Mid-Term Evaluation of Finland Ukraine Trust Fund at NEFCO

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Contents

Acronyms

BAT	Best Available Technology
BOO	Build, Own, Operate
CA	Cooperation Agreement
CHP	Combined Heat and Power
CMC	Coordination and Management Consultant
DH	District Heating
DHW	Domestic Hot Water
DP	Demonstrative Project
E5P	Eastern Europe Energy Efficiency and Environment Partnership Fund
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EEF	Ukraine Energy Efficiency Fund
EIB	European Bank of Investment
EMC	Evaluation and Monitoring Committee
ESCO	Energy service company
EU	European Union
EUEA	European Ukrainian Energy Agency
FDI	Foreign Direct Investment
FinDHC	Finnish District Heating and Cooling Association
Finnpartnership	Finnish Business Partnership Programme
FinVAC	Finnish Association of HVAC Societies
FS	Feasibility Study
FUTF	Finland Ukraine Trust Fund
GA	Grant Agreement
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HVAC	Heating, ventilation and air conditioning
IFC	International Financing Corporation
IFI	International Financing Institution
IFU	Investment Fund for Developing Countries (Denmark)
IHS	Individual Heat Substation
IPP	Independent Power Project
kWh	Kilowatt hour
LFG	Landfill gas
LTIP	Long-Term Investment Plan
MEEP	Ministry of Energy and Environmental Protection
MFA	Ministry for Foreign Affairs of Finland
MoU	Memorandum of Understanding
MTE	Mid-Term Evaluation
mtoe	million tons of oil equivalent
MW	megawatt
NCF	Nordic Climate Facility
NEFCO	Nordic Environment Finance Corporation
N-IK	NEFCO Investment Committee
NIU	Nordic Energy Efficiency and Humanitarian Support Initiative for Ukraine
NKREKP	National Commission for State Regulation of Energy and Public Utilities
NUWEE	National University of Water and Environmental Engineering
ODA	Official Development Assistance
OECD DAC	Organisation for Economic Co-operation and Development, Development Assistance Committee
O&M	Operation and Maintenance
PIF	Private Investment Facility
PIP	Priority Investment Plan
R&D	Research and Development
RE	Renewable Energy

RES	Renewable Energy System
SAEE	State Agency on Energy Efficiency and Energy Saving
SDG	Sustainable Development Goal
SME	Small and Medium-sized Enterprise
TA	Technical Assistance
TFA	Trust Fund Agreement
toe	tons of oil equivalent
TOR	Terms of Reference
UES	United Energy System
UMIP	Ukraine Municipal Infrastructure Program
USAID	United States Agency for International Development
VRCH	Volyn Regional Children's Territorial Medical Center
WEI	Wider Europe Initiative
WWTP	Wastewater treatment plant

Executive Summary

This is the Final Report of the Mid-Term Evaluation (MTE) of Finland Ukraine Trust Fund at NEFCO (FUTF). The MTE has been conducted as an independent and external exercise. The MTE has assessed the relevance, efficiency, effectiveness, impact and sustainability of the Fund and activities financed by it. The overall performance of actors involved in fund management activities were also assessed. The MTE has also identified lessons that will be relevant both to FUTF and to improved design and implementation of other related projects and programmes.

FUND OBJECTIVES AND STATUS

The objective of the Finland Ukraine Trust Fund at NEFCO is to provide financing to activities that meet the ODA criteria in support of energy efficiency, renewable energy, and alternative type of energy sources projects in Ukraine. A unique feature of the Trust Fund is that the supported projects are implemented in partnership with Ukrainian institutions and Finnish companies. During the period of 2018-2021, the contribution of the Ministry for Foreign Affairs of Finland (MFA) is EUR 6 Million. Key actors in the management of the Trust Fund are NEFCO, State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE), MFA, and Coordination and Management Consultant (Elomatic Oy). The Evaluation and Monitoring Committee (EMC) of FUTF, consisting of SAEE and NEFCO as members and MFA as an observer, assesses proposals and recommends projects to NEFCO Investment Committee (N-IK) for approval.

Both Technical Assistance (TA) and Demonstrative Projects (DP, investment projects) can receive funding. The FUTF pipeline contains 34 projects (situation in October 2020). A total of 29 of them are Technical Assistance projects and five are Demonstrative Projects. Seven TA projects have been completed, four TA projects and one DP are ongoing, and five TA projects are being prepared.

The total amount of funds disbursed from the Trust Fund is EUR 1 346 282 (status by October 20, 2020). It includes expenditure on projects and the management fees of NEFCO and CMC. This is 22% of the MFA contribution to the Trust Fund. Approximately EUR 5.2 million of the resources available in the Trust Fund have been allocated (87% of the contribution). This leaves only EUR 0.8 million of the Fund unallocated. The unallocated amount may increase if EMC cancels projects that have not moved forward as expected or if applicants do not pass the second stage review of the Project.

MAIN FINDINGS

Relevance and value added

The overall relevance of the FUTF against government of Ukraine renewable energy and energy efficiency policies has remained good. The policies recognize the need for investments in green energy and climate positive projects, and the authorities have been keen to establish a separate fund for green investments. The preparation of the Green Investment Fund as part of FUTF contributes to this objective. Regarding energy efficiency improvements, the residential sector is well supported by other donors, thus it is well justified that FUTF focuses on other sectors, including private institutions.

A unique feature of FUTF is the requirement for Finnish content. This fully supports the development of stronger cooperation between Finland and Ukraine within the energy sector. So far, the Ukrainian beneficiaries have been satisfied with the Finnish counterparts' contributions in the completed projects.

FUTF is also well in line with the goals and aims of Government of Finland as expressed in the Government of Finland development policies and in the Country Strategy for Ukraine. The Trust Fund contributes to the energy sector and private sector engagement targets of the policies.

In fund management some challenges have been experienced. They include difficulties in identifying project ideas that would meet the expectations of the Ukrainian partners and the specific FUTF requirements for

innovativeness and Finnish content. The requirement for innovativeness is relevant, also considering the relatively small size of the Trust Fund and large number of other donor initiatives operating in the renewable energy and energy efficiency sectors in Ukraine. The requirements for innovativeness and Finnish content make the FUTF different to many other donor-funded energy sector initiatives. While they may be challenging to fulfil, they are the main factors creating added value to the Ukrainian energy sector and Finland as the donor country. It has forced project applicants to develop or apply new solutions to existing problems. However, clearer definitions for innovativeness would be welcome, at least to the Ukrainian partners.

Engaging Finnish companies and organizations to the FUTF and projects in Ukraine has been challenging. Relatively few companies have expressed their interest in project procurements initiated by the FUTF, and even fewer have proposed projects to be implemented under the fund. The latter is a natural effect of the tendering process that risks Finnish companies' project development efforts being wasted if their competitor wins the procurement. Ukraine provides a very interesting market for Finnish companies in the future, thanks to the relatively short distance and similar technology needs e.g. in energy and IT sectors. FUTF has a unique opportunity to be part of this development and contribute to building stronger and sustainable long-term relationships between the countries.

Results and effectiveness

The concrete results that the Trust Fund has achieved are so far modest. The Biomass study is the only completed input potentially contributing to design of renewable policies. The ongoing preparatory assignment for Green Investment Fund is obviously of high interest to partners. Most of the completed projects are feasibility studies. So far, only the project in Kamyanske is likely to be implemented because the project concept was already in the investment project pipeline of European Investment Bank (EIB). In addition to providing a sound basis for investment planning, the studies have some additional merit for the District Heating Utilities and city councils. As a result of the FS preparations, the Ukrainian partners understand better the requirements and preconditions for energy efficiency investments.

The Demonstrative Projects are a positive example of projects that introduce new and innovative ideas and technologies to Ukraine. One such example is the upgrading of the renewable energy system at the Antonivka School in Kherson. The small add-on investment made by the FUTF increases the demonstrative value of this flagship intervention of Finland Ukraine partnership and demonstrates a useful solution that can be widely replicated. The geothermal energy project at the National University of Water and Environmental Engineering is similarly promising, also in terms of replication potential.

The pipeline has many other innovative TA projects that may come up with investment ideas in topics where also Finnish experience is strong. These include, e.g., the municipal WWTP sludge utilization in Lviv, landfill gas FS in Kramatorsk and Melitopol, waste-to energy solution proposed by Specialized Environmental Enterprise Rada, and the lignin study. Overall, investing more in Demonstrative Projects that produce tangible results would improve the effectiveness of the Fund.

The Trust Fund has needed quite a bit of time for finding its own identity which is also reflected in the achieved results. However, the future looks brighter: diversity of partners and projects has increased, initiatives are moving beyond District Heating Utilities and SAEE to other government entities (EUEA) and other EE and RE issues, interesting types of projects are coming up, and Ukrainian private sector actors are also coming on board.

When the Trust Fund Guidelines were prepared in 2017, two sets of partly conflicting objectives were incorporated in the document. For fund management, monitoring and reporting such a situation is not conducive. Because most of the FUTF resources are already allocated, a major overhaul of objectives and results would not be fruitful. However, the partners could consider streamlining the Result Framework to better reflect the character of the Trust Fund and the types of projects it supports. The important activities

on investment project development and implementation of Demonstrative Projects are not reflected at the outcome level unlike the policy component which has received less support so far.

The MTE assumes that the Trust Fund will achieve its objective in providing support in energy efficiency, renewable energy, and alternative types of energy sources to Ukrainian beneficiaries. However, the expected outcome, ratification of clean energy policies, is out of reach. The second outcome, establishment of Green Investment Fund, may be reached but it needs dedicated efforts on behalf of SAEE, MEEP, Ministry of Finance and other Ukrainian stakeholders to attract sufficient financing for GIF.

Efficiency and Fund Management

The institutional arrangements are defined in the Trust Fund Agreement between MFA and NEFCO, the Cooperation Agreement between NEFCO and SAEE and in the Trust Fund Guidelines developed in 2017. SAEE, NEFCO, Coordination and Management Consultant (CMC) and MFA have specific roles in the implementation and management of FUTF. The role of SAEE has, however, been different from what was originally anticipated: in practice SAEE has not been responsible for identifying and proposing projects, but it has participated in the evaluation and endorsement of proposals at the EMC.

COVID-19 pandemic affects both Finland and Ukraine. Travel between the countries has not been possible for months now. This has had implications on the work of ongoing projects. Webinars and videoconferences are not as effective for data collection, joint planning, experience sharing and shared learning as face-to-face meetings and seminars are. Projects that have a training component will probably need to seek an extension until such time that both trainers and trainees can meet in Ukraine. The pandemic is not expected to have any significant implications on fund management responsibilities. For example, preparation of N-IK documents and conducting procurement processes is an activity that can continue.

