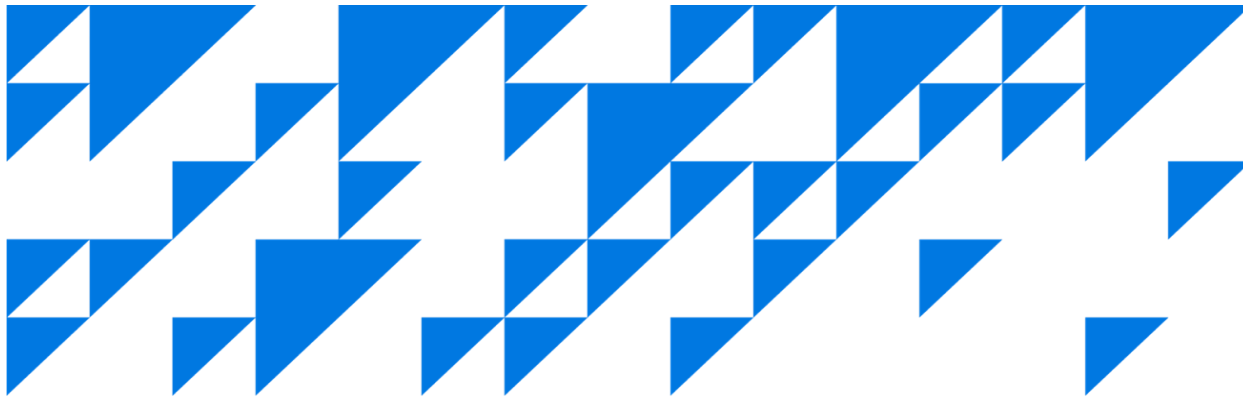




Danish Energy Agency
The State Agency for Energy Efficiency and Energy Saving of Ukraine
Energy Partnership Programme between Ukraine and Denmark

White Paper on The State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine and the incentive scheme for the Voluntary Agreement Scheme for Energy Efficiency

INCENTIVIZE ENERGY EFFICIENCY IMPROVEMENTS IN THE INDUSTRIAL SECTOR IN UKRAINE
(UDEPP 2024, OUTPUT 3.1) 30TH APRIL 2025



Danish Energy Agency



STATE AGENCY ON ENERGY EFFICIENCY
AND ENERGY SAVING OF UKRAINE



КОГЕН УКРАЇНА
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Report: White Paper on the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine (DFU) and the incentive scheme for the Voluntary Agreement Scheme (VAS) for Energy Efficiency

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1 Introduction

Energy efficiency is a key pillar in Ukraine's strategy for economic modernization, energy security, and climate action, particularly as the country aligns with EU energy policies and decarbonisation commitments and energy security. However, multiple barriers, including financial constraints, regulatory challenges, technological limitations, geopolitical challenges and limited access to relevant information have hindered the widespread adoption of energy-efficient measures.

In recent years, Ukraine has taken significant steps to establish policy and financial mechanisms that encourage energy savings in the industrial and municipal sectors, helping to reduce reliance on fossil fuels, lower production costs, and enhance competitiveness. These efforts have led to the creation of structured financial incentives and regulatory frameworks, such as the Voluntary Agreement Scheme (VAS) and the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine¹, which provide businesses and municipalities with the necessary resources to invest in energy efficiency improvements.

As part of the Energy Partnership Programme between Ukraine and Denmark (UDEPP), this white paper forms a deliverable under the 2024 TORs for Output 3.1 Support the implementation, operation and evaluation of the Voluntary Agreement (VA) scheme, as an initiative under the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine, to incentivize energy efficiency projects in the industrial sector in Ukraine.

Given the rapid progress during 2024 with respect to launch and operationalization of the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine and the related Voluntary Agreement Scheme, this document goes beyond the originally intended assessment of barriers and possibilities for upscaling energy efficiency improvement in a targeted industrial sector in Ukraine. Instead, it provides a comprehensive status update on the policy and financial frameworks that have been established, highlighting their role in incentivizing industrial energy efficiency improvements in Ukraine. Furthermore, it presents a detailed description of the key outcomes achieved, including the structure and operational mechanisms of the VAS and the Decarbonisation Fund, their current implementation status, and an assessment of their expected impact based on the projects already supported. Finally, a roadmap for next steps in relation to State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine and the Voluntary Agreement Scheme is outlined with special emphasis on upscaling energy efficiency improvements in targeted industrial sectors in Ukraine.

¹ Decarbonisation Fund of Ukraine: [АКЦІОНЕРНЕ ТОВАРИСТВО ФОНД ДЕКАРБОНІЗАЦІЇ УКРАЇНИ](#)

In addition, Appendix A, includes the whitepaper / policy paper prepared by experts from the Decarbonisation Association 'Cogen Ukraine' within the framework of cooperation with the Ukrainian-Danish Energy Partnership Program. It presents key frameworks for energy efficiency and decarbonisation in Ukraine and introduces a step by step guide for companies interested in applying for state financial assistance, along with key application documents related to the Decarbonisation Fund and the Voluntary Agreement Scheme.

The development of the Voluntary Agreement Scheme for Ukraine has been inspired by the Danish model for industrial energy efficiency, where voluntary agreements between authorities and enterprises, combined with targeted financial incentives, have proven to be an effective approach to driving energy savings². The establishment of the Decarbonisation Fund and the VAS in Ukraine has drawn directly from these experiences, adapting them to the Ukrainian context to ensure their effectiveness and feasibility. The objective has been to create a framework that not only supports enterprises in implementing energy efficiency measures but also provides a key tool in the implementation of Ukraine's strategies in the field of energy efficiency, decarbonisation and energy supply security.

2 International experience with Voluntary Agreement Schemes

Energy efficiency is the cheapest source of clean fuel for industry and many energy efficiency projects in industry have payback times below 4 years.³

For enterprises, investments in energy efficiency will help reduce their energy costs, thereby improving their competitiveness. But enterprises implementing energy efficiency investments often realize several additional benefits in terms of reduced maintenance costs, improved process productivity, more efficient raw material use, better product quality control and compliance with supply chain requirements for CO₂ emission reporting and climate action. For the country, energy efficiency investments in industry also mean job creation (plant renovation, equipment installation, energy management, audits), reduction in emissions (CO₂, NOX, SO₂ and PM), reduced investment pressure for new generation, transmission and distribution capacity, as well as increased energy supply security and reduced foreign exchange spent on fuels import.

