victory "Could Help Ensure Europe's Future Energy Security", Atlantic Council (14 April 2023), <a href="https://energyandcleanair.org/">https://energyandcleanair.org/</a>june-2024-monthly-analysis-of-russian-fossil-fuel-exports-and-sanctions/</a>; D. Francis, Ukrainian Victory "Could Help Ensure Europe's Future-energy-security/"

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<sup>41</sup> B. Cahill and L. Palti-Guzman, The Role of Gas in Ukraine's Energy Future, CSIS, (13 January 2023),

https://www.csis.org/analysis/role-gas-ukraines-energy-future

<sup>42 3</sup>Seas Project, Expanding the capacity of the Trans-Balkan Pipeline, (2024), <a href="https://projects.3seas.eu/projects/expanding-the-capacity-of-the-trans-balkan-pipeline">https://projects.3seas.eu/projects/expanding-the-capacity-of-the-trans-balkan-pipeline</a> 43 Ibid.

EU Member States can potentially boost their energy security by leveraging Ukraine's gas storage system, one of the largest in the world boasting a 30 billion cubic meters (bcm) capacity.<sup>44</sup> Most of the storage capacity (25.3 bcm) is in western Ukraine, in five separate and reliably protected facilities.<sup>45</sup> In this regard, Ukraine has ten bcm of available capacity for storing gas for consumers outside of Ukraine, but European companies only used 2.5 bcm in the winter of 2023, with this number dropping to 0.5 bcm in October 2024.<sup>46</sup>

In April 2023, Ukraine's gas storage facilities passed European certification, ensuring their ability to store gas in compliance with the updated rules of the EU and the Energy Community.<sup>47</sup> Ukraine also launched a customs warehouse regime that enables customers to store gas without paying taxes or customs duties for 1,095 days, offering Europe's most favourable storage tariffs.<sup>48</sup>

#### B. RES Development

Ukraine also has a high potential for RES development, which could pave the way towards the production of clean energy not only for domestic consumption but also for more significant exports to the EU Member States. With its untapped RES potential, the country can become a game changer in the EU's long-term plan, helping the EU reduce reliance on Russian fossil fuels in line with the EU's REPowerEU plan and carbon-neutrality objective by 2050.<sup>49</sup>

Ukraine can potentially achieve a total of around 874GW, including 250 GW of offshore wind, 438 GW of onshore wind, and 83GW of solar. <sup>50</sup> Given their high untapped potential, bioenergy, hydro, solar, and wind generation could be the bedrock of Ukraine's future energy system, contributing nearly 80% of its overall energy generation by 2050. <sup>51</sup> This strong potential is reflected in the Government's National

<sup>44</sup> Kyiv Post, *Ukraine's Gas Storage System*, (2020), <a href="https://brandstudio.kyivpost.com/feogi/ukraines-gas-storage-system/">https://brandstudio.kyivpost.com/feogi/ukraines-gas-storage-system/</a>. 45 M. Kolysnik, *Ukrainian Storage and Pipelines Can be Key to East Europe's Gas Supply Security*, Euroactiv (29 March 2023), <a href="https://www.euractiv.com/section/europe-s-east/opinion/ukrainian-storage-and-pipelines-can-be-key-to-east-europes-gas-supply-security/">https://www.euractiv.com/section/europe-s-east/opinion/ukrainian-storage-and-pipelines-can-be-key-to-east-europes-gas-supply-security/</a>

<sup>46</sup> Energy Community Secretariat, *Usage of Ukraine Gas Storage Facilities by European Operators*, (April 2024), <a href="https://www.energy-community.org/dam/jcr:56d0617f-7a99-47be-a5da-e3a5fee06693/Note05.pdf">https://www.energy-community.org/dam/jcr:56d0617f-7a99-47be-a5da-e3a5fee06693/Note05.pdf</a>; Gabriel Gavin, *Ukraine to EU: You Can Still Store Gas with Us despite Russian Attacks*, Politico, (2 September 2024), <a href="https://www.politico.eu/article/ukraine-store-gas-despite-russia-attack-eu/">https://www.politico.eu/article/ukraine-store-gas-despite-russia-attack-eu/</a>; G. Petroni, *Ukraine's Gas-Storage System Remains Fully Operational Despite Russian Attacks*, *Naftogaz CEO Says*, Wall Street Journal, (4 October 2024), <a href="https://www.wsj.com/business/ukraines-gas-storage-system-remains-fully-operational-despite-russian-attacks-naftogaz-ceo-says-4d2ca8f4">https://www.wsj.com/business/ukraines-gas-storage-system-remains-fully-operational-despite-russian-attacks-naftogaz-ceo-says-4d2ca8f4">https://www.wsj.com/business/ukraines-gas-storage-system-remains-fully-operational-despite-russian-attacks-naftogaz-ceo-says-4d2ca8f4</a>

<sup>47</sup> Naftogaz Group, *Ukrtransgaz Becomes the Second Gas Storage Operator in Europe to Successfully Pass Certification under New EU rules*, (7 April 2023), <a href="https://www.naftogaz.com/en/news/ukrtransgaz-became-the-second-gas-storage-operator-in-europe">https://www.naftogaz.com/en/news/ukrtransgaz-became-the-second-gas-storage-operator-in-europe</a>

<sup>48</sup> See (n46)

<sup>49</sup> S. Romanko and M. Motyka, *Ukraine: Renewable Energy, War and Reconstruction*, Social Europe, (23 June 2023), <a href="https://www.socialeurope.eu/ukraine-renewable-energy-war-and-reconstruction">https://www.socialeurope.eu/ukraine-renewable-energy-war-and-reconstruction</a>; European Commission, *REPowerEU*, <a href="https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe\_en; M. Timchenko, *Europe Can Replace its lost Russian Energy Supply With This Surprising Partner*, World Economic Forum, (24 May 2022), <a href="https://www.weforum.org/agenda/2022/05/europe-can-replace-its-lost-russian-energy-supply-with-this-surprising-partner/">https://www.weforum.org/agenda/2022/05/europe-can-replace-its-lost-russian-energy-supply-with-this-surprising-partner/</a>; R. Morningstar, A. Simonyi, O. Khakova, and P. Ryan, *Transforming Ukraine into a European Energy Hub*, Atlantic Council, (August 2023), <a href="https://www.atlanticcouncil.org/wp-content/uploads/2023/08/Transforming-Ukraine-into-a-European-Energy-Hub.pdf">https://www.atlanticcouncil.org/wp-content/uploads/2023/08/Transforming-Ukraine-into-a-European-Energy-Hub.pdf</a>

<sup>50</sup> See (n19)

<sup>51</sup> UNECE, Renewables Could Power Almost 80% of Ukraine's Economy by 2050, Says UN report, (21 June 2023), https://unece.org/sustainable-development/press/renewables-could-power-almost-80-ukraines-economy-2050-says-un-report

Energy and Climate Plan (NECP) target of reducing greenhouse gas emissions by 65% by 2030.<sup>52</sup>

The EU has recently taken steps to help Ukraine transition towards a more sustainable energy model and facilitate its green transition.<sup>53</sup> For instance, in June 2024, the German government and the EIB decided to provide a 20 million euro grant for the Renewable Energy Solutions Programme to enhance renewable energy and improve energy efficiency in Ukrainian municipalities, complementing existing EIB framework loans.<sup>54</sup> Also, in June 2024, the EU, jointly with EBRD, invested approximately 60 million euros in Ukraine to aid the construction of the first wartime greenfield biofuels project.<sup>55</sup> Moreover, Ukraine has received over 15,000 solar panels as part of the EU Civil Protection Mechanism until now, which will support immediate energy needs and contribute to the sustainable reconstruction of its energy sector.<sup>56</sup>

Ukraine's RES projects' faster permitting and lower investment and operation costs could benefit Ukraine's recovering energy market and the EU. In October 2024, the Ukrainian government eased the process of obtaining permits for energy generation projects and removed taxes on renewable energy equipment.<sup>57</sup> In this regard, the government also standardised the requirements for commissioning generating units and streamlined the procedures for connecting distributed generation sources to electric, heat, and gas networks.<sup>58</sup> As a result, unlike legislative pitfalls that delay new RES projects in the EU often by years, it can take a couple of weeks on average to get a new solar or wind project approved in Ukraine.<sup>59</sup> However, while the process is much more swift, several potential direct risks still impede more active RES development in the country. Among them is the absence of mechanisms for covering military risks and protecting market participants from arbitrary and unfair practices.<sup>60</sup> The costly and complex insurance processes for international staff present another challenge that needs to be addressed to ensure the efficient execution of RES projects requiring international staff.<sup>61</sup>

61 Ibid.

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<sup>52</sup> Razom We Stand, Rebuilding Ukraine's Energy Future: a Ukrainian Perspective of the Ukraine Reconstruction Conference, Energy Transition, (26 June 2024), <a href="https://energytransition.org/2024/06/rebuilding-ukraines-energy-future-a-ukrainian-perspective-of-the-ukraine-reconstruction-conference/">https://energytransition.org/2024/06/rebuilding-ukraines-energy-future-a-ukrainian-perspective-of-the-ukraine-reconstruction-conference/</a>

<sup>53</sup> EIB, New Financing from EIB and European Commission Signed in Berlin to Mobilise More than €1 Billion for Ukraine's Businesses and to Rebuild Local Critical Infrastructure, (11 June 2024), <a href="https://www.eib.org/en/press/all/2024-199-new-financing-from-eib-and-european-commission-signed-in-berlin-to-mobilise-more-than-eur1-billion-for-ukraine-s-businesses-and-to-rebuild-local-critical-infrastructure">https://www.eib.org/en/press/all/2024-199-new-financing-from-eib-and-european-commission-signed-in-berlin-to-mobilise-more-than-eur1-billion-for-ukraine-s-businesses-and-to-rebuild-local-critical-infrastructure</a>