Both the Ukrainian beneficiaries and Finnish companies appreciated the support provided by the CMC team during the TA projects. The Finnish companies communicated both positive experiences and interest to work with NEFCO and FUTF in the future as well. While the quality of day to day management has mostly been good, some areas need improvement. The Ukrainian beneficiaries raised some communication problems, e.g. information about the status of the projects was not readily available from the CMC and the next steps after EMC endorsement were not clear to the applicants. Information gaps were also evident in some of the completed or ongoing projects.

The backlog of proposals that have not yet been approved by N-IK is also an issue that needs improvement. Many Ukrainian beneficiaries struggle to develop the project proposals up to the level of N-IK approval. Hands on support from CMC experts is required. Therefore, the MTE welcomes the recent EMC decision to stop processing any new applications for the time being. This will make it easier for the CMC to focus on supporting the beneficiaries in having the projects approved, and after that taking the procurement processes forward.

Also, improvements in information sharing and communication are needed both in Ukraine and in Finland. In Finland, there is room for promoting the Fund opportunities among other, less traditional yet relevant sectors, such as the technology industry, architects, and construction designers. Similarly, in Ukraine, cooperation for experience and lesson sharing purposes needs to be started also with non-governmental institutions that are active in, e.g., energy efficiency issues with municipalities. Linkages between the Trust Fund and MFA instruments that support the involvement of Finnish private sector actors in aid projects and with the Team Finland network should be strengthened too.

Expected impacts and sustainability

The timing of the MTE is too early to fully analyse the expected impact or sustainability of the interventions. The overall impact of the FUTF depends on the content and success of the projects funded and is potentially

threefold: results of studies that are assumed to contribute (or lead) into revised policies, Feasibility Studies that would lead into investment projects, and Demonstrative Projects that would encourage the uptake of new, innovative technologies by other actors in Ukraine. So far, the few completed projects have only produced limited impacts. One Feasibility Study is expected to lead into a concrete investment project financed by the EIB and some capacity building impacts are evident in the beneficiary organizations.

FUTF has contributed to the development of a national funding instrument for renewable energy by developing a concept for the Green Investment Fund. Clean energy policies have not yet been developed as part of the fund activities, and there are no significant plans to do so during the remaining fund period.

Regarding sustainability it can be expected that some of the completed and planned interventions will provide a basis for future investments in renewable energy and energy efficiency. The sustainability of the Fund depends also on the participating institutions capability and interest to adapt the strategies and learnings from the fund in their permanent operations. The number of completed projects is too small to draw any definite conclusions.

Lessons learned

Even though projects supported by FUTF need to match both Ukrainian and Finnish priorities, the project identification process has been driven mostly by interest and experience of the Ukrainian applicants. Many project applications have been submitted that have not met the criteria of FUTF, for example in terms of innovativeness or in terms of proposing solutions for which Finnish expertise is available. Therefore, a key lesson learned is that in the project identification process the expertise and availability of Finnish companies interested to work with NEFCO in Ukraine should be addressed earlier. The MTE view is that a call for proposals -type of arrangements could be helpful in this respect.

CONCLUSIONS

The fund is well aligned with the Ukrainian energy sector policies and objectives. It actively contributes to increasing the share of renewables in the Ukrainian energy mix, and it introduces new solutions that could contribute to the national renewable energy and energy efficiency related objectives also at larger scale.

There are numerous donors, IFIs, government agencies and private investors participating in energy sector development in Ukraine. While FUTF is small compared to many other initiatives, it is critical to follow-up other stakeholders' contributions in renewable energy and energy efficiency as NEFCO is mandated to do. If done carefully, FUTF can have a leveraging role in attracting larger investments to innovative energy sector solutions, leading to clear added value of the fund. Communication with other bigger donors does not need to mean active collaboration in their slower investment processes but sufficient follow up of the sector should be maintained. Streamlining of efforts may also help identifying shared goals among donors and other stakeholders, making one's voice louder in negotiation tables when there is a need to receive commitment from other donors or Ukrainian authorities for further investments, for example.

Promotion of Finnish content in FUTF projects is a good way to link development cooperation to private sector development in Ukraine and to internationalization of Finnish companies. Challenges in engaging Finnish companies in FUTF projects, as well as lack of innovative project ideas, indicate that there could be room for new types of promotional activities in Finland, as well as revision of project development cycles allowing Finnish companies to be involved from the beginning of project development processes.

While the FUTF structure allows Ukrainian private companies to have a role in funded projects, the role of private sector has been limited so far. Based on the MTE findings, especially innovative energy efficiency solutions could have great potential among SMEs, for example through energy efficiency improvements with artificial intelligence. In renewable energy, prosumer (producer + consumer) models could be interesting for both Ukrainian and Finnish private companies.

Among renewable energy options, biomass is the most under-developed sector in Ukraine while it is among the core expertise of Finnish energy industry. The biomass study conducted as part of the FUTF contributes to the subject, and its effectiveness depends on the success of its dissemination efforts. While agricultural residues and by-products consist the most relevant energy feedstocks among biomass, it would be crucial to pay attention also to sustainability of biomass supply chains in general, including also on wood-based energy. FUTF or the future GIF could have a role in promoting guidelines and systems for ensuring sustainability of bioenergy before the sector grows rapidly.

RECOMMENDATIONS

The MTE has the following recommendations to the partners:

1) **The MTE supports the recent EMC decision to temporarily stop accepting any new applications for FUTF in Ukraine.** The decision is important in several respects. Firstly, CMC team can focus on clearing the backlog of applications and on providing the much-needed support to the applicants of projects endorsed by EMC to prepare the NEFCO Investment Committee documents that are of required quality for project approval. This step requires working time inputs primarily from the applicant and CMC with support from NEFCO.

   Secondly, it will be equally useful to focus efforts on ensuring that implementation of the approved TA and Demonstrative Projects could start within the next few months. In case of DPs, this step requires concerted efforts by the applicants and CMC in preparing the necessary documents and managing the procurement processes. In case of TA projects, CMC's role in launching and managing the procurement processes is instrumental.

   Thirdly, the allocation rate of FUTF resources in already high (87%) and a large number of important and innovative ideas have been endorsed by EMC. Several TA projects may come up with investment proposals that would be potentially relevant to be financed as Demonstrative Projects from FUTF. It will be useful to keep some funds in stock for FUTF to be able to (co)finance the next step(s) as well. Opportunities for blended financing with NEFCO's or other IFI's/partner's instruments could be considered as well.

2) **NEFCO and SAEE could reconsider the application modalities of FUTF.** A revised modality whereby application processes would be periodic (e.g. every six months) and based on call for proposals would improve the efficiency of fund management. In this context, the role for Finnish companies in project development could be considered. The calls and selection criteria could be purposefully developed for each call to address a particular innovative technology or solution. In case a Finnish company has participated in project development, it should have a possibility to implement the project without a separate tendering process if the project meets the funding criteria and receives funding. This is also expected to encourage more innovative project ideas to be co-developed by Ukrainian and Finnish companies. If needed, a small co-financing requirement could be included to demonstrate the business development aspect of the approach, similar to NCF. The current tendering process for Finnish companies should be maintained for projects where no Finnish partner has had a significant role in project development, or where one is not willing to commit to the co-financing requirements. The recommendation has implications on the Trust Fund Agreement. Therefore, the TFA would need to be revised.

3) **More emphasis is needed on disseminating and communicating information about actual and expected results of FUTF both in Ukraine and in Finland.** Following the recent example of NEFCO, also SAEE would need to publish summaries of the results of the completed projects in its webpage and social media applications to encourage replication of proven solutions and technologies in Ukraine.

4) **NEFCO and CMC should disseminate information about the scope of FUTF and potential financing opportunities to a wider range of Finnish experts and companies.** It may be useful to expand the

promotional activities from technical engineers to a wider group of experts somehow relevant to energy efficiency or renewable energy to promote identification of new and innovative solutions. This could be done in cooperation with industrial associations, such as Technology Finland, the Bioenergy Association of Finland, the Finnish Association of Architects, and others.

5) Similarly, **NEFCO and SAEE should consider engaging industrial associations and NGOs in Ukraine to share lessons learned and for potential replication of approaches and technologies.** Among potential collaborators are, for example, the Association of Energy Efficient Cities of Ukraine, the Association of Energy Auditors of Ukraine, School of Energy Efficiency, and NGO EcoClub.

6) **MFA and NEFCO should consider the linkages and potential synergies between FUTF, MFA's other private sector instruments and the support tools of Team Finland network.** A single project in Ukraine could gradually lead into a presence in the market and larger investments in Ukraine for Finnish companies. FUTF projects could generate interesting project leads for Finnpartnership, Business Finland, Finnfund and even IFIs to finance.

7) A lot of time and resources have been allocated on setting up this innovative Trust Fund and on developing its operations further. The Fund has proven its relevance during the initial phase. If FUTF scope on innovation can be developed to address energy efficiency issues beyond traditional engineering approach and if, as a result of implementation of the projects in the present pipeline, a demonstrated need for innovative Finnish solutions exists, **MFA and NEFCO could consider additional financing to the FUTF.**

1. BACKGROUND OF THE EVALUATION

1.1 Introduction

This is the Final Report of the Mid-Term Evaluation (MTE) of Finland Ukraine Trust Fund at NEFCO (FUTF). The Contract between the Nordic Environment Finance Corporation (NEFCO) and Kristiina Mikkola Consulting was signed on 1 September 2020. The team consists of three experts, namely Ms Kristiina Mikkola (Team Leader), Ms Paula Tommila (International Evaluation Expert) and Mr Vadym Lytvyn (Local Evaluation Expert). The MTE team began its work in September 2020. The Final Report was submitted to NEFCO in November 2020.

In Section 1, the scope and objectives of the evaluation are discussed. Also, the evaluation process, methodologies and limitations are briefly presented. Section 2 describes the Finland Ukraine Trust Fund at NEFCO and its operating context. In Section 3, the findings of the evaluation are presented. Section 4 provides the conclusions of the evaluation. Finally, in Section 5 the recommendations of the MTE are presented.

1.2 Rationale, purpose and objectives of the MTE

According to the Terms of Reference (TOR, Annex 1), the purpose of the MTE was to assess the relevance, efficiency, effectiveness, impact and sustainability of the Fund and activities financed by it. The MTE was also expected to assess the overall performance of NEFCO's fund management activities, performance of State Agency on Energy Efficiency and Energy Saving (SAEE, responsible for Ukrainian coordination) and the technical assistance provided by the Coordination and Management Consultant (CMC) engaged by NEFCO. The MTE was also expected to enable NEFCO and the MFA to make informed decisions during the remainder of the Trust Fund implementation period. In addition, the MTE was expected to identify and document lessons learned and give recommendations that NEFCO, MFA and other stakeholders may use to improve design and implementation of other related projects and programs.