However, there are also significant challenges for accelerating energy efficiency investments in industry, as many enterprises have limited capacity to identify and implement energy efficiency investments and limited capacity to finance energy efficiency investments.

² Ellegard & Petersen, 2017: [25 years of experiences with Voluntary Agreement Scheme for Large Industries in Denmark](#)

³The median payback time for more than 17,000 realised energy efficiency projects in industry in the EU is 3 years, based on data collected by the European Commission: <https://deep.ec.europa.eu/>

To address this, more than 30 countries in EU, North America and Asia have introduced VAS for energy efficiency in large industries. VAS are generally evaluated to be cost-efficient policy measures where the benefits for industries and society are higher than the costs of operating the schemes. The effectiveness and efficiency of VAS has been well documented through evaluations of the Danish VAS⁴ and cross-country studies of VAS implementation⁵. The basic mechanism behind a successful scheme is that the government offers participation in a VAS to improve energy efficiency for large industries and that participation is linked to both obligations and incentives.

Obligations required by government for participating enterprises may include carrying out energy audit, setting improvement target, establishing an Energy Management System, installing identified energy saving projects with payback less than a certain number of years, and monitoring and reporting on energy consumption and progress in energy efficiency.

Incentives offered by government for participating enterprises may include access to tools and guidelines, training and information activities, grants for technical assistance, access to investment financing at attractive rates, tax benefits, and investment grant to reduce the payback time for longer term investments.

A key learning from implementing VAS for energy efficiency in industry across many countries are that audits, energy management systems, and systematic working procedures are important cornerstones in all VAS. Furthermore, technology guidance and competence building for energy managers and consultants are important tools to assist companies with knowledge and information on best practices. Finally, energy efficiency is not only a about “quick wins” – it is a long term, continued and systematic effort and voluntary agreements are very well suited to address such a development, allowing enterprises to deliver energy savings year after year. Another key learning is that VAS with strict requirements (saving targets and verification) deliver much more energy savings than schemes with few requirements - but also that VAS with strict requirements must apply incentives to be attractive for the companies.

3 Background on the Voluntary Agreement Scheme in Ukraine

In 2020, a project was conducted under UDEC II to assist stakeholders of the VAS (SAEE, enterprises and banks) to prepare for the launch of the VAS in Ukraine. Energy efficiency pilot projects were identified at five enterprises and capacity training sessions were conducted. The

⁴ Ellegard & Petersen, 2017: [25 years of experiences with Voluntary Agreement Scheme for Large Industries in Denmark](#)

⁵ Price, Lynn, 2005 and Cornelis, Erwin, 2019 <https://escholarship.org/uc/item/67c4x06h>
<https://www.sciencedirect.com/science/article/abs/pii/S0301421519303738>

aim of the activities was to contribute so that the VAS will become immediately operational when it is approved in the Verkhovna Rada of Ukraine in 2021. During 2020, the VAS became an integrated initiative under the planned Decarbonisation Fund, which was expected to provide financing to support energy efficiency measures across several sectors of society in Ukraine, e.g. industry, buildings, transport.

In the meantime, of the development of the project and different initiatives, Ukraine's energy-sectors faced a unique and complex set of challenges in the current geopolitical and economic landscape. The ongoing Russian full-scale invasion has had a profound impact on the country's energy infrastructure, with targeted attacks on energy facilities leading to supply disruptions, power shortages, and increased vulnerability in the energy sector. These challenges have underscored the critical need for energy security, decentralization, and resilience, making energy efficiency a key strategic priority for the Ukrainian government. By reducing dependence on external energy sources and improving industrial efficiency, Ukraine can mitigate the economic and societal costs of energy disruptions while strengthening its long-term energy security.

Beyond the immediate security concerns, Ukraine is also undergoing a major transformation in its energy and climate policies, largely driven by its aspirations for EU accession. Since being granted EU candidate status in 2022⁶, Ukraine has taken significant steps to align its regulatory framework with EU climate and energy agenda. The adoption of the Law on Energy Efficiency of Ukraine (LEEU) in November 2021⁷ established a legal, economic, and organizational framework for energy efficiency initiatives, while the National Energy and Climate plan (NECP2030)⁸ and National Energy Efficiency Action Plan for Ukraine until 2030 (NEEAP2030)⁹ outlines clear targets and strategies for improving energy performance across sectors.

These legislative measures reflect Ukraine's commitment to decarbonisation and sustainable industrial development, ensuring compliance with European Union policies and strengthening its position in future accession negotiations.

Another key driver of Ukraine's energy efficiency efforts is the European Union's Carbon Border Adjustment Mechanism (CBAM), which was introduced in late 2023 and is currently being phased in across the EU¹⁰. As a country with a strong industrial export sector, Ukraine will need to align its production standards with CBAM regulations to maintain access to EU markets. This places additional pressure on Ukrainian industries to implement energy efficiency improvements, reduce carbon emissions, and modernize production processes. Failure to do

⁶ [Ukraine - European Commission](#)

⁷ [Law of Ukraine "On Energy Efficiency" - Verkhovna Rada of Ukraine](#)

⁸ [National Energy and Climate plan 2030](#)

⁹ [National Action Plan for Energy Efficiency 2030](#)

¹⁰ [Carbon Border Adjustment Mechanism - European Commission](#)

so could result in higher costs for Ukrainian exporters due to carbon pricing adjustments at the EU border, potentially impacting industrial competitiveness.

The combination of geopolitical instability, rising energy prices, regulatory changes, and decarbonisation goals makes energy efficiency a strategic imperative for Ukraine. Energy efficiency improvements will not only reduce the societal and economic burden of high energy costs but also increase industrial competitiveness and resilience in the face of future challenges. The framework for the Decarbonisation Fund and the VAS, developed as part of the Energy Partnership Programme between Ukraine and Denmark (UDEPP 2024, Output 3.1), are key instruments in addressing these challenges. The implementation of the VAS is grounded in Ukraine's broader energy efficiency and decarbonisation strategy, supported by a solid legislative and institutional framework. The State Agency for Energy Efficiency and Energy Saving of Ukraine (SAEE) oversees the operation of the VAS, evaluating project proposals and ensuring compliance, while the Decarbonisation Fund plays a crucial role in financing the agreed-upon energy-saving measures through preferential loan schemes. By integrating energy efficiency measures into Ukraine's broader industrial and economic strategy, the country is positioning itself for a more sustainable, resilient, and competitive future, ensuring that its industries can meet both short-term energy security needs and long-term EU climate commitments.