<sup>55</sup> V. Bennett, *EBRD to Lend* €60 *Million for its First Wartime Biofuels Finance in Ukraine*, EBRD (12 June 2024), <a href="https://www.ebrd.com/news/2024/ebrd-to-lend-60-million-for-its-first-wartime-biofuels-finance-in-ukraine.html">https://www.ebrd.com/news/2024/ebrd-to-lend-60-million-for-its-first-wartime-biofuels-finance-in-ukraine.html</a>
56 European Commission, *The European Union Mobilises Additional Assistance to Support Ukraine*, (12 June 2024), <a href="https://civil-protection-humanitarian-aid.ec.europa.eu/news-stories/news/european-union-mobilises-additional-assistance-support-ukraine-2024-06-12">https://civil-protection-humanitarian-aid.ec.europa.eu/news-stories/news/european-union-mobilises-additional-assistance-support-ukraine-2024-06-12</a> en

<sup>57</sup> The Ministry of Energy of Ukraine, The Government Significantly Simplified the Permit System and Created Conditions for the Development of Distributed Generation, (8 October 2024),

https://mev.gov.ua/novyna/uryad-suttyevo-sprostyv-dozvilnu-systemu-i-stvoryv-umovy-dlya-rozbudovy-rozpodilenoyi

<sup>59</sup> G. Gavin, Sick of EU Red Tape? Bring Your Green Money Here, Ukraine Says, Politico (12 March 2024), https://www.politico.eu/article/inside-ukraine-plan-to-electrify-europe-green-energy-electricity/60 See (n29)

#### C. Hydrogen Development

EU Member States could also bolster their energy security by working closely with Ukraine on hydrogen energy initiatives. The country was identified as a priority partner due to its great potential for hydrogen production and the presence of infrastructure connected to the EU per the Hydrogen Strategy for a climate-neutral Europe by 2050.<sup>62</sup> By supplying hydrogen, Ukraine can become one of the leading EU partners in its path towards decarbonisation. Its annual green hydrogen production potential is around 44 million tonnes, more than four times higher than the EU's production plans by 2030.<sup>63</sup>

In February 2023, Ukraine and the EU signed a document on a strategic partnership for hydrogen, biomethane, and other synthetic gases, which could be one mutually beneficial step in closer energy cooperation.<sup>64</sup> In this regard, the European Commission also sent a positive signal to Ukraine by adding to the list of projects of mutual interest a generic corridor project aimed at transporting hydrogen from Ukraine to Germany, Austria, Czechia, and Slovakia.<sup>65</sup>

#### D. Power Grid Reconstruction and Optimisation

Restoring and upgrading new power grid infrastructure in Ukraine will help ensure a more advanced electricity interface between Ukraine and the EU, paving the way towards more efficient power generation resource sharing and mitigating potential supply shortages. In this regard, accelerating the development of interconnection projects between Ukraine and neighbouring EU countries such as Slovakia and Romania could boost regional economic growth and increase the reliability and resilience of the electricity supply. Advancing grid interconnection through interconnection projects could also facilitate RES integration (e.g., wind and solar), allowing the export of a surplus of generated energy among partners and reaching climate targets.

This approach will, therefore, help Ukraine's economic recovery and boost EU power integration.<sup>69</sup> It will also help attract more investments and accelerate renewable energy projects in Ukraine by providing a more regionally integrated European market.

68 Ibid.

<sup>62</sup> European Commission, A Hydrogen Strategy for a Climate-neutral Europe, (8 July 2020), <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301</a>

<sup>63</sup> See (n33); O. Riepkin, *Powering the Future, Ukraine's Hydrogen Initiatives*, Energy Community (20230, <a href="https://www.energycommunity.org/dam/jcr:746546d3-e646-408f-987e-ec75820e0dd7/S2\_9\_Riepkin-">https://www.energycommunity.org/dam/jcr:746546d3-e646-408f-987e-ec75820e0dd7/S2\_9\_Riepkin-</a>

Kryl POWERING%20THE%20FUTURE UKRAINE&%23039;S%20HYDROGEN%20INITIATIVES.pdf; European Commission, *Hydrogen* (2024), <a href="https://energy.ec.europa.eu/topics/energy-systems-integration/hydrogen\_en;">https://energy.ec.europa.eu/topics/energy-systems-integration/hydrogen\_en;</a>

<sup>64</sup> European Commission, Memorandum of Understanding between the EU and Ukraine on a Strategic Partnership on Biomethane, Hydrogen, and Synthetic Gases, (April 2023), https://energy.ec.europa.eu/system/files/2023-

Biomethane, Hydrogen, and Synthetic Gases, (April 2023), <a href="https://energy.ec.europa.eu/system/files/2023-04/MoU\_UA\_signed.pdf">https://energy.ec.europa.eu/system/files/2023-04/MoU\_UA\_signed.pdf</a>
65 Furopean Commission, List of Projects of Common Interest and Projects of Mutual Interest, (28 November 2023). April 2023, April 2023, April 2023, April 2024, April 2024,

<sup>65</sup> European Commission, List of Projects of Common Interest and Projects of Mutual Interest, (28 November 2023), Annex PCI PMI list.pdf (europa.eu)

<sup>66</sup> O. Savytskyi and S. Nies, Six Options to Boost Power Transfers from Continental Europe to Ukraine, For the Next Two Winters, (GreenDeal Ukraina), (August 2024), <a href="https://greendealukraina.org/assets/images/reports/grid-solutions-ukraine-next-winters-final.pdf">https://greendealukraina.org/assets/images/reports/grid-solutions-ukraine-next-winters-final.pdf</a>

<sup>67</sup> Ibid.

<sup>69</sup> O. Savytskyi and S. Nies, *Boosting EU Power Integration Can Help Ukraine Survive Next Winters*, Euroactiv (24 July 2024), <a href="https://www.euractiv.com/section/energy/opinion/boosting-eu-power-integration-can-help-ukraine-survive-next-winters/">https://www.euractiv.com/section/energy/opinion/boosting-eu-power-integration-can-help-ukraine-survive-next-winters/</a>

The EU has already undertaken several steps towards recovering Ukraine's power grid infrastructure. The recently signed agreement between Ukrenergo, the national power company, and the European Commission on allocating 100 million euros as part of the Ukraine Facility will help reconstruct and replace destroyed and damaged parts of Ukraine's electricity transmission infrastructure, leveraging energy-efficient technologies.

Moreover, some EU Member States have already committed additional funds to help Ukraine recover its power grid. For instance, in June 2024, under the Ukraine Facility's Investment Framework, KfW, the state-owned German development bank, signed an agreement with Ukrenergo amounting to 45 million euros to repair the electricity infrastructure, facilitate Ukraine's connection to the Western European power grid, and fund new infrastructure, such as onshore wind farms.<sup>72</sup>

Moreover, in May 2022, at the request of the European Commission, the Energy Community established the Ukraine Energy Support Fund, which has mobilised 500 million euros in funding from governments and international financial institutions. The fund focuses on the most immediate needs of Ukrainian energy companies, such as equipment, spare parts, and other technical items, to fix infrastructure and maintain Ukraine's energy and heat supply.<sup>73</sup> To this end, energy companies approved by the Ministry of Energy of Ukraine can apply for funding to pay for key services such as recovering and reinforcing technical equipment and purchasing required equipment and spare parts for their energy facilities.<sup>74</sup> The companies can also apply for all fuels required to produce heat and electricity.<sup>75</sup>

By working jointly with the EU, Ukraine can achieve significant grid modernisation efforts and increased storage and export capacity to manage variable generation throughout the system and facilitate renewable energy generation.<sup>76</sup> This approach could facilitate Ukraine's economic recovery and strengthen Europe's energy security.

#### 2.1.2 Transportation

#### State of Damage

Since the start of the Russian invasion, Ukraine's transport and logistical infrastructure has been one of the top areas of active attacks and has experienced some of the heaviest damages. Due to frequent shelling, artillery attacks, and the deployment of

71 Ibid.

<sup>70</sup> Delegation of the EU to Ukraine, Reconstruction of the Electricity Transmission System: Ukraine Will Receive 100 Million Euros from the European Union, (19 July 2024), <a href="https://www.eeas.europa.eu/delegations/ukraine/reconstruction-electricity-transmission-system-ukraine-will-receive-100-million-euros-european-union\_en?s=232">https://www.eeas.europa.eu/delegations/ukraine/reconstruction-electricity-transmission-system-ukraine-will-receive-100-million-euros-european-union\_en?s=232</a>

<sup>72</sup> Federal Ministry for Economic Cooperation and Development, *Germany Supports Ukraine's Efforts to Rebuild Power Grid*, (9 May 2024), <a href="https://www.bmz.de/en/news/press-releases/germany-supports-ukraine-efforts-to-rebuild-power-grid-209418">https://www.bmz.de/en/news/press-releases/germany-supports-ukraine-efforts-to-rebuild-power-grid-209418</a>

<sup>73</sup> Energy Community, *Ukraine Energy Support Fund*, (26 August 2024), <a href="https://www.energy-community.org/Ukraine/Fund.html">https://www.energy-community.org/Ukraine/Fund.html</a>

<sup>74</sup> Energy Community, *Ukraine Energy Support Fund Explained (October 2024)*, <a href="https://www.energy-community.org/dam/jcr:f7b8b6f5-75d3-46f9-b8eb-ec5612d73cb7/Ukraine\_Energy\_Support\_Fund%20.pdf">https://www.energy-community.org/dam/jcr:f7b8b6f5-75d3-46f9-b8eb-ec5612d73cb7/Ukraine\_Energy\_Support\_Fund%20.pdf</a>
75 Ibid.