1.3 Evaluation criteria, questions and methodology

The TOR contains twelve questions structured under five evaluation criteria. Those have been considered the priority issues for the MTE to assess, as follows:

Relevance

1) To what extent is the Trust Fund consistent with the needs and priorities of Ukraine and the beneficiaries of projects financed by the Trust Fund? Are the groups of beneficiaries satisfied with the support modalities, objectives and results of the project(s)?
2) Has the relevance changed since the beginning of the Trust Fund? Which conclusions could be drawn with respect to the remaining part of the Trust Fund implementation and in general?
3) How well can the Trust Fund support cooperation between Finland and Ukraine, and can measures be taken to enhance this relevance?

Efficiency

4) How well have the activities transformed the available resources into intended results in terms of quantity, quality and time? Can the costs of the Trust Fund be justified by the results?

5) Quality of technical assistance, including performance of TA projects against TORs? Quality and quantity of long-term TA provided by the CMC against the scope of the Trust Fund?
6) Quality of demonstrative projects against the set objectives, including innovativeness and transfer of BAT technologies?
7) Quality of the day-to-day management including coordination and communication? How well are possible problems in implementation addressed? Functioning of the institutional arrangements, including cooperation and communication between stakeholders?
8) Quality of monitoring and reporting.

Effectiveness

9) To what extent has the Trust Fund achieved its purpose and results or will do so in the future?

Impact

10) How well have the projects funded by the Trust Fund succeeded to make progress towards achieving the overall objective(s) of the Trust Fund including the integration of human rights-based approach (do no harm level)?

Sustainability

11) What are the possible strengths, weaknesses, opportunities or threats that enhance or inhibit the implementation and achievement of the programme objectives?
12) To what extent is it likely that the achievements of the Trust Fund will continue after withdrawal of external support? The analysis shall be broken down by economic, financial, institutional, technical, socio-cultural and environmental sustainability.

The MTE has been conducted as an independent and external exercise. The MTE has consulted representatives of all relevant stakeholders during the evaluation. The intent has been to provide a participatory and transparent learning process for all stakeholders. The MTE elaborated the key evaluation issues, questions and subsequent evaluation methodologies in an Evaluation Matrix that was attached to the Inception report. The team used the matrix both in data collection and data analysis to ensure a consistent approach to answering the evaluation questions. The main evaluation methods and information sources consisted of document review and analysis (both FUTF-related and external documents), and key informant interviews, both in Finland and in Ukraine. The interviewees consisted of the staff of Ministry for Foreign Affairs in Finland, Embassy of Finland in Ukraine, staff of NEFCO, SAEE, Coordination and Management Consultant team, representatives of organizations involved with projects funded from the FUTF in Ukraine and in Finland, and representatives of other donor organizations and IFIs.

Limitation: Because of restrictions caused by COVID-19, no site visits or face-to-face interviews could be conducted during the evaluation. Interviews were mainly conducted through video conferencing (MS-Teams) or as phone interviews. Due to language reasons, most of the interviews with the Ukrainian stakeholders were conducted by the Ukrainian evaluation expert.

List of Documents reviewed is attached as Annex 2 and Persons Interviewed as Annex 3.

2. FINLAND UKRAINE TRUST FUND AND ITS CONTEXT

2.1 Trust Fund context in Ukraine

Ukraine is the second largest country in area in Europe (after Russia), and it has a population of about 42 million. It is classified as **a Lower Middle-Income Country by OECD DAC** and is therefore a recipient of international overseas development aid (ODA).

Ukraine's economic history has been eventful. The country became independent in 1991 after the Soviet Union dissolved. Ukraine experienced deep recession after independence, but the economy stabilized by the end of the 1990s and the country enjoyed steady economic growth averaging about seven percent annually. In mid 2000s, Ukraine experienced peaceful yet dramatic changes in politics, leading to fast changes in political power.

In 2013, civil unrest accelerated by the Ukrainian Government's unexpected suspension of preparations to sign an Association Agreement with the European Union contributed to the collapse of the Government in February 2014 as well as to the illegal annexation of Crimea by Russia in March 2014 followed by the outbreak of conflict in Eastern Ukraine. A ceasefire was agreed in September 2014, but it remains to become fully effective.

The conflict caused significant contraction of industrial production and widespread disruption in supply and distribution chains, which led into a major economic crisis in 2014–2015. Since then, the GDP has been growing yet the predictions for 2020 show likely drop caused by the COVID-19 pandemic. According to a current forecast by the World Bank, the national economy is expected to contract approximately 5.5 % in 2020.

The World Bank has identified macroeconomic instability, weak private sector productivity, and in-effective service delivery as the key challenges in achieving sustainable recovery and shared prosperity in Ukraine.

Ukraine is one of the world's largest grain exporters, and agriculture has a strong role in its economics, alongside coal mining and services. Industrial development in Ukraine has traditionally been very energy intensive, making the country one of the most energy intensive countries in the world, thanks to its history of easily available coal, gas, and nuclear power.

Ukraine's **energy market** has experienced a significant change over the last decades, as domestic energy production has more than halved since the dissolution of the Soviet Union from around 135 million tons of oil equivalents (mtoe) to about 60 mtoe in 2018, mainly caused by more than 80% drop in coal production between 1990 and 2018. Production levels of natural gas and nuclear power have remained stable, while the role of renewables has remained marginal.

In 2015, coal made up the largest component of Ukraine's primary energy consumption at 34%, followed by natural gas at 30% and nuclear at 23%. Only a relatively small portion of the country's total energy consumption was accounted for by petroleum and other liquid fuels (10%) and a fraction by renewable energy sources (2%). In 2018, the share of renewables reached 4.6%.

Fossil fuels account for more than two thirds in primary energy supply and more than half of power and heat generation combined. Oil products are primarily used for transportation purposes, while natural gas, electricity and heat energy are consumed by the residential sector, industries and the public sector. While the share of renewable energy sources is still low, their significance has multiplied over the past years. From 2013 to 2018, the share of hydroelectricity production has increased from 1.4% to 1.5%, wind and solar from

0.1% to 0.3%, and biofuels from 2.2% to 6.2% respectively when considering total power production in the country.

The Ukrainian energy sector is overseen by the Cabinet of Ministers, which is responsible for policy co-ordination and the oversight of state energy companies. Under the cabinet, energy policy responsibilities are divided to seven national-level institutions, of which four are particularly relevant to renewable energy:

1. **The Ministry of Energy and Environmental Protection (MEEP)**[1], responsible for most energy supply policies, sustainable energy policy and climate change policy, and for co-ordinating energy policies across the government and advising the parliament.
2. **The Ministry of Finance,** responsible for taxation relevant to the energy sector.
3. **The Ministry of Regional Development, Construction and Housing (Minregion),** develops local-level policies and programmes.
4. **The State Agency on Energy Efficiency and Energy Saving (SAEE),** currently under MEEP (and previously under Minregion), is the central government body responsible for advancing and promoting energy efficiency and renewable energy developments and technologies.

More indirectly relevant to renewables, the National Commission for State Regulation of Energy and Public Utilities (NKREKP) supervises the natural gas and electricity markets as well as the heat sector. The Anti-Monopoly Committee is responsible for preventing excessive concentration of market power, while the State Nuclear Regulatory Inspectorate has the responsibility for the operation of nuclear facilities.

UkrEnergo, Ukraine's state-owned national electricity company, owns and operates the United Energy System of Ukraine (UES), including transmission networks and interconnections with neighbouring countries. Wholesale electricity market was switched from single-buyer model operated by Energorynok to a more competitive power market structure in 2019.

Ukrainian energy sector is guided by several polices, some of which are currently under scrutinization. Policies and policy tools most significant to the FUTF are briefly described below.

The Energy Strategy of Ukraine for 2035 follows in principle the objectives of the European Union policies, and its key goal is to integrate Ukraine into European energy markets. The Strategy puts strong focus on energy efficiency and it aims to address the needs of society and economy for fuel and energy in a technically reliable, safe, economically efficient, and environmentally friendly way, in order to guarantee the improvement of social well-being. According to the strategy, Ukraine should increase its share of renewables in total primary energy supply from about 4% in 2015 to 25% in 2035, most of the future growth relying on solar and wind power. Energy imports are to be reduced to less than 33% and energy intensity reduced from 0.28 to 0.13 toe/1000 USD of GDP. To achieve these objectives, Ukraine requires substantial investments to modernise its infrastructure, increase energy efficiency and improve the quality of public services to promote the country's economic growth.

A green tariff system to promote renewable energy projects was built to guarantee that all energy produced by renewable energy power plants commissioned by the end of 2019 is purchased at a tariff fixed in Euro until 2030. The green tariff rates differed by RE technology, project size, commissioning date and whether a certain share of the equipment was produced in Ukraine, and they were meant to gradually reduce over time. Overall, the tariff rates were considered generous, and they have managed to speed up growth in renewable energy production.

[1] Recently, responsibilities of the MEEP have been divided for two ministries, one on energy and another one on environmental protection.

The green tariff system has, however, been criticised, as it has led to increased electricity prices, and the system has been considered unsustainably expensive to maintain for the planned period. The system is currently being scrutinized and planned to be renewed. The planned changes would affect already implemented projects, which has stressed investors and project developers, and caused sever concerns related to the reliability of the regulatory market in Ukraine.

The green tariff system is planned to be replaced by a new **auction system**. The auction system would be based on biannual auctions, where lowest price per kWh would be the key criteria to win the auction, and 5-year quotas would be split between wind, solar and other renewable energy sources. So far, no auctions have taken place.

Ukraine's development partners, e.g. the EU, USAID and international financial institutions (IFIs) are supporting the Ukrainian government in the renewable energy policy development process to maintain market stability and allow increasing investments in renewables also in the future. The EU supports energy sector policy development and actively contributes e.g. to the auction system development, USAID has a large cooperation programme for improving energy security and they also contribute to major energy efficiency efforts especially within the residential sector, and GIZ has a portfolio of several projects in energy efficiency policy and practice development. Among financing institutions, EBRD focuses on providing financing to unlock energy efficiency investments, on decarbonising energy supply through increased support for renewables, supporting innovation and innovative energy infrastructure, ensuring power grid investment, as well as on strengthening cross-border interconnections in energy sector. IFC oversees a Ukraine Energy Efficiency Fund (EEF) jointly financed by the EU and Germany that provides EUR 200 million worth financing for residential buildings' renovations. The Danish Investment Fund for Developing Countries (IFU) is one of the biggest European development finance institutions focusing on energy in Ukraine with investments in wind power and other renewables.