4 The Voluntary Agreement Scheme and the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine

4.1 The development of the Voluntary Agreement Scheme in Ukraine

The design of the Voluntary Agreement Scheme (VAS) in Ukraine has undergone fundamental changes since 2020. While the original scheme focused on installing energy-efficient equipment and upgrading industrial processes, the final design has a broader decarbonisation mandate including both energy efficiency and renewable energy and a broader sector mandate with coverage of buildings, industry and municipal utilities. This shift reflects Ukraine's growing commitment to energy security, decarbonisation, and alignment with EU standards, particularly in light of its aspirations for EU accession.

A difference in the final design is the way companies participate and demonstrate progress. Previously, enterprises could receive support based on completed technological upgrades, with limited requirements for demonstrating long-term energy savings. In contrast, the updated VAS requires clear energy efficiency or decarbonisation targets, such as reducing energy intensity or increasing the use of renewable energy sources. Additionally, companies must undergo an

energy audit and submit more detailed project documentation, ensuring that state support is directed toward projects that deliver real impact.

The financial structure has also been significantly strengthened. Where the original design relied on loan repayment subsidies through partner banks, the final design includes parallel options for loan interest rate subsidies linked to financing from partner banks and direct lending at subsidized rates through the Decarbonisation Fund. This allows priority projects (e.g. in municipal utilities) to be implemented independent of the beneficiary's ability to access bank financing under normal creditworthiness assessments.

Beyond financial improvements, the monitoring and compliance mechanisms have been enhanced, ensuring that beneficiaries remain accountable for their commitments. Rather than simply reporting energy usage after equipment installation, enterprises are now required to demonstrate ongoing efficiency improvements, reinforcing the link between state support and actual energy savings.

The next sections will explore how the updated VAS and the Decarbonisation Fund function in practice, detailing the mechanisms that will support Ukraine's path toward a more energy-efficient and resilient industrial sector.

4.2 Objective of the Voluntary Agreement Scheme

The primary goal of the VAS is to accelerate energy efficiency improvements in Ukraine's industrial sector by providing state-supported financial mechanisms and establishing clear energy-saving commitments between companies, entrepreneurs, municipalities, enterprises and SAEE. It's the vision, that it should become a catalyst of changes in the implementation of state programs providing loans for businesses and bodies of local self-government and furthermore aligns with the commitment to the European principle "Energy efficiency first" and compliance with the European Green Deal.

The VAS is structured to accommodate different types of agreements, depending on the participating stakeholders and the nature of the state support provided. Financial support under the VAS is provided through two parallel mechanisms: loan interest rate subsidies for financing from partner banks (commercial banks with at least 50% state participation), and direct lending at subsidized rates from the Decarbonisation Fund.

The State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine:

The State Fund for Decarbonisation (DFU) is replenished through the revenues of the CO₂ emissions tax (a component of the environmental tax on enterprises), government borrowing, and other revenues according to approved law no. 8433 by Verkhovna Rada of Ukraine¹¹.

The Joint Stock Company Decarbonisation Fund of Ukraine (JSC DFU) is a 100 percent government owned state joint-stock company including a Supervisory Board and is dedicated to supporting projects by offering preferential financing for approved energy-saving and decarbonisation measures. Olesia Mishchenko is director chairman of the Board JSC DFU. Additionally, a Supervisory Board of JSC DFU is established and the composition was in place in 2024. Five members were appointed and listed below:

- State Representative - Mariia Viktorivna Malaia
- State Representative - Nataliia Bohdanivna Holovan
- Independent Member of the Supervisory Board - Viktoriia Semenivna Koltun
- Independent Member of the Supervisory Board - Yevhen Zhannovych Hutkov
- Independent Member of the Supervisory Board - Maksym Andriiovych Komarov

At present, the process of forming a new composition of the Supervisory Board is ongoing. The approval of the new composition of the Supervisory Board is expected by the end of March 2025.

As part of its mandate, DFU provides financial support through a structured loan application. A preferential loan may be provided as a commercial loan from a partner bank with interest rate compensation coordinated by the SAEE. Additionally, the DFU functions as a risk mitigation mechanism, by providing direct loans for projects that may involve higher investment risks and cannot be funded through partner banks. Since 2025 the financial tools have been expanded to include leasing and factoring. By ensuring a stable and structured financing framework, the fund helps reduce uncertainty for businesses investing in energy efficiency improvements and renewable energy, making long-term sustainability projects more viable and financially secure. The loan amount is from UAH 120,000 (EUR 2,750 eq.) to UAH 25 million (EUR 572,000 eq.), where the loan maturity is from 1 to 10 years. As of January 2025 the loan amount is exceeded to 90 million UAH (EUR 1.980,000). Direct loans from DFU have a preferential rate of maximum 9% per annum. The rate is reduced by 2% (to 7%) if more than 70% of the project cost is used in the project of equipment from a national manufacturer. A minimum of 15% cofinancing from the applicant is required.

¹¹ On amendments to Chapter VI "Final and transitional provisions" of the Budget Code of Ukraine regarding the use of funds from accounts for the support of Ukraine." [Картка законопроекту - Законотворчість](#)

Partner banks and financial institutions:

Several commercial banks (with at least 50% state ownership) act as financial intermediaries, providing government-backed loans for companies participating in the VAS. Enterprises that secure financing through partner banks must meet predefined loan eligibility criteria, ensuring that their projects align with national energy efficiency and sustainability targets. The banks provide long-term loans (up to 10 years) with compensation of interest, up to 12% compensation, or 14% for projects using Ukrainian-produced equipment. Furthermore, the maximum loan sizes available through different categories of financing provided by commercial banks: 90 million UAH for modernization of communal infrastructure; 60 million UAH for energy modernization of enterprises; and 2 million UAH for thermal modernization of public buildings through Energy Service Companies (ESCO's).