<sup>76</sup> See (n29)

military equipment, road infrastructure facilities (e.g., motorways) suffered the most significant damage, followed by railway, port, and airport infrastructure.<sup>77</sup>

Before the war, Ukraine had a sizeable multimodal transport infrastructure that included a network of roads (200,000 km), railways (19,800 km), airports (19), and seaports (18).<sup>78</sup> Transportation played an essential role in the functioning of Ukraine's export-oriented economy, accounting for 6.5% of the country's GDP in 2021.<sup>79</sup>

As of January 2024, approximately 25,400 km of roads and 344 bridges and bridge crossings at the state, local, or municipal levels suffered severe damage due to the hostilities. In this regard, around 300 bridges on significant highways were damaged or destroyed. Also, constant Russian shelling and attacks substantially damaged 19 airports and civilian airfields, 507km of railway tracks, and 53 railway stations. Moreover, property in at least four ports has been destroyed or severely damaged. Tor instance, the destruction of the Kakhovka hydroelectric power station significantly damaged the river ports of Nibulon.

As a result, due to constant and indiscriminate Russian missile attacks, Ukraine suffered over 30% damage to its transport and logistics infrastructure, with air cargo totally suspended and port activity severely interrupted.<sup>85</sup> The total recovery and reconstruction needs are estimated at \$73.8 billion for the next decade, with the highest recovery needs for the road (46%), railway (26%), public transport (5.3%), airport (1.7%), and port (0.7%) infrastructure.<sup>86</sup> In this regard, Donetska, Khersonska, Zaporizka, and Luhanska oblasts experienced the most direct damage caused by Russian attacks, amounting to 70% as of early 2024.<sup>87</sup>

#### Ukrainian State Policy

The Ukrainian government is committed to recovering and modernising transport infrastructure per EU standards. The Project of the Recovery Plan proposed by the National Council for the Recovery of Ukraine from the Consequences of the War stipulates Ukraine's commitment to ensuring the modernisation and compatibility of all transport infrastructure following the EU acquis.<sup>88</sup> The Ukrainian government aims to restore and increase the capacity of airport, seaport, and railway border crossings on the western border of Ukraine and achieve technical and organisational compatibility

<sup>77</sup> Kyiv School of Economics, Report on Damages to Infrastructure from the Destruction Caused by Russia's Military Aggression Against Ukraine as of January 2024, (April 2024), <a href="https://kse.ua/wp-content/uploads/2024/05/Eng">https://kse.ua/wp-content/uploads/2024/05/Eng</a> 01.01.24 Damages Report.pdf

<sup>78</sup> I. Kosse, Rebuilding Ukraine's Infrastructure after the War, Vienna Institute for International Economic Studies, (July 2023), <a href="https://wiiw.ac.at/rebuilding-ukraine-s-infrastructure-after-the-war-dlp-6621.pdf">https://wiiw.ac.at/rebuilding-ukraine-s-infrastructure-after-the-war-dlp-6621.pdf</a>
79 Ibid.

<sup>80</sup> See (n77)

<sup>81</sup> Ibid.

<sup>82</sup> Ibid.

<sup>83</sup> Ibid.

<sup>84</sup> Ibid.

<sup>85</sup> R. Bandura, I. Timtchenko, B. Robb, *Ships, Trains, and Trucks: Unlocking Ukraine's Vital Trade Potential,* CSIS, (8 April 2024), <a href="https://www.csis.org/analysis/ships-trains-and-trucks-unlocking-ukraines-vital-trade-potential">https://www.csis.org/analysis/ships-trains-and-trucks-unlocking-ukraines-vital-trade-potential</a>

<sup>86</sup> See (n1)

<sup>87</sup> Ibid.

<sup>88</sup> The National Council for the Recovery of Ukraine from the Consequences of the War, *Draft Ukraine Recovery Plan*, (July 2022), <a href="https://www.kmu.gov.ua/storage/app/sites/1/recovery-rada/eng/recovery-and-development-of-infrastructure-eng.pdf">https://www.kmu.gov.ua/storage/app/sites/1/recovery-rada/eng/recovery-and-development-of-infrastructure-eng.pdf</a>; Ukraine Recovery Conference, *Ukraine Recovery Plan*, (2024), <a href="https://ua.urc-international.com/plan-vidnovlennya-ukrayini">https://ua.urc-international.com/plan-vidnovlennya-ukrayini</a>; Ukraine Recovery Plan, (2024), <a href="https://recovery.gov.ua/">https://recovery.gov.ua/</a>

with European standards. The government also intends to incorporate the latest technologies and harmonise road construction legislation with EU legislation.<sup>89</sup>

In April 2022, the Ukrainian government announced its intention to switch to the European track width standard, starting by connecting major railway junctions and cities and then expanding the new railway network throughout the country, focusing on such particular modernisation railway routes as Lviv-Kyiv, Lviv-Odesa, and Lviv-Kryvyi Rih.<sup>90</sup> Also, in the Plan for Implementation of Ukraine Facility 2024-2027, announced in 2024, Ukraine's government outlined modernising logistics and TEN-T networks and aligning the railway sector with EU standards as top priorities.<sup>91</sup> However, switching Ukrainian railway infrastructure entirely to the European railway standard may take up to two decades and cost up to 250 billion euros.<sup>92</sup>

The Ukrainian government aims to restore the transportation infrastructure that suffered tremendously due to Russian aggression and modernise routes for exports to the EU.<sup>93</sup> This way, Ukraine's transport sector could accelerate its integration with the EU and global economies.

In April 2021, the Ukrainian government approved a plan of measures to implement the National Transport Strategy of Ukraine until 2030.<sup>94</sup> While developing this plan and strategy, the Ukrainian government worked closely with the EU delegation to Ukraine, reflecting Ukraine's commitment to European integration in the transportation sphere. In particular, the plan contains provisions on a commitment to modernise the transport infrastructure according to EU standards and replace transport with more modern and environmentally-friendly means of transportation.<sup>95</sup>

The Ukrainian government has also undertaken practical steps towards integrating Ukraine's transport industry with EU standards, reflected in the slight improvement of 3% in the annual assessment on "Monitoring of Ukraine's Accession to the EU" in March 2024. He are carried out partial harmonisation of transport legislation before a full-scale war. In 2023, within the framework of the CEF Call 2022 program, appropriate grant agreements were signed to finance the implementation of six

90 D. Hordiychuk, *Ukraine Will Start Construction of the Eurotrack*, EPrawda, (24 May 2022), https://www.epravda.com.ua/news/2022/05/24/687403/

<sup>89</sup> Ibid

<sup>91</sup> Ukraine Facility, Economic Support Program 2024-2027, https://www.ukrainefacility.me.gov.ua/en/

<sup>92</sup> D. Petrovsky, *The Numbers are Shocking: It Became Known How Much it Will Cost Ukrzaliznytsia's Transition to the Euro Track*, UNIAN (10 July 2023), <a href="https://www.unian.ua/economics/transport/koli-ukrajinska-zaliznicya-povnistyu-pereyde-na-yevropeysku-koliyu-vidpovid-eksperta-12323124.html#goog\_rewarded">https://www.unian.ua/economics/transport/koli-ukrajinska-zaliznicya-povnistyu-pereyde-na-yevropeysku-koliyu-vidpovid-eksperta-12323124.html#goog\_rewarded</a>
93 See (n1).

<sup>94</sup> Ukrainian Ministry of Infrastructure, *Government Has Approved a Plan of Measures to Implement the National Transport Strategy of Ukraine until 2030*, (7 April 2021), <a href="https://www.kmu.gov.ua/en/news/uryad-zatverdiv-plan-zahodiv-z-realizaciyi-nacionalnoyi-transportnoyi-strategiyi-ukrayini-do-2030-roku-vladislav-kriklij">https://www.kmu.gov.ua/en/news/uryad-zatverdiv-plan-zahodiv-z-realizaciyi-nacionalnoyi-transportnoyi-strategiyi-ukrayini-do-2030-roku-vladislav-kriklij</a>; The Ministry of Transportation of Ukraine, *Ukraine's National Transport Strategy*, (January 2023),

https://mtu.gov.ua/files/for\_investors/230118/National%20Transport%20Strategy%20of%20Ukraine.pdf

<sup>95</sup> Cabinet Of Ministers, Order On the Approval of the Plan of Measures for the Implementation of the National Transport Strategy of Ukraine by 2030, (7 April 2021), <a href="https://www.kmu.gov.ua/npas/pro-zatverdzhennya-planu-zahodiv-z-realizaciyi-nacionalnoyi-transportnoyi-strategiyi-ukrayini-na-period-do-2030-roku-321-070421">https://www.kmu.gov.ua/npas/pro-zatverdzhennya-planu-zahodiv-z-realizaciyi-nacionalnoyi-transportnoyi-strategiyi-ukrayini-na-period-do-2030-roku-321-070421</a>

<sup>96</sup> The Center of Transport Strategies, Progress in the Implementation of the Association Agreement with the EU in the Transport Sector Amounted to 3% for the Year, (21 March 2024),

https://cfts.org.ua/news/2024/03/21/progres u vikonanni ugodi pro asotsiatsiyu z es v transportniy sferi sklav 3 za rik 7 8626

<sup>97</sup> The Cabinet of Ministers of Ukraine, Reports on the Implementation of the Association Agreement between Ukraine and the EU, (2024), https://www.kmu.gov.ua/diyalnist/yevropejska-integraciya/vikonannya-ugodi-pro-asociaciyu/zviti-pro-vikonannya-ugodi-pro-asociaciyu

projects to modernise road and railway checkpoints at Ukraine's western border with neighbouring EU states.<sup>98</sup> Also, the Ukrainian government adopted several legislative acts based on EU legislation and followed Ukraine's obligations in the areas of inland waterways and international maritime transport.<sup>99</sup>

However, the level of implementation of the Association Agreement with the EU in the transport sector needs to be higher, with only 56% of the EU integration requirements currently fulfilled. Among the critical issues that still need to be resolved are implementing the EU acquis regarding rail and road transport, creating a regulatory body in the field of rail transport and investigative bodies in the rail and water transport spheres, and ensuring compliance with road safety measures.