At municipal level, the European Covenant of Mayors for Climate and Energy has engaged tens of Ukrainian municipalities to become signatories to the movement aiming to establish and implement sustainable energy and climate plans at local level. The movement is supported by several international donors.

2.2 Trust Fund context in Finland

Finland's development cooperation in Ukraine is rooted in the **Neighbouring Area Cooperation** in which energy efficiency was one of the major cooperation sectors. The activities were supported by several ministries and government agencies in Finland (including Ministry for Foreign Affairs and Ministry of the Environment). Although emphasis was on the areas in Russian Federation that bordered Finland, also some interventions were financed in Ukraine.

Following Ukraine's classification as a developing country, funding of cooperation was transferred to the development cooperation budget. Ukraine was one of the target countries of the **Wider Europe Initiative (WEI)** that MFA launched in 2008. It was a bilateral development cooperation programme in Eastern Europe, South Caucasus and Central Asia. Trade and Development and Energy and the Environment were among the five themes supported through the initiative. Under WEI, Finland contributed EUR 2 million between 2011-14 to Ukraine through the Eastern Europe Energy Efficiency and Environment Partnership Fund (E5P). The initiative was aimed at addressing energy efficiency issues and reducing energy consumption through projects targeting a range of areas, including municipal heating and hot water infrastructure.

Following the events in 2014 (Crimea, Donbass) and the ongoing conflict in Luhansk and Donetsk regions, MFA has supported humanitarian efforts in Ukraine in partnership with the **Nordic Energy Efficiency and Humanitarian Support initiative to Ukraine (NIU)** managed by NEFCO.

In 2018 the Ministry for Foreign Affairs introduced **a Strategy for Development Cooperation in Ukraine for years 2018-2022** with education, energy efficiency, and rule of law and democracy as the major sectors of cooperation. The expected impact of the strategy in the energy sector is defined as "improved investor confidence in the Ukrainian energy sector". The expected outcomes are ratification of clean energy policies, establishment of national funding instrument for renewable energy, and unlocking of foreign direct investments (FDI). MFA is now developing a new development cooperation strategy for Ukraine.

2.3 NEFCO

NEFCO was established in 1990 by the Nordic countries Denmark, Finland, Iceland, Norway and Sweden. It is an international financial institution. The objective of NEFCO is to generate positive environmental impact of interest to the Nordic countries. To reach this goal, NEFCO finances and implements exclusively green growth and climate projects globally, with a strong focus on Eastern Europe, as well as the Baltic Sea, Arctic and Barents regions. NEFCO works with both public and private partners. The working sectors of NEFCO consist of agriculture, forestry and fishery (incl. biogas), energy efficiency, renewable energy, green technology and cleaner production for industry and services, waste and recycling, and water and wastewater.

Through NEFCO's own Investment Fund (basic capital EUR 166 million at the end of 2019) the financing options include loans, grants, equity-type financing and buyer credits, depending on the scope and the location of the project. In addition, NEFCO manages external trust funds that relate to Eastern Europe. They include funds managed on behalf of the Nordic Council of Ministers and funds managed primarily for the Nordic Governments. NEFCO manages also funds that are not related to Eastern Europe. At the end of 2019, NEFCO managed a total of 15 funds with a total agreed value of EUR 338 million.

With the funds available from its own sources and the external funds NEFCO supports in Ukraine public and private sector partners for example in cleaner production, energy efficiency, renewable energy and district heating projects. In addition to Finland Ukraine Trust Fund, other energy sector funds managed by NEFCO include the Nordic Energy Efficiency and Humanitarian Support Initiative for Ukraine, the Norwegian Ukrainian Energy Efficiency Initiative, the Sweden-funded DemoUkrainaDH and the Sweden-Ukraine District Heating Fund.

2.4 Description of Finland Ukraine Trust Fund

2.4.1 Establishment of the Trust Fund

The key guiding documents of the Trust Fund and their timeline are depicted in Figure 1 (p. 7) together with main actors and management bodies involved with FUTF.

According to the **Memorandum of Understanding (MoU) in the Fields of Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources** the objective is promotion of cooperation in energy efficiency, renewable energy and alternative types of energy sources in power and heat generation, and in district heating networks. The MoU between Ministry for Foreign Affairs, Finland and State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) was signed on 24 January 2017. The MoU provides the framework for the establishment of Finland Ukraine Trust Fund. The MoU mentions the following fields of cooperation:

- Experience sharing in the energy sector policy, regulation and standard making in planning, implementation and technology development,
- Identification of opportunities for joint projects and promotion of projects in the fields that fall within the objectives of the MoU and in which both Parties are interested.

- Identification of collaboration opportunities for integration of renewable energy sources into power systems,
- Development of partnerships with multilateral development programmes and IFIs based on common interest of both parties,
- Information exchange regarding state strategies in energy efficiency, renewable energy and alternative types of energy sources, as well as support mechanisms in these fields,
- Knowledge sharing in the following topics: smart energy and power utilities, the use of renewable energy sources in electricity production and heating and cooling sectors, operation of energy and process systems with increase share of electricity produced from renewable and alternative energy sources, and
- Encouraging development of policies and regulations in several fields, namely bioenergy fuels, energy use of waste and efficient logistical arrangements for the use of these fuels.

The cooperation is expected to be organized in such a manner that institutions and companies both in Ukraine and in Finland will be involved in developing and implementing projects and other joint activities, such as joint seminars, training courses and site visits, that fall within the objectives of the MoU.

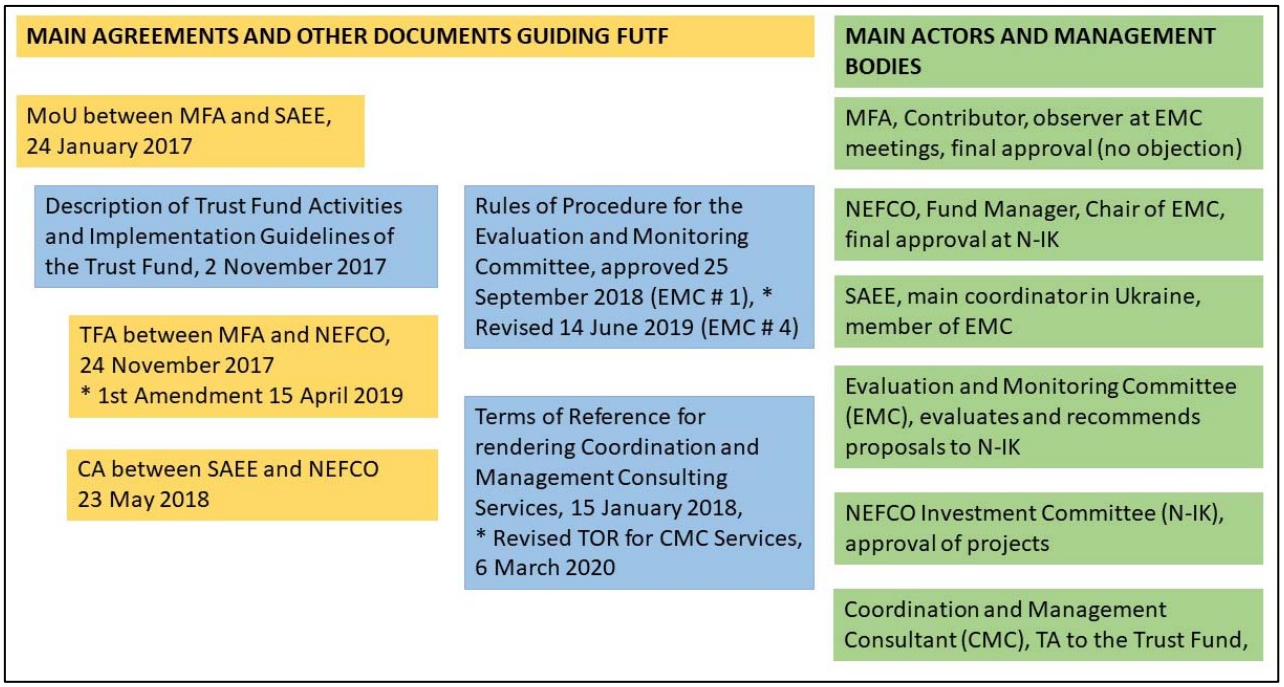

Figure 1. Finland Ukraine Trust Fund: Main agreements, other guiding documents, actors and management bodies

Subsequently, MFA, NEFCO and SAEE started the preparations for the Trust Fund. The **Description of Fund Activities and Implementation Guidelines**-document (referred to as the "Trust Fund Guidelines" in this MTE report) was completed in November 2017. It is the key document that provides the basis for MFA contribution and is also attached as an annex to both the Trust Fund Agreement (TFA) between MFA and NEFCO and in the Cooperation Agreement (CA) between SAEE and NEFCO. The document identifies the objectives and fields of cooperation and provides the guidelines for fund management processes (discussed in chapters 2.3.2 and 2.3.3 below).

The **Trust Fund Agreement between MFA and NEFCO** for the management and disbursement of funds for financing projects on Energy Efficiency, Renewable Energy and Alternative Type of Energy Sources in Ukraine was signed on 29 November 2017. The objective of the Fund is to provide financing to activities that meet

the ODA criteria (set by OECD DAC) in support of energy efficiency, renewable energy and alternative type of energy sources projects in Ukraine. The MFA contribution amounts up to a maximum of EUR 6 Million during the period of 2018-2021. Both Technical Assistance (TA) and Demonstrative Projects (DP) that fit the Trust Fund's financing criteria can receive funding. MFA appointed NEFCO to be the Fund Manager and to manage, disburse and account for the Contributions. Among the specific provisions of the TFA is that all procurement in relation to the activities of FUTF shall be carried out in accordance with the standard practices of NEFCO. Procurement will also be tied to Finnish Content on an activity or project basis. Finnish Content means the Finnish content as defined by Finnvera from time to time for export credit guarantees.

The **TFA was amended in 2019**. In the amendment the timing of the MTE was postponed to 2020. Changes were also made to the outcomes and outputs of the FUTF Results Framework. The Results Framework will be discussed in chapter 3.3 below.

The Finland Ukraine Trust Fund was officially kicked off in Kiev on 23 May 2018 when the **Cooperation Agreement between SAEE and NEFCO** for the identification and implementation of projects on Energy Efficiency, Renewable Energy and Alternative Type of Energy Sources in Ukraine was signed. The team of experts working as the Coordination and Management Consultant commenced their duties the same day.