4.2.1 Eligible entities

The recipients of financial support under the VAS can be classified into four main categories, each benefiting from tailored agreements suited to their role in implementing energy efficiency improvements

Individual Entrepreneurs

Independent business owners who seek to implement small-scale energy efficiency improvements can enter a VA to receive financial and technical support for upgrading their operations. This could include adopting energy-saving technologies, improving production efficiency, or integrating renewable energy solutions into their business processes.

Enterprises

Industrial and commercial enterprises can access financing by committing to reducing energy intensity, implementing energy-efficient technologies, and transitioning to alternative energy sources in exchange for state-backed financial incentives. The agreements define specific energy-saving targets and compliance requirements, ensuring measurable efficiency gains.

Local Authorities and Municipalities

Public sector entities, such as local governments and municipal organizations, can enter into VA to improve energy efficiency in public infrastructure. This includes measures such as modernizing district heating systems, upgrading street lighting, and enhancing the energy performance of municipal buildings.

Energy Service Companies

These companies specialize in providing energy efficiency solutions and can enter VA to implement projects on behalf of enterprises or municipalities. By working with ESCOs,

businesses and local governments can access specialized expertise and financial structuring for implementing long-term energy-saving measures.

4.2.2 Requirements of the projects

To qualify for state financial support under the Decarbonisation Fund applicants must submit a formal application that complies with the requirements outlined in Appendix A to the Procedure for the Use of Funds, as approved by the Cabinet of Ministers of Ukraine (Resolution No. 761, dated June 21, 2024)¹². Projects must contribute to energy efficiency improvements, emissions reductions, or the integration of renewable energy sources while meeting eligibility requirements to ensure measurable environmental and economic benefits. One of the requirements is achieving a minimum 15% reduction in the energy intensity of production, ensuring that industrial processes significantly improve their efficiency. Additionally, projects replacing fossil fuels with renewable alternatives must demonstrate that at least 50% of their energy consumption is sourced from alternative or renewable energy. Compliance with national energy efficiency policies is also mandatory, including alignment with legal requirements for energy-efficient buildings, industrial processes, and public infrastructure, as well as demonstrate their financial viability through secured co-financing or state-backed lending mechanisms.

Projects related to industrial energy efficiency improvements must specify the expected percentage reduction in energy intensity per unit of production or service provision compared to existing levels, as well as the percentage decrease in greenhouse gas emissions (including CO₂) and other pollutants.

For projects involving cogeneration plants and heat pumps, applicants must detail the expected reduction in fuel and energy consumption, ensuring that these technologies lead to tangible efficiency gains. Additionally, they must quantify the anticipated reduction in greenhouse gas emissions, demonstrating how the project will contribute to lowering environmental impact.

Projects focused on renewable energy and alternative fuels must clearly define the share of fossil fuel replacement, excluding peat and methane from coal deposits, as well as the proportion of electricity and thermal energy that will be replaced by renewable sources. These projects must also provide estimates of greenhouse gas emissions reduction, proving their effectiveness in transitioning to more sustainable energy sources.

¹² Cabinet of Ministers of Ukraine (2024) Thee Decree on establishing the Order of utilisation of the funds of the State Fund for Decarbonisation and Energy Efficient Transformation from the 21st of June 2024 No. 761: <https://zakon.rada.gov.ua/laws/show/761-2024-%D0%BF#Text>

In the transport sector, projects aiming to replace motor fuel consumption with electricity must specify the percentage of fuel replacement achieved through the adoption of electric-powered transport. Furthermore, they must outline the expected reduction in greenhouse gas emissions, ensuring that the shift to electric mobility aligns with national decarbonisation efforts.

For thermal modernization and energy efficiency improvements in buildings, projects must indicate the expected post-project energy efficiency classification. This classification includes buildings that achieve close to zero energy consumption (highest efficiency), exceed the minimum energy efficiency requirements, meet the national efficiency standard, or are currently below the required threshold but will be brought up to compliance through the project. By ensuring that buildings meet or exceed the energy efficiency benchmarks, the Decarbonisation Fund contributes to reducing energy demand and improving overall building performance.

To verify compliance with these requirements, applicants must submit supporting documents, including a comprehensive project description detailing the expected outcomes, an energy audit report or conclusion of an energy management service identifying efficiency potential, and an energy efficiency certification if the project involves buildings. A list of energy-efficient measures must outline the specific machinery, equipment, and materials required for implementation, while a certificate of origin for equipment may be submitted to qualify for additional financial benefits if using locally produced technology.

4.2.3 Application process and approval steps

The procedure for reviewing and approving projects is illustrated below:

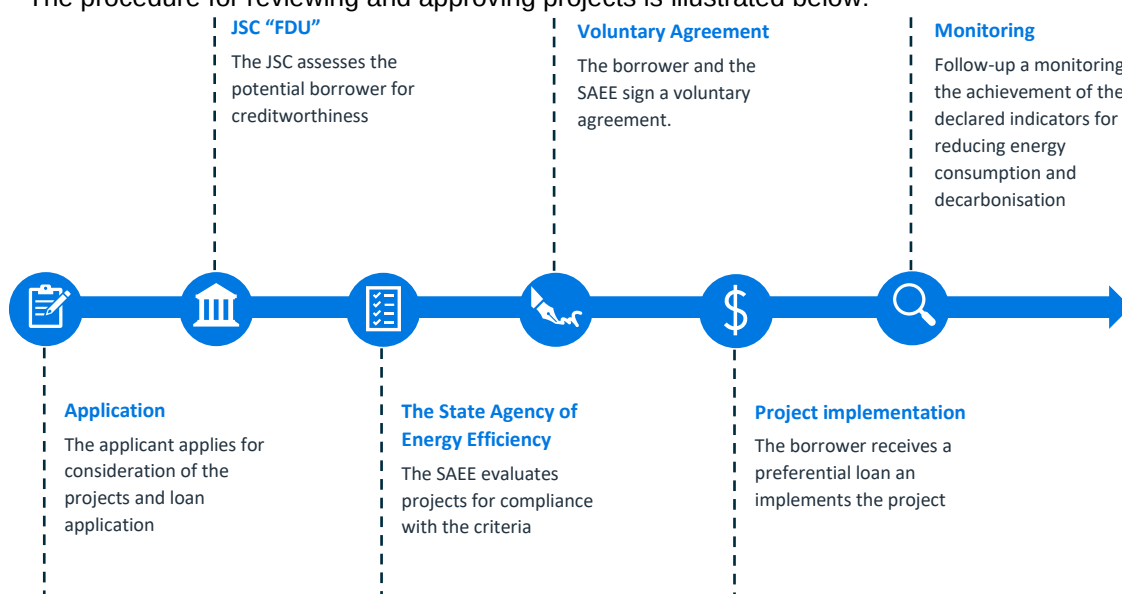


Figure 1: Stages of project consideration, agreement and implementation

As illustrated in figure 1, the VAS operates through a structured application and approval process, ensuring that projects meet efficiency and compliance criteria before receiving state support. The process is described more detailed in the following steps:

Step 1: Submission of Application

Enterprises, municipalities, or other eligible entities submit an application to SAEE (refer to Appendix A) including:

- A project description, detailing the planned energy efficiency measures and expected impact
- Either 1) An energy audit report, identifying efficiency potential and estimated energy savings; 2) Conclusion of an energy management service of the economic entity regarding the need to introduce energy-efficient measures; or 3) a certificate of energy efficiency (if applicable).
- Proof of financing, depending on the type of agreement:
 - For direct DFU financing: Applicants must confirm eligibility for interest compensation or direct financial support from the fund.
 - For financing through partner banks: A loan agreement with an approved commercial bank or financial institution must be included.

Step 2: Evaluation and Approval

Once submitted, applications undergo evaluation by two key entities:

- SAEE reviews the project to assess its alignment with national energy efficiency goals, feasibility, and energy-saving potential
- Decarbonisation Fund's management committee evaluates whether the project qualifies for interest compensation.

Step 3: Signing of the Voluntary Agreement

Once approved, the enterprise signs a formal VA with SAEE, establishing:

- The energy efficiency commitments, including target savings and implementation timelines.
- The financial terms, including details of support from the Decarbonisation Fund or financial institutions.
- Monitoring and reporting obligations, ensuring compliance with state-backed funding requirements.
- Penalties for non-compliance, ensuring that support is only maintained for projects that meet performance expectations.

Step 4 : Monitoring and Compliance

Once the agreement is signed and funding is allocated, the recipient proceed with the implementation of their energy efficiency project. Throughout the agreement period, SAEE and the financial institutions are involved in the monitoring of project implementation to ensure compliance. Enterprises must:

- Submit annual reports detailing energy savings, implementation progress, and financial expenditures.
- Provide verification of installed equipment and adopted energy efficiency measures.
- Demonstrate compliance with agreed targets (e.g., CO₂ reductions, energy savings).

If the eligible entity fails to meet obligations it may result in financial support reduction or revocation, repayment of improperly used funds or restrictions on future participation in state-supported energy efficiency programs.

4.3 Initial results of the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine and Voluntary Agreement Scheme

Since its official launch, the Decarbonisation Fund, established under Resolution of the CMU No. 76113, has made significant progress in financing energy efficiency projects and supporting the implementation of the VAS.

With the approval of the operational framework in June 2024, the fund has become fully operational, actively financing projects that align with Ukraine's decarbonisation and energy efficiency goals. The state budget for 2024 allocates approximately 800 million UAH to the fund, with an expected increase to 1.750 billion UAH in 2025, ensuring continued financial support for industrial and municipal energy-saving initiatives.

The first loan under the VAS was issued in September 2024, with UAH 18 million allocated to financing an energy service project for the street lighting network in Voznesensk, Mykolaiv region. This project is expected to reduce electricity consumption, lower carbon dioxide emissions with 37%, and generate savings for local budgets (38%), demonstrating the tangible benefits of the fund's financial support for municipal energy efficiency initiatives¹⁴.

By February 28, 2025, the fund had already financed 21 energy efficiency projects, allocating a total of UAH 212 million, while additional projects were under review and in preparation for

¹³ Cabinet of Ministers of Ukraine (2024) Thee Decree on establishing the Order of utilisation of the funds of the State Fund for Decarbonisation and Energy Efficient Transformation from the 21st of June 2024 No. 761: <https://zakon.rada.gov.ua/laws/show/761-2024-%D0%BF#Text>

¹⁴ First voluntary agreement in Annex B

financing, demonstrating a strong pipeline of upcoming initiatives. To date, projects have been funded in Mykolaiv, Odessa, Kyiv, Dnipropetrovsk and Lviv regions.¹⁵

The total value of projects assessed so far amounts to UAH 320 million, reflecting a growing interest from industries and municipalities in leveraging the fund's financial mechanisms. The expected impact of these projects includes a planned reduction in electricity consumption by 531 MWh per year, resulting in an estimated UAH 5 million in annual savings, as well as a CO₂ emissions reduction of approximately 20% per project, equivalent to 620 tons annually. The expanding project pipeline positions the fund to further scale up its impact, driving deeper energy savings and contributing to Ukraine's long-term climate strategy and energy security goals. The different projects are illustrated below, showing the expected (ex ante) energy consumption savings per year (MW) and CO₂ emission savings (tCO₂) under the Voluntary Agreement, for the individual approved projects. The graphs are further differentiate projects with savings above and below 200 MW (to facilitate reading).