Aligning with EU regulations and standards is not just a goal but a critical necessity for efficient transport planning and progress toward EU accession. The transport sector is a cornerstone of the EU-Ukraine Association Agreement, which aims to reform transport segments (e.g., road, railway, aviation, maritime, and inland waterway transport) and help Ukraine ensure efficient, safe, and secure transport.<sup>101</sup>

#### **Opportunities**

Recovering and fully integrating Ukraine into the EU's logistical and transport networks promises to transform it into a crucial transport hub. This integration will bolster connectivity and trade across the EU via key infrastructure projects. To this end, the Ukrainian government has sought ways to engage in transport infrastructure development projects at regional and interstate levels with the EU Member States. The focus has been on advancing the quality of transport infrastructure and services, compliance with environmental standards, and integrating the Ukrainian transport system into the European transportation network.

In May 2022, the European Commission launched the Solidarity Lanes action plan to help ensure the steady flow of products and goods to and from Ukraine. The EU-Ukraine Solidarity Lanes have helped provide logistics alternatives to Ukraine's seaports, including rail, road, and inland waterways, and enabled Ukrainian exports to stabilise when Russian forces blocked Ukrainian ports. Since May 2022, the Solidarity Lanes has served as a lifeline of Ukraine's economy, leading to approximately 180 billion euros in trade, with Ukrainian exports worth 55 billion euros. In this regard, Solidarity Lanes enabled Ukraine to export around 83 million tonnes of Ukrainian agricultural products and 74 million tonnes of non-agricultural

<sup>98</sup> The Cabinet of Ministers of Ukraine, Report on the Implementation of the Association Agreement between Ukraine and the EU, (2023), https://eu-ua.kmu.gov.ua/wp-content/uploads/Zvit-pro-vykonannya-Ugody-pro-asotsiatsiyu-mizh-Ukrayinoyu-ta-YEvropejskym-Soyuzom-za-2023-rik.pdf

<sup>99</sup> See (n96)

<sup>100</sup> Ibid.

<sup>101</sup> EU Neigbours East, Assistance to the Ukrainian authorities for the Establishment of National Transport Model and Master Plan, (2024), <a href="https://euneighbourseast.eu/projects/eu-project-page/?id=443">https://euneighbourseast.eu/projects/eu-project-page/?id=443</a>
102 See (n77) and (n78)

<sup>103</sup> European Commission, *EU-Ukraine Solidarity Lanes*, (2024), <a href="https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine/eu-ukraine-solidarity-lanes">https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine/eu-ukraine-solidarity-lanes</a> en#:~:text=Between%20May%202022%20and%20April,the%20start%20of%20the%20war. 104 European Commission, *EU and Ukraine Update and Extend Road Transport Agreement*, (20 June 2024),

https://transport.ec.europa.eu/news-events/news/eu-and-ukraine-update-and-extend-road-transport-agreement-2024-06-20\_en 105 European Commission, Solidarity Lanes: Latest figures – September 2024, (17 October 2024),

https://transport.ec.europa.eu/news-events/news/solidarity-lanes-latest-figures-september-2024-2024-10-17\_en

goods, including steel and other related products.<sup>106</sup> In return, Solidarity Lanes also allowed Ukraine to import 62 million tonnes of crucial goods, including fertilisers, fuel, vehicles, and military and humanitarian assistance.<sup>107</sup>

In September 2023, Ukraine became an associate partner of the Three Seas Initiative, a forum of 13 EU Member States focusing on advancing transport, economic, and digital connectivity across the region located between the Baltic, Black, and Adriatic seas.<sup>108</sup> In June 2024, during a Three Seas Initiative business forum in Riga, Member States committed to working on including Ukraine in Three Seas investment projects to strengthen its independence, economy, resilience, and ties to the EU.<sup>109</sup>

In December 2023, Ukraine and the European Union signed an agreement on updated indicative maps of the trans-European transport network. This will allow Ukraine to receive EU funding for developing transport corridors.<sup>110</sup>

In May 2024, Ukraine and the EU extended and updated the road transport agreement to help the country ensure good transport connectivity and links with the EU market. The first edition of this agreement, signed in June 2022, led to a substantial increase in mutual trade and export of goods between Ukraine and the EU. Its extension paves the way for more robust transport connections that could benefit both parties in the foreseeable future. The substantial increase in the foreseeable future.

Ukrainian Railways seeks to expand its transport infrastructure capacity with EU countries, mainly developing intermodal routes to the Baltic states. The main objective is to integrate Ukraine's rail infrastructure into TEN-T corridors, connecting its network with Rail Baltica as part of the Baltic Sea-Black Sea-Aegean Sea corridor Three-Seas Initiative).<sup>113</sup> This will help Ukraine open new rail routes to EU seaports in the near future.<sup>114</sup>

In July 2024, four projects for the development of transport infrastructure were approved within the framework of the European Union program "Mechanism "Connecting Europe" (CEF), amounting to approximately 53 million euros. All projects aim at European integration, improving the railroad network and technical compatibility with EU standards, optimising traffic flow, and upgrading communication, navigation, surveillance, and air navigation information infrastructure. This way, EU

107 lbid.

<sup>106</sup> lbid.

<sup>108</sup> The Ministry of Economy of Ukraine, *Ukraine Becomes Associate Member of the Three Seas Initiative*, (7 September 2023), <a href="https://www.kmu.gov.ua/en/news/ukraina-otrymala-status-asotsiiovanoi-derzhavy-uchasnytsi-initsiatyvy-trokh-moriv">https://www.kmu.gov.ua/en/news/ukraina-otrymala-status-asotsiiovanoi-derzhavy-uchasnytsi-initsiatyvy-trokh-moriv</a>
109 Three Seas Summit, *Three Seas Business Forum Concludes with Reiterated Support for Ukraine and Investment Commitments from USA and Google*, (June 2024), <a href="https://seas.eu/media/news/three-seas-business-forum-concludes-with-reiterated-support-for-ukraine-and-investment-commitments-from-usa-and-google">https://seas.eu/media/news/three-seas-business-forum-concludes-with-reiterated-support-for-ukraine-and-investment-commitments-from-usa-and-google</a>

<sup>110</sup> RBC Ukraine, *Ukraine Joins the Trans-European Transport Network: What Does it Mean,* (9 February 2024), <a href="https://www.rbc.ua/rus/travel/ukrayina-priednuetsya-trans-evropeyskoyi-1707476013.html">https://www.rbc.ua/rus/travel/ukrayina-priednuetsya-trans-evropeyskoyi-1707476013.html</a>

<sup>111</sup> See (n101)

<sup>112</sup> See (n101)

<sup>113</sup> Real Baltica, *Rail Baltica is Included in the Unified European Transport Corridor with Ukraine*, (18 July 2024), <a href="https://www.railbaltica.org/rail-baltica-is-included-in-the-unified-european-transport-corridor-with-ukraine/">https://www.railbaltica.org/rail-baltica-is-included-in-the-unified-european-transport-corridor-with-ukraine/</a> 114 Ibid.

<sup>115</sup> Ekonomichna Pravda, *Ukraine Will Receive a Grant of 53 Million Euros for the Implementation of 4 Transport Projects*, (17 July 2024), <a href="https://www.epravda.com.ua/news/2024/07/17/716783/">https://www.epravda.com.ua/news/2024/07/17/716783/</a>

funding can help enhance transport corridor capacity and accelerate the integration of Ukrainian transport infrastructure into the EU transport space.

Also, in June 2024, the EU committed to enabling the financial guarantee of approximately 180 million euros for the EBRD's Municipal, Infrastructure, and Industrial Resilience Programme to support emergency needs and future reconstruction efforts across various sectors, including transport infrastructure. This financial commitment is part of a broader package of new guarantee and grant agreements worth 1.4 billion, approved at the Ukraine Recovery Conference 2024 in Berlin to support Ukraine's recovery and reconstruction as part of Ukraine's Facility Investment Framework. This step could contribute to a faster recovery of Ukraine's transportation networks and their alignment with EU standards. However, this allocated funding represents only a tiny fraction of the overall recovery needs for the next decade, which amounts to \$73.8 billion for transportation and a combined \$25.1 billion for other critical infrastructure sectors such as energy and extractives (\$10.7 billion), telecommunications (\$3.3 billion), water supply and sanitation (\$5.4 billion), and municipal services (\$5.7 billion).

#### 2.1.3 Housing and Utilities

#### State of Damage

Since February 2022, approximately 210,000 residential buildings have been destroyed and severely damaged by Russian forces, including 708 schools, 106 hospitals, and 109 religious centres. The overall recovery and reconstruction needs are estimated at \$80.3 billion over the next decade, with most funds allocated for repairing and reconstructing housing infrastructure across Ukraine.

As of February 2024, housing and utilities infrastructure (e.g., central heating, energy efficiency, municipal services, waste management, and water supply and sanitation) had suffered substantial damage and destruction caused by intensive Russian missile and artillery strikes, roughly amounting to \$56 billion. Frequent Russian shelling and rocket attacks have made it nearly impossible to conduct repairs, leading to frequent and prolonged shutdowns of heating and water supply systems. Some locals are not receiving utility services and lack access to drinking water.