The **Rules of Procedure for the Evaluation and Monitoring Committee** (EMC) were approved in the first EMC meeting on 25 September 2018. They were amended in the 4th EMC meeting on 14 June 2019. Decisions are made on consensus basis.

The duties of the CMC team are outlined in the Trust Fund Guidelines. They are further specified in the **Terms of Reference for rendering Coordination and Management Consulting Services** (original 15 January 2018, revised 6 March 2020). In the revised TOR, the Coordination and Management Consultant's scope of work was further clarified, particularly with respect to managing procurements of TA projects. The revised TOR also explicitly rules out participation of CMC in any tenders (TA and demonstration projects) conducted in the Trust Fund on grounds of conflict of interest.

2.4.2 Key actors and governing structures of FUTF

Key actors in the management of Finland Ukraine Trust Fund are SAEE, MFA, NEFCO and Coordination and Management Consultant (Elomatic Oy). Each of them has a role in project identification, approval, and monitoring of the Trust Fund activities.

SAEE is the main coordinator in Ukraine. Originally, it was expected that SAEE would identify and prepare project proposals for approval in cooperation with the Coordination and Management Consultant. In practice, SAEE has a key role in evaluating and assessing the applications submitted by Ukrainian organizations as a member of the EMC. SAEE facilitates collaboration activities within the Ukrainian energy sector for the implementation of the Fund activities.

MFA is the sole Contributor to the Trust Fund and has appointed NEFCO to be the Fund Manager of the FUTF. MFA acts as an observer in the EMC. MFA will review the projects approved by NEFCO Investment Committee and will approve them on a no objection basis.

NEFCO manages, disburses and accounts for the Contributions to MFA. Among other things, NEFCO acts the contact point to MFA, contracts, manages and supervises the Coordination and Management Consultant and appoints its own representatives to the EMC. NEFCO Investment Committee (N-IK) has an important role in the final approval of projects. Among NEFCO's duties are ensuring that procurement is carried out in accordance with the standard practices of NEFCO, entering into agreements with beneficiaries and TA

consultants and annual reporting to MFA. NEFCO will conduct due diligence, assess creditworthiness as well as the possibility to obtain securities, if needed, and prepare financing agreements.

CMC provides Technical Assistance for the Trust Fund to help identify, design, procure, implement and supervise projects and TA service providers. In addition to identification and preparation of projects, the scope of CMC's work consists of managing of procurements and monitoring of TA projects, review and verification of project procurement and implementation plans, monitoring of procurements in Demonstrative Projects, monitoring of equipment delivery and installation and monitoring project implementation and closure. The reporting requirements of CMC consist of Quarterly Reports, Annual Reports and Completion Report. Until May 2020, the CMC services were provided by FCG Finnish Consulting Group Ltd. Currently Elomatic Oy is responsible for the CMC services. The core team consists of three part-time experts (International Team Leader, Energy and Environmental Expert and Local Team Leader) and one full-time expert (Local Project Coordinator, starting April 2020). Two experts are based in Finland and two in Ukraine. In addition, short-term expertise is available in legal, technical, financial and environmental issues.

The specific tasks of the CMC are defined as follows (CMC TOR March 2020):

- Share experiences in making policies, regulations and standards in planning, implementation and development of technologies within the energy sector.
- Identify opportunities for capacity building and institutional strengthening in the Trust Fund's agreed fields of cooperation with SAEE.
- Identify project opportunities in the Trust Fund's agreed fields of cooperation together with SAEE.
- Evaluate the relevance, necessity and feasibility of the projects.
- Perform preparatory work to enable the development of solid, bankable demonstrative projects.
- Procure the services related to TA projects and assist the beneficiary in procurement of demonstrative projects.
- Ensure high quality of the implementation of the projects, including site visits to project sites and monitoring of TA projects.
- Define, collect and maintain a database of results achieved by the Trust Fund, in line with the Results Framework.

FUTF applies **a two-step decision making process**. An **Evaluation and Monitoring Committee** was established for the Fund in 2018. The EMC comprises of two representatives from NEFCO and two from SAEE with MFA acting as an observer. CMC participates in the meetings as a presenter. Decisions shall be made by unanimous vote. Minimum one representative from each organization needs to be present to constitute a quorum. Neither NEFCO nor SAEE shall participate in the decision-making process if a project proposal is affiliated to it, or if it is the intended beneficiary. The funding decisions made by EMC are valid for six months after the relevant EMC decision. If no progress in the project, the funding decision will be cancelled by the EMC and funds will be released. The EMC has met nine times since September 2018. The main tasks of the EMC are:

- evaluation of project proposals presented for EMC approval,
- rejection or referral and recommendation of project proposals to the NEFCO Investment Committee for further preparations and required due diligence of project participants, cancellation of previously recommended proposals, and
- review and approval project progress and completion reports submitted by the project developers/owners.

Activities and projects to be funded by the Fund shall be approved by **NEFCO's Investment Committee (N-IK)**. NEFCO shall submit a summary of the projects approved by N-IK to MFA for information. During a period of 14 days from submission of an approved project to the Ministry NEFCO shall refrain from entering into any

binding agreement related to such project. If NEFCO during this period receives any comments related to the project from the Ministry, NEFCO shall take those into account in the future work with the project.

2.4.3 FUTF objectives and scope of funding

The **objective of the Fund** is to support activities in the fields of energy efficiency, renewable energy and alternative types of energy sources in power and heat generation and in district heating networks. Specific attention will be paid to strategic goals of SAEE. There is one limitation: the funds are not meant to support the use of fossil fuels. The Fund will focus on five segments of activities:

1. Renewable Energy and Waste-to Energy: Integration of Renewable and Waste-to-Energy sources into power systems while ensuring national system stability; Use of these energy sources in electricity production as well as heating and cooling sectors; Increasing the share of electricity produced from renewable and waste-to-energy sources; Efficient logistical arrangements for bioenergy, utilization of waste fuels; Creation of new national funding instrument for attraction of investments in renewable sector
2. Power and heat generation: smart energy and power systems, utilizing locally available clean energy sources
3. District heating networks: Energy Efficiency in buildings, industry
4. IT solutions and distribution networks
5. Development of partnerships in the context of multilateral development programs and projects of International Finance Institutions.

FUTF has **scope for funding for two types of projects**, namely consultancy services (Technical Assistance) and investment projects (Demonstrative Projects). Funding for TA can be provided to different kind of projects including expert services to support SAEE. Also, Demonstrative Projects are eligible for grant funding. The funds will be used exclusively to fund activities that meet the ODA criteria set up by OECD DAC. The procurement shall be tied to Finnish content (minimum 30%).

The criteria for both TA and DP projects outlined in Table 1 do not appear entirely logical with each other. For example, several criteria for DPs appear useful for TA projects as well and vice versa (e.g. cost efficiency, building on well-known and proven technology, replicability). The Trust Fund Guidelines provide eligibility criteria for projects but there are no eligibility criteria for applicants. In practice, the applicant needs to be a Ukrainian organization. Finnish companies could technically also propose projects but as all Finnish contributions will be tendered, their motivation to invest in project development is limited.

Table 1. Eligibility criteria for Technical Assistance and Demonstrative Projects (Source: Trust Fund Guideline)

Eligibility criteria	TA projects	Demonstrative projects
Benefit not only locally but nationally	x	x
Be transformative, demonstrative and innovative	x	x
Increase investor confidence in the energy sector	x	
Support ratification of clean energy policies	x	
Provide new opportunities for policy support in the fields of cooperation under this fund	x	
Enable and unlock FDI investments	x	
Support national funding instrument	x	
Build on well-known and proven technology		x
Be cost efficient		x

Eligibility criteria	TA projects	Demonstrative projects
Be affordable and not having negative impacts on vulnerable groups of consumers		x
Increase energy efficiency on system, sub-system or component levels		x
Be financially sustainable after grant support		x
Be examples of best practices and BAT		x
Be replicable		x
The partner commits itself to the project with either monetary or in-kind contribution		x
The project would probably not be implemented without the support from FUTF		x

According to **the funding terms**, the TA projects can receive 100% grant assistance from the Fund. Grant support may be extended to Demonstrative Projects as well (with project owner's own contribution required). Funding for DPs can be provided to Ukrainian enterprises with preference to SMEs for both public and private projects. Blending of the FUTF grant with NEFCO's other financing tools, e.g. investment fund loans is possible and would be an opportunity to have a bigger impact, as is also highlighted in the TF document.

The Trust Fund Guidelines also include a **Result Framework for FUTF**. The original Result Framework structured the fund activities under four outputs, namely consultation on policy design, consultation on technology and projects feasibility, introduction of new technology, and partnerships with private sector and/or financiers. The Result Framework was revised in 2019 and one output for training and transfer of knowhow and another one for Finnish content were added. The expected outcomes of the Finland Ukraine Trust Fund were initially three: clean energy policies ratified, FDI investment unlocked, and national funding instrument for Renewable Energy (RE). After the revision, ratification of the clean energy policies and establishment of the national Renewable Energy funding instrument remain as objectives at the outcome level.

3. FINDINGS

3.1 FUTF pipeline

The Trust Fund was officially kicked off in Kyiv on 23 May 2018. The Evaluation and Monitoring Committee has had nine meetings during September 2018 – October 2020[2]. As per the CMC Report for 2nd quarter of 2020, 117 project applications were discussed in the EMC by June 2020. EMC had made 38 positive funding recommendations for projects[3] out of which 34 are currently valid. EMC has cancelled decisions regarding four projects. The two main categories of projects are Technical Assistance (TA) and Demonstrative Projects (DP). A vast majority (28) are Technical Assistance projects and five are DPs. The project pipeline is discussed in chapters 3.1.1 – 3.1.4 below. A summary table of all projects initially endorsed by EMC is attached as Annex 4. The analysis on results of projects is expanded in Chapter 3.3.

[2] The MTE team is aware that EMC # 9 has taken place on 27 October 2020. The materials and outcome of the meeting are not reflected in this report.

[3] For two projects ('Preparatory Assignment for Green Investment Fund', SAEE and 'Reconstruction of Hot Water Supply for 2 Dormitories with Geothermal Heat Pumps' at the National University of Water and Environmental Engineering) EMC has made two positive endorsements which have led to positive decisions by NEFCO Investment Committee.

3.1.1 Completed projects

During the period May 2018-October 2020, seven TA projects have been completed. They consist of a few Feasibility Studies (FS) or Pre-Feasibility Studies, a twinning project, a Terms of Reference preparation assignment and a policy study.