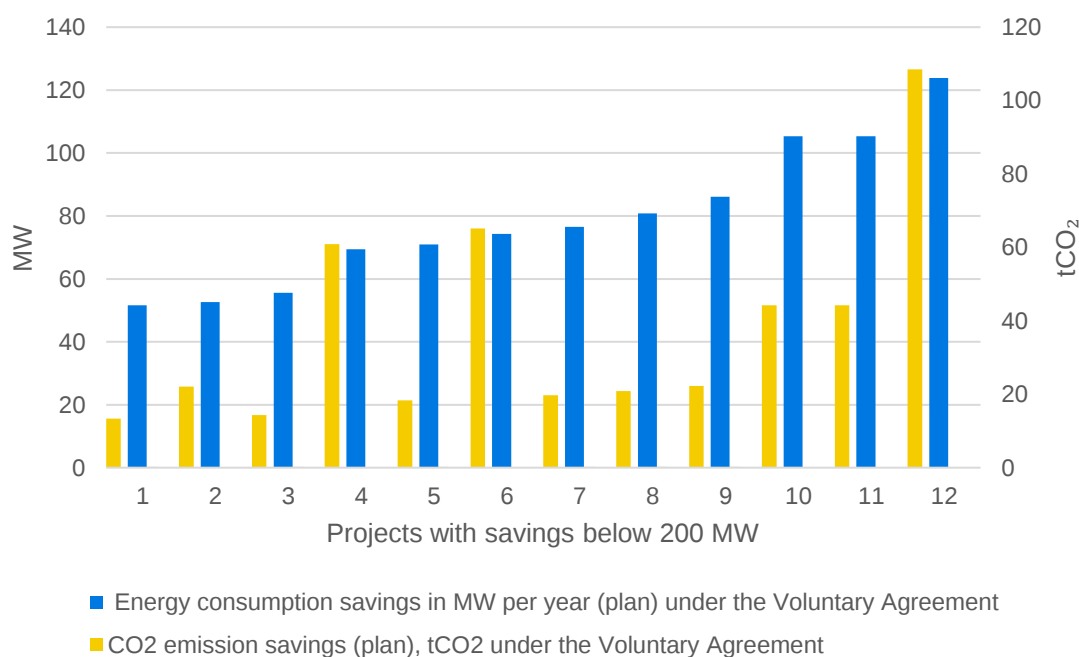


Figure 2: Energy consumption savings per year (MW) and CO₂ emission savings (tCO₂) under the Voluntary Agreement (below 200 MW)

¹⁵ Interviews with Chairman of the Board of DFU (2025): [Interview with the Head of the Decarbonisation Fund Olesia Mishchenko | EcoPolitic](#)

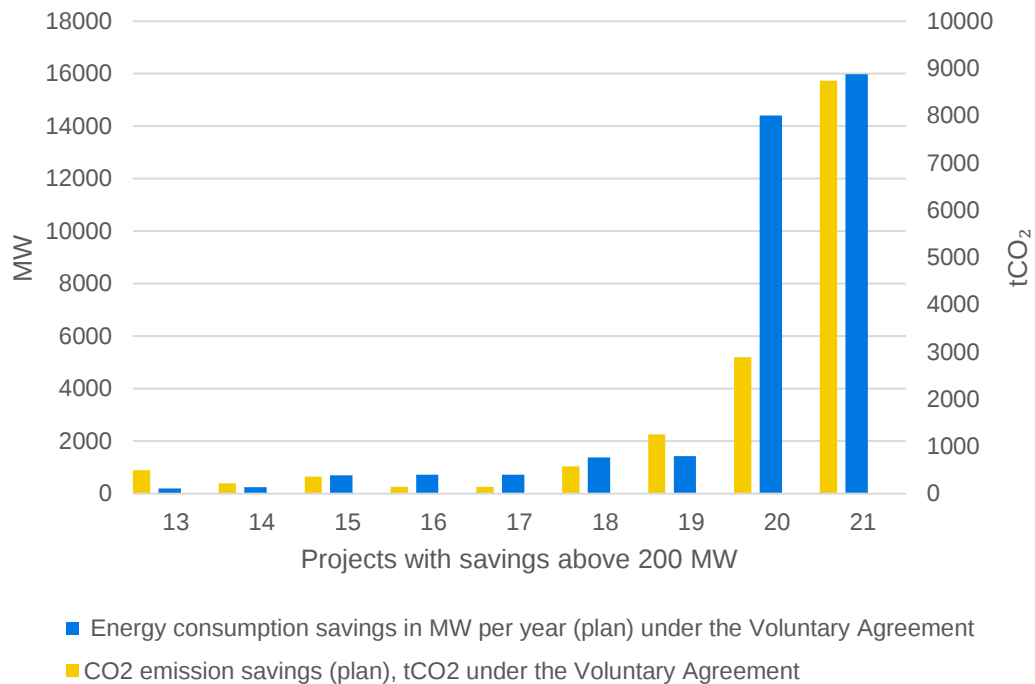


Figure 3: Energy consumption savings per year (MW) and CO₂ emission savings (tCO₂) and Energy consumption savings per year (MW) and CO₂ emission savings (tCO₂) under the Voluntary Agreement (above 200 MW)

In terms of energy consumption savings most projects achieve savings below 1,500 MW per year, with a few ranging between 50–700 MW. However, two exceptionally large projects stand out with 14,408 MW (Installing an exhaust gas economizer) and 15,984 MW (replacement of natural gas for heating with wood chips) in annual savings.

The energy consumption savings and CO₂-emission savings vary significantly depending on the scope of the individual project. Some projects with relatively high energy savings achieve only moderate CO₂ reductions, while others with more modest energy savings result in disproportionately high CO₂ reductions. This suggests that factors such as the type of energy replaced, the efficiency of the implemented measures, and differences in baseline emissions play a role in determining the overall impact of each project. For example, project 6 (on the above charts) involves the installation of a solar PV station, which achieves both significant energy savings and high CO₂ reductions. In contrast, project 3 focuses on installing an individual heating point at a school resulting in greater energy savings than CO₂- reductions. Another common reason for the differentiation is that some projects within the same company portfolio involve smaller operations, such as project 17: the installation of a steam superheater (144 tCO₂) or project 16: an ash remover (144 tCO₂). These are minor compared to major projects like project 20: installing an 8 MW steam boiler and project 21: installing an exhaust gas economizer, yet they are still considered separate projects.

The table below shows the cost efficiency of the 21 funded projects (please note that the ordering is based on the project applicants and is therefore different from the charts above).