<sup>116</sup> V. Bennett, Supporting Ukraine with €517 million of EU Funding Through EBRD, (11 June 2024), <a href="https://www.ebrd.com/news/2024/supporting-ukraine-with-517-million-of-eu-funding-through-ebrd.html">https://www.ebrd.com/news/2024/supporting-ukraine-with-517-million-of-eu-funding-through-ebrd.html</a>

<sup>117</sup> European Commission, *The EU Signs* €1.4 *Billion of New Guarantee and Grant Agreements to Support Ukraine's Recovery and Attract Private Sector Investments* (11 June 2024), <a href="https://ec.europa.eu/commission/presscorner/detail/en/ip\_24\_3182">https://ec.europa.eu/commission/presscorner/detail/en/ip\_24\_3182</a>

<sup>118</sup> See (n1)

<sup>119</sup> K. Odarchenko, *Rebuilding Ukraine — Bricks, Mortar, and Money*, (22 July 2024), <a href="https://cepa.org/article/rebuilding-ukraine-bricks-mortar-and-money/">https://cepa.org/article/rebuilding-ukraine-bricks-mortar-and-money/</a> and see (n50)

<sup>120</sup> See (n1)

<sup>120</sup> See (

<sup>122</sup> See (n9)

<sup>123</sup> Ibid.

Based on the latest estimates, almost half (47%) of people surveyed in the east and south of Ukraine report that their houses have been damaged or destroyed. Even before the war, Ukraine had a shortage of affordable and adequate housing, with most housing stock being outdated and energy inefficient. Due to the dynamic war situation and economic challenges, the current pace of rebuilding is extremely slow and requires more support to ensure new and affordable housing that can accommodate the increasing number of Ukrainians.

Since the start of the Russian invasion of Ukraine, several international organisations, local NGOs, and foreign governments have supported shelter and housing reconstruction activities in Ukraine. In particular, the UN has played an essential role in housing recovery efforts. To this end, IOM has supported over 4.4 million Ukrainians by providing shelter, transitional housing solutions, and repairing damaged homes. IOM is currently implementing several housing projects, co-financed by the German Government through KfW, including developing residential facilities in five regions of Ukraine. In turn, UNHCR has also helped to rebuild housing across Ukraine (e.g., 29,000 private homes). Since 2024, UNHCR has been working jointly with UNDP, IOM, local authorities, and other partners to implement protection and housing programs through an area-based pilot in Ivankiv in the Kyiv region and Mukachevo in the Zakarpattia region with plans to expand to 12 more locations by 2025.

However, there is still a high demand for new and affordable housing that can accommodate the increasing number of internally displaced people within Ukraine, which currently stands at 3.7 million, as well as the 4.6 million returnees.<sup>130</sup>

In May 2023, the Ukrainian government launched eRecovery, the state aid program for restoring damaged housing. <sup>131</sup>All claims must be submitted electronically and include relevant documentation. After the application is submitted, the special commission for compensation issues, established at the local self-government body, considers it and inspects the damaged property to determine the compensation amount and application compliance within one calendar month.

On 12 May 2023, the Ukrainian government determined that the maximum assistance under the eRecovery program would be 200,000 UAH (around \$5k). In June 2023, the first disbursements of funds within the framework of the eRecovery program

129 UNHCR, *Ukraine Situation*, (2024), <a href="https://reporting.unhcr.org/operational/situations/ukraine-situation">https://reporting.unhcr.org/operational/situations/ukraine-situation</a> 130 Ibid

<sup>124</sup> NRC, Ukraine Two Years On: Destruction and Displacement, the Devastating Impacts of the Escalation of War Revealed in New NRC Report, (21 February 2024), https://nrc.no/news/2024/february/ukraine-two-years-on-destruction-and-displacement-the-devastating-impacts-of-the-escalation-of-war-revealed-in-new-nrc-report/

<sup>125</sup> A. Peacock, "*Ukraine Had a Shortage of Adequate Housing Before the War*" Says UN's Richard Evans, (15 August 2024), <a href="https://www.dezeen.com/2024/08/15/richard-evans-unhcr-housing-ukraine-war-interview/">https://www.dezeen.com/2024/08/15/richard-evans-unhcr-housing-ukraine-war-interview/</a>

<sup>127</sup> IOM, IOM, and Partners Address Urgent Housing Need in War-Torn Ukraine, (26 January 2024), https://www.iom.int/news/iom-and-partners-address-urgent-housing-need-war-torn-ukraine

<sup>128</sup> Ibid.

<sup>131</sup> The Cabinet of Ministers of Ukraine, Restoration: *The State Assistance Program for the Restoration of Damaged Housing Has Been Launched*, (10 May 2023), <a href="https://www.kmu.gov.ua/news/yevidnovlennia-startuvala-prohrama-derzhavnoi-dopomohy-na-vidnovlennia-poshkodzhenoho-zhytla">https://www.kmu.gov.ua/news/yevidnovlennia-startuvala-prohrama-derzhavnoi-dopomohy-na-vidnovlennia-poshkodzhenoho-zhytla</a>

<sup>132</sup> D. Mikhailov, The Government Has Determined the Maximum Amount for the Repair of Damaged Housing Under the "eRecovery" Program, Suspilne, (12 May 2023), <a href="https://suspilne.media/474499-u-minvidnovlenni-rozpovili-akou-e-maksimalna-suma-na-vidnovlenna-poskodzenogo-zitla-za-programou-evidnovlenna/">https://suspilne.media/474499-u-minvidnovlenni-rozpovili-akou-e-maksimalna-suma-na-vidnovlenna-poskodzenogo-zitla-za-programou-evidnovlenna/</a>

started, with Ukrainians from the Kyiv and Donetsk regions receiving the first compensations. As of August 2024, approximately 65,000 Ukrainians have received funds for repairing damaged housing, amounting to 7 billion UAH (\$170 million). Also, 9,000 families received housing certificates, and 3,000 have already implemented them and received new housing instead of that destroyed due to the Russian aggression. 135

Also, in April 2024, a resolution of the Council of Europe created the Register of Damage for Ukraine, enabling Ukrainians to submit claims for one specific category, such as residential property damage or destruction. As of October 2024, around 10,000 claims have been submitted, and the Ukrainian government expects between 300,000 and 600,000 claims for destroyed or damaged houses. All claims must be submitted electronically and include relevant documentation and photographic evidence of damage. However, the Register's powers do not include assessing the compensation amount for the received applications, with the future application commission designated to do so. Also, applying to the Register does not affect the possibility or chances of receiving compensation under the eRecovery program and vice versa.

#### Ukrainian State Policy

The Project of the Recovery Plan proposed by the National Council for the Recovery of Ukraine from the Consequences of the War stipulates Ukraine's commitment to sustainable energy development and decarbonisation of local housing infrastructure by introducing modern energy-efficient technologies. The Project stipulates that recovering housing infrastructure should be treated as an opportunity to boost energy efficiency and improve its resilience and flexibility, which might take more time and resources. At the same time, the Project also recognises a need for temporary basic housing that should be built as fast and as cheaply as possible. There is a high risk that, considering current Ukrainian financial challenges, the Ukrainian government could focus on low-quality housing priorities that could later become permanent if the funds for modernised housing and social infrastructure are insufficient.

<sup>133</sup> O. Bohdanyok, *The First Disbursements of Funds Within the Framework of the Program eRecovery Have Begun*, Suspilne, (8 June 2023), <a href="https://suspilne.media/501658-rozpocalisa-persi-viplati-kostiv-u-mezah-programi-evidnovlenna-smigal/">https://suspilne.media/501658-rozpocalisa-persi-viplati-kostiv-u-mezah-programi-evidnovlenna-smigal/</a> 134 The Ministry of Digital Transformation, *Submitting an Application for Repair of a Damaged Home is Becoming Faster: Two* 

Updates in the eRecovery Program, (13 August 2024), <a href="https://thedigital.gov.ua/news/podati-zayavku-na-remont-poshkodzhenogo-zhitla-stae-shvidshe-dva-onovlennya-v-programi-evidnovlennya</a>

<sup>135</sup> Ibid.

<sup>136</sup> T. Lingsma, Register of Damages for Ukraine: "The Biggest Claims Program in History," Justice Info, (14 June 2024), https://www.justiceinfo.net/en/133217-register-damages-ukraine-biggest-claims-program-history.html

<sup>137</sup> Ibid. and the Council of Europe, (1 October), More than 10,000 Claims for Damaged or Destroyed Housing Have Been Submitted to the Register of Damages for Ukraine, Понад 10,000 заяв щодо пошкодженого або знишеного житла подано до Ресстру збитків для України - Ресстр збитків для України (coe.int)

<sup>138</sup> Council of Europe, *Damage Register Caused by the Russian Aggression against Ukraine*, (21 March 2024), <u>179e4282-82cd-f2cd-ec2f-852e0703bd2a (coe.int)</u>

<sup>139</sup> Council of Europe, *The Second Preparatory Meeting Regarding the Creation of the Commission for Consideration of Applications for Ukraine was Held in The Hague*, (13 September 2024), <a href="https://rd4u.coe.int/uk/-/second-preparatory-meeting-on-a-claims-commission-for-ukraine-held-in-the-hague">https://rd4u.coe.int/uk/-/second-preparatory-meeting-on-a-claims-commission-for-ukraine-held-in-the-hague</a>

<sup>140</sup> Ibid.

<sup>141</sup> See (n88)

<sup>142</sup> K. Holynska, J. Balagna, and K.Marcinek, *The Trade-Offs of Ukraine's Recovery: Fighting for the Future*, RAND, (2 May 2023), <a href="https://www.rand.org/content/dam/rand/pubs/research\_reports/RRA2300/RRA2370-1/RAND\_RRA2370-1.pdf">https://www.rand.org/content/dam/rand/pubs/research\_reports/RRA2300/RRA2370-1/RAND\_RRA2370-1.pdf</a> 143 Ibid.