The **Pre-feasibility Study for Ukrainka Alternative Heat Supply Project** conducted by Pöyry Finland Oy (AFRY) was completed in April 2020. All heat energy to the Ukrainka City District Heating (DH) system (population 21 000) is supplied by the Trypilska Thermal Power Plant, which has proven to be an unreliable heat source due to the unreliable supply of coal. Ukrainka was looking for an alternative solution for efficient DH system to diversify heat supply options and to introduce renewable fuels. The pre-feasibility study addressed a least-cost heat supply alternative, including comparison of realistic new heat supply with the do-nothing alternative. The option covered was to build a biomass fired boiler with the necessary back-up boilers for the complete heat supply for the network. The study results reveal that Ukrainka needs to address number of challenges before the investment planning can move forward. While the heat supply from Trypilska continues, there are no realistic alternatives that would not substantially raise the tariff for district heating. Current tariff level is very low. The municipality would need to set up a new district heating company for projecting and operation of the new plant. The proposed investment programme is expected to cost around EUR 6.1 million which exceeds the current financing limit of the municipality.

The **Feasibility Study development for rehabilitation of District Heating System in Vyshneve** was completed by Planora Oy in May 2020. The applicant, Communal Enterprise "Vyshnivskteploenergo" (DH Utility of Vyshneve) was planning to apply for a loan for the district heating system rehabilitation to the Sweden-Ukraine District Heating Fund managed by NEFCO. To speed up the process DH Utility of Vyshneve applied for funding from the FUTF for a bankable Feasibility Study for the rehabilitation of district heating system of Vyshneve (population approximately 52 000). In the FS, several investment measures such as Individual Heat Substations (IHS), rehabilitation of boiler plants (replacement of pumps, replacement of boilers, water treatment, automation upgrade etc) and other energy efficiency measures were considered. The estimated budget of the Long-Term Investment Plan (LTIP) is EUR 13.6 million and contains measures in demand side management, modernization of the DH networks and heat production improvements. The proposed Priority Investment Plan (PIP) focuses on demand side management (Individual Heat Substations, IHS) and conversion to the variable flow model, modern hydraulic modelling system and supervisory control and data acquisition system (SCADA) with a total investment cost of EUR 5 million.

The **Feasibility Study development for thermomodernization of public buildings in the city of Kamyanske** was completed in July 2020 with services acquired from Nomine Consult UAB (Lithuania) and SWECO Structures Ltd (Finland). The Ukraine Municipal Infrastructure Program (UMIP) of the European Investment Bank (EIB) had earlier selected Kamyanske City Council among the potential beneficiaries of UMIP. In preparation, the city had carried out building audits for 38 public buildings and subsequently applied funding from FUTF for the FS. 36 buildings were included in the LTIP. The PIP consists of renovation of 17 public buildings (schools, kinder gardens, hospitals and a gymnasium) and has an investment budget of EUR 15 million.

Two projects have been completed with the public utility "Miskteploenergiya" in the municipality of Kamyanets-Podilsky with Imatran Lämpö Oy as the Finnish partner in both projects. The **Kamyanets-Podilsky – Imatra District Heating Twinning** was completed in December 2019. The project focused on knowledge transfer between two similar District Heating companies, one from Finland and one from Ukraine. The twinning programme consisted of four sessions: two 1-week sessions in Finland, one 1-week session in Ukraine, and a final session in Ukraine including a public seminar of lessons learned. The objectives of the **Technical (Pre-Feasibility) study on energy saving solutions for Miskteploenerhiya** (completed in June 2020, were jointly identified during the twinning project. The objective was to analyse possible technical improvements at the new CHP plant of Miskteploenergiya. Basic Flue Gas Condensers were estimated to be

the most feasible and least sensitive for changes of investment costs and fuel prices and electricity price. The Flue Gas Condenser for 10 MW bio boiler was recommended. The estimated investment cost is approximately EUR 0.6 million (excluding taxes and duties). The proposed investment on Flue Gas Condensers is not likely to be implemented due to various reasons, for instance, problems with fuel quality and technical configuration of the plant.

VTT Technical Research Centre of Finland Ltd completed the **Identification of potential for new biomass-to-energy facilities, develop the pipeline of projects and feasibility study development** -project in June 2020 ('Biomass study' in short). The applicant was SAEE. The study explored new opportunities for producing renewable energy for biomass residues in Ukraine and focused on the concepts for supply, logistics and utilization of biomass-to-energy. The findings of the study include a gap analysis of the biomass value chain from the initial feedstock supply and logistics to the final utilization. This gap analysis was used to prepare a roadmap for sector development which identifies technical and policy gaps and proposes possibilities to boost the growth of the biomass-to-energy market in Ukraine. The roadmap is now used for identification of new projects to ensure improvements in the biomass market. The project results were disseminated in workshops that were attended by a wide range of stakeholders from Ukraine and Finland.

Developing a Green Investment Fund (GIF) mechanism in Ukraine is one of the priorities of the FUTF. Due to the high priority of the project, the TOR development needed careful attention. An external consultant (Mr H Lehdonvirta) was recruited to prepare the **Terms of Reference for a Preparatory Study for Green Investment Fund (GIF)**. The TOR was completed in September 2019.

3.1.2 Projects approved by NEFCO Investment Committee

The next cluster of projects in the FUTF pipeline consists of projects that have been approved by NEFCO Investment Committee following the EMC endorsement. There are 12 projects in this cluster (three DPs, 7 TA projects, and two projects for SAEE travel expenses and capacity building).

Ongoing projects

SAEE is the beneficiary of two projects. Prior to the first EMC meeting in September 2018, N-IK approved a project through which **travel costs of SAEE staff to EMC meetings** and project stakeholder visits to Finland have been covered. The project has facilitated SAEE staff participation to 6 EMC meetings in Helsinki[4]. The second project focuses on supporting **Study Tours and Capacity Building for SAEE**. It was approved with the intent that the trips and capacity building events should be tied to specific EU-related meetings, projects or programmes. SAEE staff has attended two events, one organized by the International Renewable Energy Agency (IRENA) and another one, the World Circular Economy Forum 2019 organized by the Finnish Innovation Fund Sitra.

Development of **the Preparatory Study for Green Investment Fund (GIF)** was proposed by SAEE. The assignment has been ongoing since January 2020 with Climate Wedge Oy as the consultant. The final objective of the GIF development project is to scope, conceptualise and initiate the development of a Green Investment Fund mechanism in Ukraine.

A **Demonstrative Project on Reconstruction of Hot Water Supply for 2 Dormitories with Geothermal Heat Pumps** with the National University of Water and Environmental Engineering (NUWEE) is about to be started in Rivne. The project intends to improve the domestic hot water supply (DHW) at two NUWEE dormitories, to reduce DHW supply costs and to add a renewable energy source for DHW supply system for demonstration and provide training of students. At present hot water is supplied from District Heating system during heating

[4] Because of COVID-19 pandemic, EMC meetings number 7, 8 and 9 have been organized via email or as videoconferences).

period (6 months) and from private electrical DHW heaters. The project envisages the installation of a geothermal heat pump facility including heat well(s) and reconstruction of DHW supply inside the building. The expected results include cost savings from reduced use of natural gas and electricity, and improved living conditions for students and teachers. The project has been delayed because the Ukrainian partners are not familiar with NEFCO's transparent procurement processes and consider them heavy. Also, the initial allocations were not sufficient for the investment. Now tendering has been done and contract negotiations are in process.

The Volochysk City (population 33 500) applied for investment support for a **Demonstrative Project - Installation of IHS in previously thermally modernized school** (one building of NVK school). The school was renovated during 2017-2018 (thermal insulation). The retrofits have resulted in an increase of the average indoor temperature, improved indoor air quality and reduced student absences due to illness. However, all the expected energy savings were not reached. There are no means to regulate the inside temperature of the building because of the non-existing internal building automation. The project is about installation of one Individual Heat Substation and other indoor automation systems in the school. It is expected to result in increased energy savings and demonstrate that IHS installation is an integral part of thermal modernisation of buildings. The project agreement was signed in September 2019. Currently tender for selection of a contractor is ongoing.

The Demonstrative Project – Upgrading of Antonivka School in Kherson[5] (applicant Kherson City Council) builds on the previous collaboration between the two governments. MFA supported the international efforts to alleviate humanitarian crisis caused by the war in Eastern Ukraine by setting up a Trust Fund in NEFCO in May 2015 as part of the Nordic Energy Efficiency and Humanitarian Support Initiative for Ukraine (NIU). With Finnish funds a school for displaced children in Antonivka was constructed. A Finnish company (Elemenco Oy) was contracted by the Kherson City Council for the project. The school was designed as a "Green School" and opened in September 2016. The school has high visibility and has attracted many local and international visitors. Four separate systems produce energy for the school. Heat is produced by solar collectors and electricity is produced by solar panels, stand by generators and bought from the grid. Together with energy efficient heating/cooling and lighting systems, the school is self-sufficient during the full direct sunlight. However, without adequate battery capacity, produced electricity is directed to the grid and the school needs to purchase electricity from the grid. The need for more efficient heating/cooling system has become evident. The new project installs batteries and a control program that will allow the school to use the produced solar electricity. This would eliminate the need of diesel generator and reduce the need of external electricity from the national grid. In addition, an energy control system, heat pump, ventilation unit and active lightning protection will be delivered and installed. Elemenco Oy was selected as the contractor for the project (ongoing since July 2020).

Hydraulic Modelling and GIS for public DH Utility "Ternopilmiskteplokomunergo" in Ternopil was started in June 2020. The Finnish contractor is Ax Process Oy. The Public Utility of DH Networks in Ternopil (DH Utility Ternopil) has an ongoing EUR 30 million investment programme to modernize its district heating infrastructure (financing from EBRD loan, E5P grant, IBRD loan and NEFCO (DemoUkraine)). Financing for modern software tools for DH Optimization have not been part of these projects. The project financed by FUTF focuses on developing a hydraulic model and conducting related training to DH Utility Ternopil staff. The hydraulic model together with network GIS are need for network optimization and better investment planning.

Project(s) at a tender stage

The Feasibility Study for Lviv Municipal Wastewater Treatment Plant (WWTP) Sludge was proposed by Lviv Regional Administration. The WWTP in the Lviv Region are old, have no sludge handling nor utilization of

[5] Although project content is demonstrative, it is managed as a TA project (contract issued by NEFCO).

organic waste solutions. The ecological situation of Lviv region poses a threat to bordering regions of Ukraine and Poland and Baltic Sea. The FS is expected to provide information to the Regional Administration about the potential volumes and characteristics of the organic waste generating from the WWTPs that could be utilized for energy purpose. The FS intends to investigate the Best Available Technologies to produce the waste to energy, to handle the digestate and to select a pilot project for further development. For the pilot project a technical and financial feasibility assessment of the proposed investments will be prepared to find out the most effective least cost solution that will assist the beneficiary to plan a viable investment project. The technical solution to be considered in the FS is organic waste material conversion into biogas.