Project description	Total project cost, UAH	Expected energy consumption savings in MW per year	Investment per KWh saving per year (UAH/kWh)	Assumed investment lifetime (years)	Abatement cost - Investment per KWh saved over investment lifetime (EURcent/kWh)
ESCO - Street lighting network	37.104.875	698,0	53,2	15	7,9
ESCO - Heating of pre-school	642.588	55,5	11,6	15	1,7
ESCO - Heating of pre-school	652.268	80,8	8,1	15	1,2
ESCO - Heating of pre-school	622.268	86,1	7,2	15	1,1
ESCO - Heating of pre-school	682.268	51,6	13,2	15	2,0
ESCO - Heating of pre-school	622.268	71,0	8,8	15	1,3
ESCO - Heating of pre-school	622.268	76,5	8,1	15	1,2
Replacement of inefficient natural gas boiler (wholesale trade)	30.000.000	15.984,0	1,9	15	0,3
Waste heat recovery from flue gas (wholesale trade)	29.411.765	14.407,6	2,0	15	0,3
Installation of a steam superheater for a steam boiler (wholesale trade)	29.700.000	720,4	41,2	15	6,1
Installation of an air supply system with equipment and a multicyclone (wholesale trade)	31.300.000	200,0	156,5	15	23,2
Installation of an ash removal system and emergency cooling system (wholesale trade)	31.255.000	720,4	43,4	15	6,4
Installation of solar power plant at a critical infrastructure facility (food industry)	31.251.000	1.436,0	21,8	10	4,8
ESCO - Solar power plant station at critical infrastructure facility (WWTP)	2.863.050	123,9	23,1	10	5,1
ESCO - Solar power plant station at critical infrastructure facility (water pumping)	5.714.550	74,3	76,9	10	17,1
ESCO - Solar power plant station at critical infrastructure facility (water pumping)	3.380.490	247,8	13,6	10	3,0

ESCO - Solar power plant (government building)	2.500.000	69,5	36,0	10	8,0
Hybrid Solar power plant integrated into the power grid (office and warehouse complex)	34.971.935	1.378,0	25,4	10	5,6
ESCO - Solar power plant at critical infrastructure facility (water pumping station)	2.981.212	52,7	56,6	10	12,6
ESCO - Solar power plant at critical infrastructure facility (sewerage water pumping station)	3.860.556	105,3	36,7	10	8,1
ESCO - Solar power plant at critical infrastructure facility (water treatment plant)	3.956.566	105,3	37,6	10	8,3
Total project portfolio	284.094.927	36.744,7	7,7		1,3

Table 1: DFU Project portfolio – total investment and energy saving

It is noteworthy that the DFU project portfolio is very cost efficient:

- The average total investment need is 7,7 UAH/kWh saved per year
- The abatement cost (comparable to the LCOE for renewable energy) expressed as the investment per kWh saved over investment lifetime at a conservative project lifetime of 10-15 years is 1.3 Eurocent/kWh, reflecting that many good investment opportunities exist in energy efficiency and renewable energy in Ukraine¹⁶

Figure 4 illustrates the expected (ex-ante) CO₂ emission savings (tCO₂) under the Voluntary Agreement, distributed across the 21 projects. In total the projects are planned to save 15.284 tCO₂ per year under the Voluntary Agreement Scheme. The majority of projects report reductions between 20 and 1,500 tCO₂. However, a few projects, particularly two major ones, achieve 2,889 tCO₂ (Installing an exhaust gas economizer) and 8,739 tCO₂ (replacement of natural gas for heating with wood chips), setting them apart as the most impactful in terms of emission reduction.

¹⁶ For reference, the 37,000 projects in the EU Derisking Energy Efficiency Database (DEEP) have a median abatement cost of 2.0 Eurocent/kWh (<https://deep.ec.europa.eu/>)

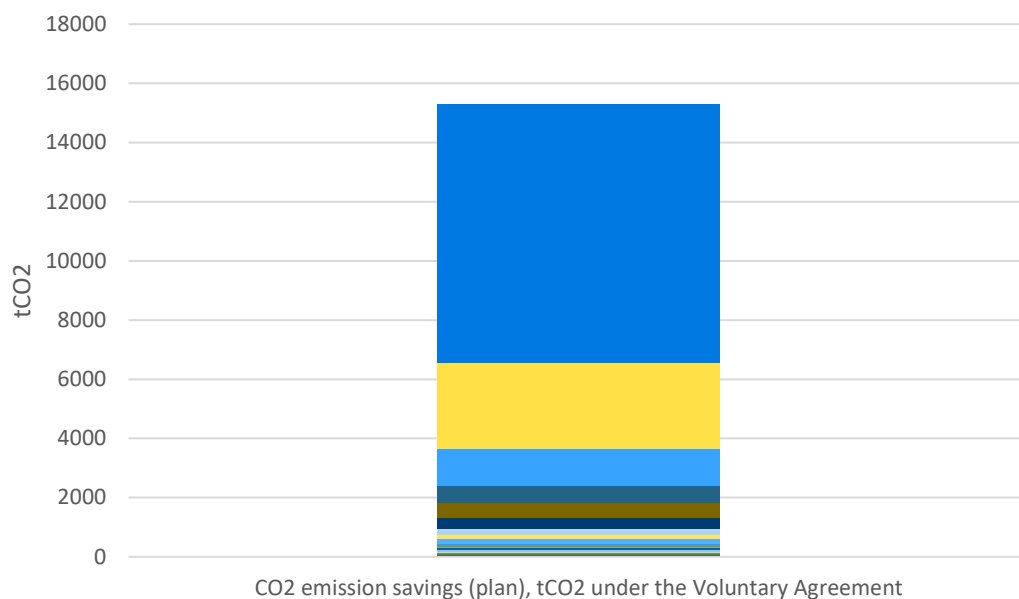


Figure 4: CO₂ emission savings (tCO₂) under the Voluntary Agreement

Looking at expected CO₂ emission savings compared to the baseline, most projects fall within a reduction range of 10% to 20%, with some achieving a 20–25% decrease in emissions. However, a few standout projects demonstrate much higher efficiency, with reductions of 38% (replacement of natural gas for heating with wood chips) and 70% (solar power integrated in the power grid), highlighting their significant impact on decarbonisation efforts. It is important to note once again that some projects are smaller initiatives within the same company's portfolio and, as a result, fall below the 10% threshold.