Currently, the Ukrainian government is developing a comprehensive strategy and framework for housing, following best European practices and signalling comprehensive reforms. 144 It aims to ensure an inclusive and energy-efficient approach to renovating war-damaged buildings and building new affordable housing to meet the substantial needs of the Ukrainian people in compliance with EU regulations. Simultaneously, meeting all Ukrainians' short—and long-term needs for sustainable and affordable housing is essential. 145

#### **Opportunities**

Even before the war, Ukraine's housing quality was inferior, and its availability was low. Most multifamily apartment buildings in Ukraine were outdated and needed modernisation due to energy inefficiency and low quality, with only 12% constructed after 1991.<sup>146</sup> The Russian invasion has led to damage to over 1.4 million residential units and approximately 4 million internally displaced people seeking adequate and affordable housing for the long term. 147

Overall, housing and utilities infrastructure (e.g., central heating, municipal services, waste management, and water supply and sanitation) is integral to the Ukrainian economy's life support systems but requires urgent modernisation. 148 However, Ukraine's heating sector relies heavily on district heating infrastructure, which uses coal and gas-fuelled boilers and is also highly energy-intensive. 149 The inefficiency of Ukraine's heating infrastructure is further worsened by households' lack of metering and thermostats, undermining any energy-saving incentive. 150 In turn, water supply and wastewater treatment are among Ukraine's most underfunded utility sectors, and mechanical equipment needs to be replaced with more energy-efficient and technologically advanced alternatives. 151

Ukraine has an excellent opportunity to leverage the experience of EU Member States in the social and affordable housing sector. 152 By supporting Ukraine's efforts to renovate and develop housing and utilities infrastructure, the EU could help implement sustainable urban development plans that combine sustainable materials and energyefficient housing standards following EU regulations.

The EU has already made some financial commitments to help Ukraine ensure the energy-efficient approach to support the growth of good housing opportunities. In June 2024, the European Investment Bank (EIB) lent Ukraine 100 million euros to modernise and rebuild social municipal infrastructure, develop affordable social

<sup>144</sup> Delegation of the European Union to Ukraine, "Housing for Inclusive and Sustainable Recovery" - EU Invests in Ukraine's Affordable and Energy-efficient Future, (9 February 2024),

https://www.eeas.europa.eu/delegations/ukraine/%E2%80%9Chousing-inclusive-and-sustainable-recovery%E2%80%9D-%E2%80%93-eu-invests-ukraine%E2%80%99s-affordable-and-energy-efficient en

<sup>145</sup> Ibid.

<sup>146</sup> See (n77)

<sup>147</sup> IOM, IOM and Partners Address Urgent Housing Need in War-Torn Ukraine, (26 January 2024),

https://www.iom.int/news/iom-and-partners-address-urgent-housing-need-war-torn-ukraine

<sup>148</sup> See (n77)

<sup>149</sup> Ibid.

<sup>151</sup> EU Neihbours East, Energy Efficiency and Sustainability: Modernising Water Supply Systems in Ukraine, (6 July 2023), https://euneighbourseast.eu/news/stories/energy-efficiency-and-sustainability-modernising-water-supply-systems-in-ukraine/ 152 See (n144)

housing, and ensure the supply of essential services such as clean water and sanitation. The funds will mainly aid the most vulnerable, with an expected 2,000 families receiving new housing. 154

Also, in March 2024, the EU kickstarted the EIB-backed funding under the Ukraine Recovery Programme amounting to 161 million euros to reconstruct Ukrainian social housing and utilities (e.g., water and waste facilities). Thus, funding will be distributed among 155 projects focusing on reconstructing damaged or outdated critical infrastructure across 100 cities and communities in Ukraine. This approach signifies the EU's commitment to helping Ukrainian communities accelerate the implementation of recovery projects, including restoring housing and essential public utilities.

#### 2.2 Key Funding Mechanisms – State and Challenges

Several funding and donor mechanisms have supported Ukrainian economic recovery and reconstruction launched in the aftermath of Russian aggression:

#### 2.2.1 The Multi-agency Donor Coordination Platform

Since December 2022, the Multi-agency Donor Coordination Platform has played an important role. Much of the international aid for Ukraine's reconstruction flows through it to help the Ukrainian government cope with economic and other critical needs. The Platform was established following a decision by G7 leaders to coordinate support for Ukraine's immediate financing and reconstruction needs. The Platform's Steering Committee includes senior government officials from Ukraine, the EU, G7 countries, and critical international financial institutions and conducts regular meetings.

Since 2023, as part of the G7+ energy coordination group, the Platform has committed to allocating over \$1.8 billion in financing to help the Ukrainian government address energy and transportation needs. In particular, the group focused on assisting with materials for protecting energy infrastructure, repairing, and developing distributed power solutions to enable Ukraine's economic recovery and sustainability.

<sup>153</sup> See (n88)

<sup>154</sup> V. Melkozerova, European Banks to Provide Over €600M in Recovery Funds for Ukraine, Politico, (11 June 2024), <a href="https://www.politico.eu/article/europe-banks-recovery-ukraine-funds-russia-war-reconstruction-developent-housing/">https://www.politico.eu/article/europe-banks-recovery-ukraine-funds-russia-war-reconstruction-developent-housing/</a>, The Ministry of Recovery of Ukraine, Ukraine Signed a Loan Agreement with the Development Bank of the Council of Europe Regarding Compensation for Destroyed Housing, (11 June 2024), <a href="https://mtu.gov.ua/news/35705.html">https://mtu.gov.ua/news/35705.html</a>
155 FIR, FIR belowed Ukraine, Recovery Programme Kinks Off as Critical Infractivative Projects Get Underway (8 March)

<sup>155</sup> EIB, EIB-backed Ukraine Recovery Programme Kicks Off as Critical Infrastructure Projects Get Underway, (8 March 2024), https://www.eib.org/en/press/all/2024-101-eib-backed-ukraine-recovery-programme-kicks-off-as-critical-infrastructure-projects-get-underway

<sup>156</sup> Ibid.

<sup>157</sup> Ibid

<sup>158</sup> The Multi-agency Donor Coordination Platform, *About Us*, (August 2024), <a href="https://coordinationplatformukraine.com/about/159">https://coordinationplatformukraine.com/about/159</a> G7 Germany, *G7 Leaders Statement* (12 December 2022),

 $<sup>\</sup>underline{\text{https://www.g7germany.de/resource/blob/997532/2153142/960bf2bf29ddb2253fca0c3bf8f983e7/2022-12-12-g7leadersstatement-data.pdf?download=1}$ 

<sup>160</sup> See (n158)

<sup>161</sup> The Multi-agency Donor Coordination Platform, *Joint Communique* (11 June 2024), <a href="https://coordinationplatformukraine.com/wp-content/uploads/2024/06/FINAL\_Joint-Communique-for-URC-2024.pdf">https://coordinationplatformukraine.com/wp-content/uploads/2024/06/FINAL\_Joint-Communique-for-URC-2024.pdf</a> 162 Ibid.

The Ukrainian government must strengthen its capacities to absorb donor financing to ensure that the much-needed support flows from the Platform's donors and is processed swiftly and transparently to meet urgent economic and reconstruction needs.<sup>163</sup>

Currently, some challenges still impede more effective fund processing and distribution. For instance, high corruption risks result from several factors, including vast aid volumes, urgency, the implications of martial law, and loopholes in reporting channels.<sup>164</sup> The Platform's donors could mitigate these risks by harmonising corruption risk management requirements in aid projects and establishing common governance requirements that meet international standards and apply equally to all organisations in a sector.<sup>165</sup> They should also invest in third-party monitoring to monitor post-procurement activities such as delivery confirmation, checks on actual costs, and performance verifications to minimise corruption risks.<sup>166</sup>

#### 2.2.2 Ukraine Facility

In 2023, the EU launched the Ukraine Facility to aid Ukraine in its recovery, reconstruction, and modernisation activities between 2024 and 2027.<sup>167</sup> As part of this Facility, the EU aims to provide Ukraine with financial aid of around 38 billion euros by combining loans (up to 33 billion euros) and grants.<sup>168</sup> The EU's grant of support is subject to Ukraine's implementation of its Plan for the Implementation of Ukraine Facility 2024-2027 and consistent upholding of the functioning of the law, human rights, and democratic mechanisms.<sup>169</sup> Payments occur on a fixed quarterly schedule upon the European Commission verifying adherence to these conditions.<sup>170</sup> In April 2024, the European Commission positively assessed the Ukraine Plan, unlocking the possibility of regular support to Ukraine under the EU's 50 billion euro Ukraine Facility.<sup>171</sup> Also, during the same month, the Commission set up the Ukraine Investment Framework (UIF), an integral component of the Ukraine Facility focusing on assisting small and medium-sized enterprises, municipalities, and regions, rebuilding infrastructure, and fostering green and digital transitions.<sup>172</sup>

<sup>163</sup> European Commission, *Multi-agency Donor Coordination Platform for Ukraine meets in Kyiv, Confirms Unwavering Support to Ukraine's Recovery and Reconstruction*, (10 April 2024), <a href="https://ec.europa.eu/commission/presscorner/detail/en/IP\_24\_1921">https://ec.europa.eu/commission/presscorner/detail/en/IP\_24\_1921</a>

<sup>164</sup> Anti-Corruption Resource Center, Four Ways to Embed Anti-corruption in Ukraine's Donor Coordination Platform, (12 February 2024), <a href="https://www.u4.no/blog/four-ways-to-embed-anti-corruption-in-ukraines-donor-coordination-platform">https://www.u4.no/blog/four-ways-to-embed-anti-corruption-in-ukraines-donor-coordination-platform</a> 165 Ibid.

<sup>166</sup> Ibid.