Projects for which procurement processes will be started

SAEE is the applicant for **the Feasibility Study for Kramatorsk and Melitopol Landfill Gas**-project. The FS will address the potential implementation of a landfill gas (LFG) collection, control and utilization project at landfills of two cities. Similar projects have been implemented by private companies, but this project will be unique due to fact that municipalities would implement the project themselves with international investors. When preparing the Feasibility Study and planning the project implementation, EU Landfill Directive requirements will be considered. The FS is expected to lead into an investment project that would consist of the installation of gas collection and control system to extract LFG for the purpose of utilizing of the LFG for energy production.

Specialized Environmental Enterprise "Rada" applied for the project **Feasibility Study and Environmental and Social Audit for Construction of Biogas Facility for utilization of organic waste and chipping machinery for utilization of mixed solid residues waste**. The applicant is a Small Private Enterprise that provides waste management services for eight cities in Kiev region. The FS for the investment project will investigate in detail technical, economic, legal, social and environmental issues of the biogas facility installation and assess project's implementation arrangements and risks.

The State Enterprise National Power Company Ukrenergo LPC applied for the **Opportunities for Demand Response in Ukrainian Irrigation and lift pumping stations – A Scoping Study**. Ukrenergo is responsible for operational and technological control of the Integrated Power System (IPS) of Ukraine as well as for electricity transmission via trunk power grids from generating plants to the distribution networks of the regional electricity suppliers. The Feasibility Study will focus on assessment of the opportunities for Demand Response in Ukrainian irrigation and lift pumping stations. Demand Response can be an alternative option to increase the regulating capacities resulting in the increase of the grid capability to connect more (Variable Renewable Energy (VRE) -units. Demand Response seeks to adjust the demand for power instead of adjusting the supply. Among different power consumers, one of the potential sectors for Demand Response is water supply, either the irrigation system or municipal water supply.

Design, construction, delivery and erection of prefabricated modern diagnostic laboratory for Volyn Regional Children's Territorial (VRCH) Medical Center (the applicant) is a Demonstrative Project. The project is FUTF´s response to the ongoing COVID-19 pandemic. The project includes design, construction, delivery and erection of a prefabricated Modern Diagnostic Laboratory for VRCH. It will involve off-site prefabrication of individual units of enclosed space in Finland that afterwards will be connected on-site to form a single laboratory building, at the VRCH site.

3.1.3 Projects recommended by Evaluation and Monitoring Committee

The FUTF pipeline also contains 14 projects (13 TA projects and 1 DP) that EMC has recommended to N-IK for funding but that have not yet reached the Investment Committee. Three of those projects were recommended already in late 2018 or mid-2019. The rest were discussed in the EMC meetings in 2020. The projects are summarized in Table 2.

Table 2. Projects recommended by EMC for N-IK

Challenge	Project and applicant
Policy development	• Introduction of new biomass types in biomass market and introduction of fuel quality assurance mechanism in Ukraine (EMC # 8), SAEE • Development of the Ukraine Transition to circular economy concepts (EMC # 8), SAEE • Assistance to the policy makers in the improvement of the Independent Power Project (IPP) Framework enabling RES share in Ukrainian United Energy System (UES; EMC # 8), INTEGRITES, ATTORNEYS' AMALGAMATION • Consulting Services on the development of a model BOO agreement for the RES Integration PPP tenders (EMC # 8), INTEGRITES, ATTORNEYS' AMALGAMATION
Capacity development	• Finnish days at the Ukrenergo labs consisting of short-term training to Ukrenergo employees and students of technical specialities with additional knowledge and expertise in integration of renewable energy sources into the national energy system; spent fuel utilisation and the introduction of Smart Grid systems (EMC # 2), State Enterprise "National Energy Company" Ukrenergo • Apros ® (dynamic simulator) utilization as Training Simulator at one CHP in Kyiv (EMC # 8), TeploEnergoGroup • Mobilisation support for new plant O&M (e.g. procedures, practices, IT tools, external services) to supplement a World-bank funded investment project (EMC # 8), Public Utility "Kharkivski teplovi merezhi"
Demonstration projects	• Demonstrative Project - Solar Power Station Construction on the rooftop of School No. 60 (EMC # 4), Mykolaiv City
Feasibility studies	• Feasibility Study - Biofuel (wood-based) CHP (2.5 MWe; EMC # 4), Myrhorod City Council • Feasibility Study – Construction of a peak reserve gas piston power plant with a capacity of 100 MW in Pervomaisk, Kharkiv region (EMC # 8), LLC Research and Production Association "Thermosystems" • Technical Feasibility Study for a Biodiesel Plant that would produce 2nd generation waste-based biodiesel from tallow (EMC # 8), UMG Investments LLG
Technical studies (R&D)	• Research – Lignin pellets: R&D to prepare for an investment project, research regarding conversion of lignin to usable alternative fuel (EMC # 6), LLC "IMMIDZH-TOMALESK" • Study – District Heating System Planning considering significant disconnection tendency to improve efficiency of DH system (EMC # 6), Utility Enterprise "Tokmak tepleneriya", TRM in Tokmak City • Energy management of Aviation Infrastructure as the way for Decarbonization (EMC # 8), European Ukrainian Energy Agency (EUEA)

3.2 Relevance and value added

3.2.1 Energy efficiency and renewable energy development needs

While the subsidy framework for renewable energy is under revision in Ukraine, the government policies and main objectives related to renewable energy and energy efficiency have retained their focus as they were during the preparation and early years of the FUTF. Therefore, also the overall relevance of the FUTF against government policies has remained good.

Regarding energy efficiency improvements, the residential sector is well supported by other donors, thus it is well justified that FUTF focuses on other sectors, including private institutions. Interviewees noted that private SMEs constitute a group of potential beneficiaries that would gain tangible savings from improved energy efficiency through e.g. energy audits and practical advice and support on implementing energy

efficiency solutions. Also, innovative IT solutions could be created to assess and improve energy efficiency of SMEs. While energy service companies (ESCO) have a role in energy efficiency improvements among the private sector, stakeholders interviewed considered that there could be room for IT solution providers providing innovative solutions for improving energy efficiency. This would likely require efficient collaboration between Finnish and Ukrainian IT companies to develop solutions that meet the needs and would be available in the local market. IT sector could also be involved in establishing prosumer models in energy production, either in residential or commercial sectors.

In renewable energy solutions, significant financing has been available for project development over the past years, largely thanks to the generous tariff system that was available for new projects until end of 2019. While the problems with the tariff system may affect the profitability and even viability of the projects developed, e.g. solar and wind power production capacity is now much higher than anticipated in the FUTF development phase.

District heating systems in Ukraine are widely in need of renovations, which has also been well considered in FUTF project approvals. NEFCO and Finnish companies have long-term expertise in district heating and combined heat and power development, and stakeholders consider it relevant to make use of this expertise in FUTF projects. Representatives of other donors also noted that in addition to technical aspects of DH, also DH company management practices could be improved through introducing new and innovative approaches in the Ukrainian contexts. The twinning project between Kamyanets-Podilsky and Imatra can be considered as a good example in this field.

Among renewable energy solutions, biomass is still under-represented in Ukraine. There is significant biomass potential especially in agricultural residues and by-products, as well as in energy crops. The biofuel market is still under-developed, and low pricing of natural gas has hindered the development of biomass powered heat production. The biomass study prepared under FUTF responds to this need.

3.2.2 Financing for green investments

Ukrainian government policies recognize the need for investments in green energy and climate positive projects, and the authorities have been keen to establish a separate fund for green investments. The preparation of the Green Investment Fund as part of FUTF contributes to this objective, and the governmental stakeholders interviewed expressed their approvals for the fund development. The final objective of the GIF development project is to scope, conceptualise and initiate the development of a Green Investment Fund mechanism in Ukraine. While it is likely useful for the Ukrainian government to have a proposed concept for the GIF, its applicability depends on the interest of donors and/or investors to provide funds for the initiative.

The fund structure and concept were under development at the time of the MTE. Thus, the relevance of the final concept has not been assessed.

3.2.3 Innovativeness and Finnish content

Overall, the beneficiaries of the completed projects have been content with the projects and their outputs and consider that the project have met their needs.

Regarding the project pipeline, the number of project applications is high. Yet there have been some challenges in identifying project ideas that would meet the specific requirements for innovativeness and Finnish content. These requirements, springing from the objectives of the Fund, are considered somewhat challenging to define and implement among the project developers. Some stakeholders consider that unclear or very high level expectations for innovativeness limit the relevance of the projects to Ukraine, while the

challenges in attracting Finnish counterparts can sometimes lead to delays in implementing projects otherwise considered relevant by the beneficiaries.

Based on the overall analysis, these requirements do not, however, reduce the relevance of the projects implemented. On the contrary, the requirements for innovativeness and Finnish content make the FUTF different to many other donor-funded energy sector initiatives. While they may be challenging to fulfil, they are considered to be the main factors creating added value to the Ukrainian energy sector and Finland as the donor country.

Based on the interviews of other donors and international stakeholders, the requirement for innovativeness is seen relevant, considering the relatively small size of the Fund and large number of other donor initiatives operating in the renewable energy and energy efficiency sectors in Ukraine. The innovativeness requirement forces project developers to develop or adapt new solutions to existing problems. There may, however, be room for clearer definitions for innovativeness.

Also, the requirement for Finnish content supports the development of joint cooperation between Finland and Ukraine within the energy sector. So far, the Ukrainian beneficiaries have been satisfied with the Finnish counterparts' contributions in the completed projects.

Engaging Finnish companies and organizations to the FUTF and projects in Ukraine has, however, turned out to be challenging. Political instability and economic crises of the past years have decreased the attractiveness of the Ukrainian markets among international investors and businesses in general. In 2020, the COVID-19 pandemic has slowed down all international trade, also hindering the export interests of Finnish companies. In energy sector, the rapid changes in renewable energy subsidies have caused uncertainty among international investors.

The CMC team has actively promoted the Fund and its opportunities in Finland, especially among DH companies and energy sector engineering experts. Yet relatively few companies have expressed their interest in project procurements initiated by the FUTF. Based on interview findings, there could be room for promoting the fund opportunities among other, less traditional yet relevant sectors, such as the technology and bioenergy industries, architects and construction designers, as discussed later in chapter 3.4.