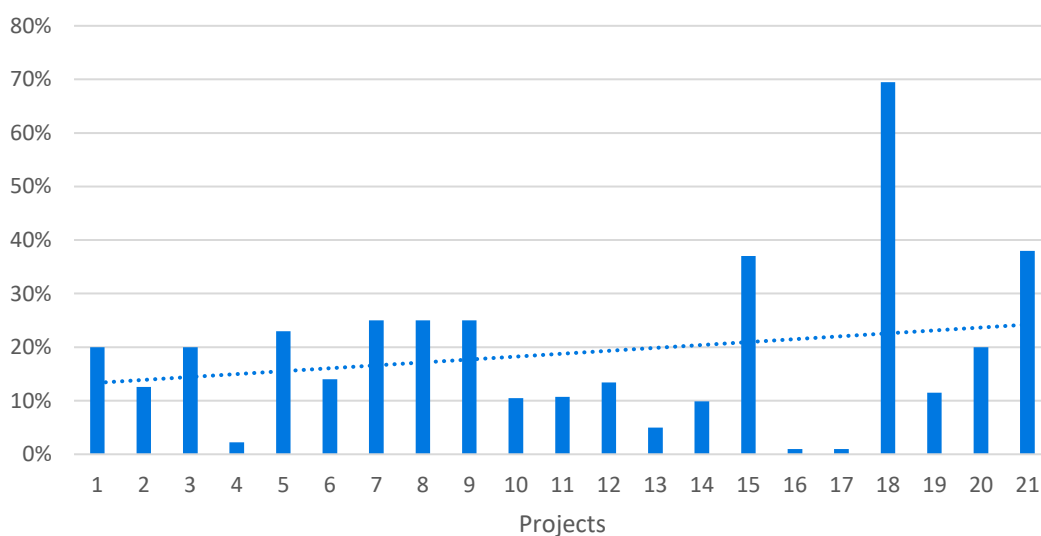


Figure 5: CO₂ emission savings compared to the baseline (plan)%.

These early results highlight the fund's effectiveness in processing financial resources for energy efficiency improvements, confirming that the VAS and the Decarbonisation Fund could become essential instruments in Ukraine's green transition. However, the revenue of the DFU is currently limited to the CO₂ tax and a further utilization of its potential could require mobilization of additional funds to be channelled through the established mechanism. In this context, the DFU received UAH 13.5 million from UNDP in 2024. These funds were allocated to support the implementation of energy efficiency projects through the ESCO mechanism in the form of discounted loans and to cover expenses for obtaining a factoring license. The financial support from UNDP was used to facilitate the installation of a solar power plant at the treatment facilities and water pumping station of the utility "Boyarka-Vodokanal". Meanwhile, negotiations are ongoing with GIZ to secure additional funding and there are dialogues with Turkey and Japan.

The plan is to attract further grants and international credit funds for the implementation of projects to improve energy efficiency and energy independence. This is a key objective for 2025.

Sourcing additional funds would allow supporting Ukraine's 2030 energy and climate goals which focus on reducing greenhouse gas emissions, increasing energy efficiency, integrating renewable energy, and strengthening energy security. The country aims to achieve a 65% reduction in emissions compared to 1990 levels, where the goal is supported by the industrial energy efficiency improvements and low-carbon technologies promoted under the VAS. Additionally, at least 27% of gross final energy consumption should come from renewable sources, which the Decarbonisation Fund facilitates by financing projects that transition industries and municipalities away from fossil fuels toward alternative and renewable energy sources. Efforts to modernize public infrastructure include achieving energy savings of at least 24.9 GWh per year in government buildings, which also is a priority within the fund. At the same time the VA directly support Ukraine's National Energy Efficiency Action Plan (NEEAP) 2030 by contributing to its primary and final energy consumption reduction targets. The national goal aims to limit primary energy consumption to 91.5 million toe and final energy consumption to 50.5 million ton, representing a 22.3% reduction in primary energy use and 17.1% in final energy use compared to the baseline. The VAS helps achieve these targets by requiring participating enterprises and municipalities to implement energy-saving measures, including energy audits, modernization of industrial processes, and efficiency improvements in public infrastructure.

5 Progress of the State Fund for Decarbonisation and Energy Efficient Transformation of Ukraine and Voluntary Agreement and next steps in 2025

The progress made so far under the Decarbonisation Fund and VAS underscores their growing role in driving Ukraine's energy transition. With an increasing number of projects financed and a strong pipeline of new projects under consideration, these mechanisms are already delivering measurable energy savings, emissions reductions, and financial relief for industries and municipalities.

As Ukraine continues to align its energy policies with EU standards and its 2030 and 2050 climate and energy goals, the fund's expansion and ongoing support will be crucial in ensuring a more sustainable, resilient, and competitive energy sector. Moving forward, scaling up these initiatives and maintaining a strong policy and financial framework will be essential in securing long-term environmental and economic benefits, reinforcing Ukraine's commitment to energy efficiency and decarbonisation.

With the DFU and VAS well established as a mechanism to source and finance decarbonisation projects, the next natural steps would focus on accelerating fund disbursement, expanding financial resources, and refining the mechanisms of the VA Scheme to maximize impact.

Building on the impressive results of 2024 with the launch and operationalization of Decarbonisation Fund and the VAS, it is suggested that the focus for 2025 could include three parallel tracks:

1. Support for the continued development of the Decarbonisation Fund and the VAS, including
 - Further developing DFU/VAS supporting documentation, e.g., guidelines, technology catalogues, best practice cases
 - Develop reporting towards the public to ensure transparency, e.g. a yearly report showing numbers of applications, loan granted/credits and examples of projected implemented.
2. Engagement with potential sources of complementary financing for the DFU and the VAS, including for:
 - Scaling up available loan funds and guarantees channeled through the DFU and intensify to secure additional financial contributions both nationally and internationally e.g. new strategic partnerships with international financial institutions, climate funds, and private investors.

- Blended finance models could also be explored to attract private sector investments
 - Provision of Technical Assistance for development the EE project pipeline for selected sectors of strategic importance (e.g. food industry).
3. Collecting implementation experience and feedback from implemented projects on:
- Establish structured feedback loop between enterprises, financial institutions, and policymakers established to capture lessons learned and make data-driven adjustments to strengthen the scheme
 - Identifying successful replicable projects in key sectors (street lighting, public building renovation, industrial energy efficiency, decarbonisation of public utilities) that can inspire future applications.

**Appendix A – White Paper / Policy Brief by the Decarbonisation Association
"Cogen Ukraine"**

Appendix B – Voluntary agreement No. 1/24-AT on Energy Efficiency