<sup>167</sup> European Commission, *The Ukraine Facility*, (August 2024), <a href="https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine/ukraine-facility\_en">https://eu-solidarity-ukraine.ec.europa.eu/eu-assistance-ukraine/ukraine-facility\_en</a>; The Ukrainian Government, *Plan for the Implementation of Ukraine Facility 2024-2027*, <a href="https://www.ukrainefacility.me.gov.ua/en/">https://www.ukrainefacility.me.gov.ua/en/</a>

<sup>168</sup> Ibid.

<sup>169</sup> Ibid.

<sup>170</sup> Ibid.

<sup>171</sup> European Commission, Commission Endorses Ukraine Plan, Paving the Way for Regular Payments under the Ukraine Facility, (15 April 2024), https://ec.europa.eu/commission/presscorner/detail/en/ip 24 1982

<sup>172</sup> European Commission, *EU Sets Up Investment Framework under its Ukraine Facility, to Boost Investments for the Recovery and Reconstruction of Ukraine,* (18 April 2024), <a href="https://neighbourhood-enlargement.ec.europa.eu/news/eu-sets-investment-framework-under-its-ukraine-facility-boost-investments-recovery-and-2024-04-18">https://neighbourhood-enlargement.ec.europa.eu/news/eu-sets-investments-recovery-and-2024-04-18</a> en

As of August 2024, the European Commission has disbursed to the Ukrainian government nearly 12 billion euros in EU funding, aiding primarily Ukraine's efforts to sustain macro-financial stability and implement key economic reforms.<sup>173</sup> However, as of June 2024, as part of the UIF, the European Commission provided 1.4 billion euros or 10% of the overall allocated Ukraine Facility funding in new guarantee and grant agreements to support Ukraine's recovery and reconstruction, particularly the repair, rehabilitation, and development of energy infrastructure, transport, and municipal sectors, which is a pretty insufficient amount considering the extent and scope of damage inflicted by Russian attacks against Ukrainian energy infrastructure.<sup>174</sup> The most funds were allocated to the reconstruction and Rehabilitation of the Electricity Transmission Infrastructure Programme (100 million euros) and the Better Futures Programme, Resilience, Reconstruction, and Regeneration of Ukraine (around 370 million euros), which focused on speeding up RES development in transport, the digital sector, and industrial investments.<sup>175</sup>

Proceeding from the above, there is an apparent disproportion between the total expected allocated 50 billion euros under the Ukraine Facility and the approximate cost of Ukraine's reconstruction and modernisation efforts, amounting to \$152 billion in direct damage to the Ukrainian economy as of early 2024.<sup>176</sup> There is no precise information on how to solve the funding discrepancy in practice. As the war is still ongoing, this situation could potentially pose additional economic challenges to Ukraine's recovery. It might lead to further recovery needs already surpassing allocated funds, and funds themselves can be inefficiently distributed.

#### 3. Recommendations

#### 3.1. Energy

Ukraine must rebuild its energy infrastructure in compliance with green principles and agreements with the EU, reducing greenhouse gas emissions and air pollution by promoting renewable fuels. The reconstruction efforts should support more distributed generation and renewable energy sources. In particular, there are following steps across key energy sectors that can help both Ukraine and the EU to benefit from this process:

#### Gas Sector

The EU should invest more actively in modernising and recovering Ukraine's gas infrastructure, which experienced substantial damage due to Russian attacks. EU Member States can enhance their energy security by leveraging Ukraine's gas storage system during winter. Also, the EU should consider investing in Ukraine's domestic

<sup>173</sup> European Commission, *Daily News 13/08/2024* (13 August 2024) <a href="https://ec.europa.eu/commission/presscorner/detail/en/mex">https://ec.europa.eu/commission/presscorner/detail/en/mex</a> 24 4246

<sup>174</sup> See (n117)

<sup>175</sup> Ibid.

<sup>176</sup> See (n1)

<sup>177</sup> See (n29)

<sup>178</sup> See (n29)

gas production. The country is one of Europe's top gas producers, which can help it minimise its dependence on Russian gas imports.

#### RES Development

Ukraine must prepare for partnership with the EU in the 'green transition' by assessing the potential for RES developments across Ukraine and preparing extensive material for the EU's green investors. Ukraine should ensure its RES legislation fully corresponds with EU legislation and eliminate impediments currently precluding more effective RES development in Ukraine.

The Ukrainian government should also work on designing adequate mechanisms for insuring investments in Ukraine against military risks and protecting market participants from arbitrary and unfair practices. The government should consider implementing comprehensive policy reform that covers risk guarantees and regulatory support, specifically suited to mitigate the potential downsides associated with the RES sector.

The Ukrainian government should also work on streamlining the complex insurance processes for international staff, which will help to step up the development of RES projects in the country that involve international experts.<sup>181</sup>

As a result, the EU could invest in decentralised energy infrastructure, such as wind turbines, solar panels, and battery storage systems, which would help advance Ukraine's energy resilience and minimise its dependence on traditional power generation plants. The EU should also support the Ukrainian government's decarbonising energy supply and consumption initiatives. Hence, Ukraine could export more energy after the war and support the involvement of EU Member States in renewable projects, ranging from solar to offshore wind. 183

#### Hydrogen

The EU should seek cooperation with Ukraine on hydrogen initiatives that could further bolster the EU's energy sovereignty. Working on the generic corridor project to transmit hydrogen from Ukraine to Slovakia, Czechia, Austria, and Germany could be one of the first steps in this direction.<sup>184</sup> The EU should also invest in modernising Ukraine's gas transportation system to facilitate the transport of hydrogen mixed with gas to the EU.<sup>185</sup>

<sup>179</sup> GLOBSEC, Renewable Energy in Ukraine: A Solution for European Energy Security and for Shifting the EU GND Eastward, (26 August 2022), <a href="https://www.globsec.org/what-we-do/publications/renewable-energy-ukraine-solution-european-energy-security-and-shifting-eu">https://www.globsec.org/what-we-do/publications/renewable-energy-ukraine-solution-european-energy-security-and-shifting-eu</a>

<sup>180</sup> See (n29)

<sup>181</sup> Ibid.

<sup>182</sup> Razom We Stand, Fuelling Change: Europe's Battle Against Russian Fossil Fuels, Energy Transition (19 June 2024), https://energytransition.org/2024/06/fuelling-change-europes-battle-against-russian-fossil-fuels/

<sup>183</sup> See (n117) and (n173)

<sup>184</sup> UA Transmission Operator, European Commission Supported the Project on Creation of Hydrogen Corridor between Ukraine and CEE Countries, (30 November 2023), https://tsoua.com/en/news/european-commission-supported-the-project-on-creation-of-hydrogen-corridor-between-ukraine-and-cee-countries/

<sup>185</sup> Ukraine Invest, Ukraine *Can Become a Reliable Supplier of Green Hydrogen to the EU*, (6 June 2022), https://ukraineinvest.gov.ua/en/news/06-06-22-2/

#### Power Grid Reconstruction and Optimisation

The EU should increase its efforts to restore, rehabilitate, and replace destroyed or damaged parts of Ukraine's power grid infrastructure and consider erecting new power transmission lines utilising energy-efficient technologies. In this regard, the EU should ensure the resilience in grid reconstruction to withstand future disruptions caused by Russian attacks. In turn, the Ukrainian government should seek active collaboration with the EU to ensure Ukraine can achieve significant grid modernisation efforts and increased storage and export capacity to manage variable generation throughout the system and facilitate renewable energy generation. To this end, focusing on implementing interconnection projects between Ukraine and neighbouring EU countries such as Slovakia and Romania could enhance the reliability and resilience of the electricity supply and help achieve climate targets, facilitating the integration of renewable energy sources like solar and wind. This way, Ukraine could pave the way to economic recovery while boosting power network integration with the EU.

#### 3.2 Transportation

The Ukrainian government should work actively to accelerate the implementation of the EU acquis in rail and road transport, launch a regulatory body in rail transport, establish investigative bodies in the rail and water transport sectors, and ensure compliance with road safety measures.

In particular, the Ukrainian government should align its domestic transport infrastructure policies with the strategic priorities of the EU infrastructure initiatives. To this end, the Ukrainian government should prioritise sustainability and resilience to build durable, efficient, resilient transport infrastructure that will withstand shocks and facilitate long-term regional economic growth and development. 188

Ukraine and the neighbouring EU states should collaborate on cross-border infrastructure projects to achieve more effective regional economic integration and connectivity. They could focus on mutually beneficial joint investments in transportation networks and energy infrastructure, fostering closer economic and social relations between Ukraine and neighbouring EU countries. 190

Many cross-border infrastructure projects could serve as examples of such cross-border infrastructure cooperation.<sup>191</sup> For instance, as part of the Romania-Hungary program, several successfully implemented projects improved road connections between Arad district, Romania, and Bekes county, Hungary, while also contributing

187 V. Movchan and T. Akhvlediani, *The Impact of Ukraine's Accession on the EU's Economy*, CEPS, (February 2024), <a href="https://cdn.ceps.eu/wp-content/uploads/2024/03/ICDS">https://cdn.ceps.eu/wp-content/uploads/2024/03/ICDS</a> Policy Paper The Impact of Ukraines Accession.pdf and See (n51) 188 Ibid

<sup>186</sup> See (n66)

<sup>189</sup> Polish Economic Institute, Stronger Together: Present and Future Challenges on Ukraine's Road to EU Integration, (2023), https://pie.net.pl/wp-content/uploads/2023/12/PIE-Raport\_Stronger\_Together\_2023.pdf 190 See (n78)

<sup>191</sup> European Commission, List Successful Projects Under the 2022 CEF Transport Call for Proposals, (June 2023), https://cinea.ec.europa.eu/system/files/2023-06/Overview%20Selected%20Proposals FINAL.pdf

to healthcare infrastructure in Satu Mare, Romania, and Szabolcs-Szatmar-Bereg, Hungary.<sup>192</sup>

Also, the Italy-Slovenia cross-border program, which aims to improve rail connections, sustainable mobility, and new forms of cross-border mobility to benefit residents and tourists, could be an example of future cross-border infrastructure development between the EU and Ukraine.<sup>193</sup> In particular, the Crossmoby project was funded under the programme to ensure advanced sustainable mobility of the railway connections in the Udine-Trieste-Ljubljana section, with trains equipped with a bicycle transport service.<sup>194</sup> In this regard, the project also helped fully ensure intermodality by activating a maritime connection from Valdoltra to Piran.<sup>195</sup>

The Ukrainian government should leverage the opportunities created by the EU's aim to allocate 7 billion euros for crucial infrastructure projects, opening the call for the first time also to Ukrainian entities.<sup>196</sup>

#### 3.3 Housing and Utilities

The Ukrainian government must work on ensuring proper funding allocation and an appropriate timeframe for rebuilding housing and social infrastructure and properly integrating energy-efficiency technologies without jeopardising quality.

Considering the current financial challenges facing Ukraine, there is a high risk that the Ukrainian government will focus on low-quality housing priorities that could become permanent if the funds for modernised housing and social infrastructure are not increased. Ukraine should prioritise the urgent problem of housing construction and explore innovative approaches to the circular economy in post-war reconstruction. This could include using sustainable materials and designs, energy-efficient technologies, and incorporating renewable energy sources in construction. In turn, the EU should more actively support the growth of good housing initiatives, such as renovating war-damaged buildings and constructing new affordable housing in compliance with its energy-efficient housing standards via long-term EIB investment.<sup>197</sup>

Ukraine should focus its housing reconstruction efforts on rebuilding destroyed or fixing damaged buildings and elaborating plans for sustainable urban development while considering energy-efficient designs comprising sustainable materials in line with

<sup>192</sup> L. Ferrari, *EU Funds: Cooperating Across Borders for Better Roads, Services, Prevention*, OBCT, (29 September 2023), <a href="https://www.balcanicaucaso.org/eng/Areas/Europe/EU-funds-cooperating-across-borders-for-better-roads-services-prevention-227380">https://www.balcanicaucaso.org/eng/Areas/Europe/EU-funds-cooperating-across-borders-for-better-roads-services-prevention-227380</a>

<sup>193</sup> See Ibid; The Interreg VI-A Italy-Slovenia Programme, Financed Projects (2024), https://www.ita-slo.eu/en/financed-projects

<sup>194</sup> OBCT, Italy-Slovenia: the Cross-Border Train and Buses, (23 December 2021),

 $<sup>\</sup>underline{\text{https://www.balcanicaucaso.org/eng/Areas/Slovenia/Italy-Slovenia-the-cross-border-train-and-buses-214140}$ 

<sup>195</sup> Ibid.

<sup>196</sup> European Commission, Sustainable Transport: €7 Billion Available for Key Infrastructure Projects under the Connecting Europe Facility (CEF), (26 September 2023), <a href="https://transport.ec.europa.eu/news-events/news/sustainable-transport-eu7-billion-available-key-infrastructure-projects-under-connecting-europe-2023-09-26">https://transport.ec.europa.eu/news-events/news/sustainable-transport-eu7-billion-available-key-infrastructure-projects-under-connecting-europe-2023-09-26</a> en 197 See (n93)

the New European Bauhaus initiative.<sup>198</sup> In light of its EU candidacy status, Ukraine can utilise the extensive experience of EU Member States in the sphere of social and affordable housing, which can aid Ukraine in transforming its affordable housing sector and more effectively meeting the needs of its people.

In particular, Ukraine can leverage experience from Limited-Profit Housing Associations (LPHA), which offer the Austrian housing model, which combines excellent value for money, effective rehabilitation, and social and environmental sustainability. Within the last several decades, LPHA has implemented approximately 1 million housing units, representing 25% of Austria's total housing stock, with the volume of new construction ranges from 15,000 to 20,000 housing units annually.

Also, in light of the scale of Ukraine's damaged and destroyed houses, the Ukrainian government can leverage the experience of European cities such as Haarlem in the Netherlands, which has used an innovative and environmentally conscious approach to dismantling buildings that contain asbestos in a way that prioritises material preservation, safety, and sustainability.<sup>201</sup> The government can utilise the city's lessons from the dismantling process, which was developed to salvage and repurpose as many construction materials as possible. In particular, learning lessons on carefully removing such materials as window frames, kitchen fittings, and doors for further usage in other construction projects would be particularly useful.

Also, the EU should invest more in helping Ukraine's utilities segment, which relies too much on mechanical equipment, move towards more energy-efficient and technologically advanced alternatives.

#### 3.4 Funding Mechanisms

200 Ibid.

The Ukrainian government must boost its capacities to process and utilise donor and EU financing to ensure that the required support flows from the Multi-agency Donor Coordination Platform's donors and Ukraine Facility are processed more efficiently and transparently to meet urgent reconstruction needs.<sup>202</sup>

Ukraine should focus on reforms to ensure more efficient financial oversight, public procurement, and anti-corruption mechanisms, creating a more favourable investment climate and effectively implementing post-war reconstruction efforts. In this regard,

<sup>198</sup> See (n136); European Youth Parliament, *Towards Sustainable Reconstruction of Ukraine* (July 2023), <a href="https://eyp.org/content/uploads/2023/07/online-version-towards-a-sustainable-reconstruction-of-ukraine-youth-perspectives-from-europe.pdf">https://eyp.org/content/uploads/2023/07/online-version-towards-a-sustainable-reconstruction-of-ukraine-youth-perspectives-from-europe.pdf</a>; European Commission, *Greening Ukrainian Recovery*, (2024),

https://ec.europa.eu/environment/stories/greening-ukrainian-recovery/index\_en.html; European Commission, New European Bauhaus, (2024), https://new-european-bauhaus.europa.eu/index\_en

<sup>199</sup> W. Amann, O. Anisimov, J. Lawson, A. Mundt, I. Tyshchenko, *Housing for the Common Good: Sustainable Governance from European Best Practice for Recovery in Ukraine*, Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, (April 2024), <a href="https://klimaneutralestadt.at/resources/pdf/schriftenreihe-2024-12-neb-common-good-housing-report.pdf">https://klimaneutralestadt.at/resources/pdf/schriftenreihe-2024-12-neb-common-good-housing-report.pdf</a>

<sup>201</sup> Y. Basysta, M. Smirnova, Sustainable Rebuilding of Ukrainian Cities: Good Practices From Cities across Europe, Euro Cities (May 2024), <a href="https://monitor.eurocities.eu/wp-content/uploads/2024/05/Eurocities\_Toolkit\_Ukraine\_final.pdf">https://monitor.eurocities.eu/wp-content/uploads/2024/05/Eurocities\_Toolkit\_Ukraine\_final.pdf</a>
202 European Commission, Multi-agency Donor Coordination Platform for Ukraine Meets in Kyiv, Confirms Unwavering Support to Ukraine's Recovery and Reconstruction, (10 April 2024), <a href="https://ec.europa.eu/commission/presscorner/detail/en/IP\_24\_1921">https://ec.europa.eu/commission/presscorner/detail/en/IP\_24\_1921</a>

while Ukraine has achieved good progress concerning procurement under the Association Agreement, the Ukrainian government still has to ensure that all public procurement of goods, services, and works is transparent and open to all EU economic operators based on non-discrimination and equal treatment.<sup>203</sup> Currently, the Ukrainian legislation framework on public procurement only partially aligns with the 2014 EU directives on public procurement, necessitating further alignment focusing on the scope of and exemptions from public procurement legislation, mixed contracts and value estimation, selection, exclusion, and award criteria.<sup>204</sup>

The government should develop practical steps to implement the recently adopted Strategy for Reforming the Public Procurement System for 2024-2026, primarily focusing on harmonising Ukrainian procurement legislation with relevant EU directives and implementing Ukraine's reconstruction projects.<sup>205</sup>

The Ukrainian government should also concentrate on developing absorption capacity at the local level to provide local communities with funding instruments to launch various investment projects. To this end, the government should address the issue of bureaucratic challenges in utilising resources allocated for regional development projects by international partners.<sup>206</sup> The government must ensure more effective private-public partnerships and concessions to facilitate local investment projects, particularly in the transportation and energy segments.

In turn, the Platform's donors should align corruption risk management requirements in aid projects and invest in third-party monitoring to oversee post-procurement activities such as delivery confirmation, checks on actual costs, and performance verifications to overcome corruption challenges.

<sup>203</sup> European Commission, *Ukraine 2023 Report*, (8 November 2023), <a href="https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-11/SWD\_2023\_699%20Ukraine%20report.pdf">https://neighbourhood-enlargement.ec.europa.eu/system/files/2023-11/SWD\_2023\_699%20Ukraine%20report.pdf</a>

<sup>205</sup> The Cabinet of Ministers of Ukraine, On the Approval of the Strategy for Reforming the Public Procurement System for 2024-2026 and the Approval of the Operational Plan for its Implementation in 2024-2025 (2 February 2024), <a href="https://www.kmu.gov.ua/npas/pro-skhvalennia-stratehii-reformuvannia-systemy-pub-a76r?fbclid=lwAR1uQzCcflt0ZRyQzyO-lkeytSoZWsOm09VdwLYmach0a8ZssTir1yAjJBE">https://www.kmu.gov.ua/npas/pro-skhvalennia-stratehii-reformuvannia-systemy-pub-a76r?fbclid=lwAR1uQzCcflt0ZRyQzyO-lkeytSoZWsOm09VdwLYmach0a8ZssTir1yAjJBE</a>

<sup>206</sup> Ukraine Facility Platform, *Ukraine Plan Investment Priorities Need Adjustment to Unique Prospects*, (3 May 2024), https://uafp.eu/ukraine-plan-investment-priorities-need-adjustment-to-unique-prospects/

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