Some Finnish companies would also have interest to develop project ideas together with Ukrainian partners. Joint project development could also contribute to more innovative project ideas, as the needs of the beneficiaries and potential of Finnish solution providers could meet in earlier phase of project development. However, the procurement requirements of the projects limit the interest of Finnish companies to invest time and resources in project development.

Overall, the requirement for Finnish content has potential to bring added value especially to Finland as the donor country and exporter of energy sector solutions, but also to Ukraine. Finland has traditionally been very strict on following the untied aid principles in its development cooperation. The relationship between Finnish development cooperation efforts and export promotion has been limited compared to other Nordic countries, for example. Developing countries do, however, provide very interesting business opportunities for Finnish companies, and early presence in these emerging markets facilitated by opportunities arising from development cooperation can provide a good starting point for longer-term trade relationships benefiting both countries.

While the interest of Finnish companies towards the Ukrainian markets has been somewhat limited during the fund operation, Ukraine provides a very interesting market for Finnish companies in the future, thanks to the relatively short distance and similar technology needs e.g. in energy and IT sectors. FUTF has a unique opportunity to be part of this development and contribute to building stronger and sustainable long-term

relationships between the countries. This is also well aligned with the Finnish development policy and MFA's country strategy for Ukraine (see below).

3.2.4 Contributions to Finnish development policy

FUTF appears to be well in line with the goals and aims of Government Finland as expressed in the **Government of Finland development policies and in the Country Strategy for Ukraine**. When the Trust Fund was designed, the 2016 Government Report on Development Policy applied. The policy took account of the goals of the UN 2030 Agenda for Sustainable Development and the binding climate convention. It laid particular emphasis on the strengthening of the developing countries' own economies to promote employment, livelihoods and well-being. Access to water and energy were among the priorities. These priorities were carried over to the present Rinne/Marin Cabinet programme. In the energy sector, Finland supports renewable energy solutions, including the application of modern technology in electricity systems to improve the efficiency and reliability of services. Also private sector is expected to play a key role in achieving development policy objectives and private investments, technology and innovations should be harnessed to help in achieving the goals of sustainable development and the Paris Agreement on Climate Change.

Realisation of human rights is important to Finland's development policy. The aim is to assure that development cooperation is not discriminatory, and that people have an opportunity to participate in decision-making (the human rights-based approach). Trust Fund has addressed the approach through several measures. An important initial step was the Human Rights report that was developed for the Trust Fund in 2018. It looked into the expected human rights impacts of the Trust Fund and proposed some solutions. Analysis of expected environmental, social and gender impacts is incorporated in the project proposals that the NEFCO Investment Committee reviews and it is included in the Terms of Reference for the projects. The analysis is developed according to NEFCO guidelines.

The projects funded by the Trust Fund address particularly Sustainable Development Goals number 7 Affordable and Clean Energy and number 13 Climate Action. The projects would also contribute to SDGs number 5 Gender Equality, 11 Sustainable Cities and Consumption and 12 Responsive Consumption.

3.3 Results and effectiveness

3.3.1 Two sets of objectives

The MTE observes that in fact the Trust Fund Guidelines incorporate two sets of objectives (Table 3). For Fund management, monitoring and reporting the situation the Trust Fund guidelines is not conducive. The objective and fund focus described in the text reflect NEFCO strengths and experience in investment projects and SAEE / Ukrainian priorities. However, the Result Framework, the development of which was initiated by MFA, emphasizes policy achievements as the expected outcome of the Trust Fund. Without a doubt, the policy component is important to the Fund. However, the emphasis on policies does not match with the actual type and scope of projects supported. The Fund has two components, investment project development and DP implementation, which may be more important but are not reflected at the outcome level.

A major overhaul of objectives and results would not be fruitful when most of the FUTF resources have already been allocated (see chapter 3.5.2 below). However, the partners could still consider streamlining of the Result Framework to reflect the true character of the Trust Fund. For example, one combined outcome statement for the FUTF could be developed to reflect policy development, investment project development and implementation of innovative projects. Subsequently, the impact statement should be adjusted as well. Some further ideas on the development of the Result Framework are incorporated in Annex 5.

Table 3. Two sets of FUTF objectives

FUTF Objectives (2017)	FUTF Impact, Outcome and Outputs (revised 2019)
Objective: "to support activities in the fields of energy efficiency, renewable energy and alternative types of energy sources in power and heat generation and in district heating networks." FUTF focus: Renewable Energy and waste-to Energy, Power and heat generation; District heating networks; IT solution IT solutions and distribution networks; Development of partnerships (multilateral and IFIs) multilateral development programs and projects of International Finance Institutions.	Impact: Increased investor confidence in energy sector Outcomes: Clean energy policies ratified; National funding instrument for RE [developed] Outputs: Consultation on policy design; Consultation technology and projects feasibility; New technology introduced; Partnerships with private sector and/or financiers; Training and transfer of knowhow; Finnish content

The revision could also address the aggregate indicators for reporting on development aid projects that MFA published in 2020. One outcome under Priority Area 4 Climate and Natural Resources is relevant for NEFCO to incorporate in the Trust Fund reporting to MFA[6]. It is the Outcome 2 on Energy "All people have affordable and equitable access to affordable and clean, sustainably produced renewable energy" (SDG 7, also supports SDG 13.1 and SDG 13.3.). The indicator for measuring the achievement of the outcome is "Number of people with improved and equitable access to affordable and clean, sustainably produced renewable energy".

3.3.2 Achieved results

The achievements of Finland Ukraine Trust Fund at different objective levels are also discussed in Annex 5. The discussion below applies the output structure of the Results Framework.

Consultation on policy design: The Biomass study is the only completed input to policy design so far. It provides information to environmental and energy sector policy makers, authorities and other energy sector stakeholders of what are BAT policy measures, tools, incentive schemes to support market growth. It defines the best technical practices for biomass from supply, logistics to utilisation with target to reduce the negative impact to the environment. The study is also useful for the Fund itself in prioritizing and selecting future projects. The usefulness and impact of the study depends on the dissemination of the results and on SAEE taking the recommendations forward. One such initiative was endorsed by EMC in June 2020 (Introduction of new biomass types in biomass market and introduction of fuel quality assurance mechanism in Ukraine proposed by SAEE).

The ongoing preparatory assignment for Green Investment Fund is obviously significant, and it is of high interest to partners. The final objective is to scope, conceptualise and initiate the development of a Green Investment Fund mechanism in Ukraine. An interim report was completed in June 2020. The report consisted of the in-depth survey of the Ukrainian energy sector, overview of Green Finance in Ukraine and preliminary legal analysis. At present, the consultant is engaged with developing long- and short lists of potential candidates for green finance mechanisms.

Consultation on technology and project feasibility: Most of the few projects that were completed are feasibility studies. Two of them (Thermomodernization of public buildings in Kamyanske and Rehabilitation of the District Heating System in Vyshneve) were expected to lead into investment projects. Only the project in Kamyanske is likely to be implemented, and that is because the project concept was already in the investment project pipeline of European Investment Bank (EIB). The Swedish Ukraine District Heating Fund considered the project in Vyshneve for financing, but the criteria of the Swedish fund were not met. Even

[6] FUTF contributes to Outcome 2 on Energy "All people have affordable and equitable access to affordable and clean, sustainably produced renewable energy". The indicator for measuring the achievement of the outcome is "Number of people with improved and equitable access to affordable and clean, sustainably produced renewable energy".

though the Pre-Feasibility Studies in Ukrainka and Kamyanets-Podilsky and the Feasibility Study in Vyshneve did not lead into investment decisions, they have some merit to the District Heating Utilities and City Councils that now understand better the requirements and preconditions for energy efficiency investments.

New technology introduced: One small Demonstrative Project is ongoing in Kherson. Although the FUTF input to Kherson school is small (EUR 70 000 investment on batteries and lighting protection) it is significant to the original humanitarian investment of Government of Finland. The upgrading of the renewable energy system increases the demonstrative value of this flagship intervention of Finland Ukraine partnership and demonstrates a useful solution that can be widely replicated.

The choice of technology (geothermal heat pumps) in the project that National University of Water and Environmental Engineering is implementing is innovative. It also has a lot of replication potential because it also supports the environmental management curricula of the University. The demonstrative value of the Volochysk school projects is in showing that investments in structures (insulation) do not produce the expected energy savings without also investing in internal building automation. The Volyn project (delivery of a prefabricated modern diagnostic laboratory for a hospital) is also innovative.

All these DPs introduce new and innovative ideas and technologies to Ukraine. The pipeline has many innovative TA projects that may come up with investment ideas that would fit the criteria of FUTF and where Finnish experience is strong. These include, e.g., the municipal WWTP sludge utilization in Lviv, landfill gas FS in Kramatorsk and Melitopol, waste-to energy solution proposed by Specialized Environmental Enterprise Rada, and the lignin study. The interest for identifying more Demonstrative Projects is evident in the Fund documents (e.g. in the EMC meeting minutes). The MTE supports this view. Overall, investing more in Demonstrative Projects that apply innovative technologies and produce tangible results would improve the effectiveness of the Fund.

Training and transfer of knowhow: In addition to the actual capacity development initiatives (support to SAEE, workshops and seminars), the Feasibility Studies have been useful. This was communicated both by the Ukrainian beneficiaries and Finnish partners to the evaluation.

The experience of the twinning partners in Kamyanets-Podilsky and Imatra was positive. Also, Imatran Lämpö Oy benefited from the project. Twinning projects could be more widely considered in FUTF. For example, twinning could be a useful component of an investment project development phase.

Finnish content: The MoU between MFA and SAEE emphasises joint projects and shared benefits for Finnish and Ukrainian institutions. The requirement for Finnish content supports the development of cooperation between Finland and Ukraine within the energy sector. The Ukrainian beneficiaries have found working with the Finnish companies and their contributions useful in the completed projects.

The output statement could be revised to e.g. “Involvements of Finnish private sector institutions” to separate it from the precondition of “minimum 30% Finnish content”.

The analysis conducted by the MTE indicates that the Trust Fund has needed quite a bit of time in finding its own identity. This is reflected in the achieved results that the MTE considers so far modest. However, future looks brighter: diversity of partners and projects has increased, initiatives are moving beyond DH Utilities and SAEE to other government entities (EUEA) and other EE and RE issues, interesting types of projects are coming up, and Ukrainian private sector actors are also coming on board.

The MTE assumes that the Trust Fund will achieve its objective in providing support in energy efficiency, renewable energy and alternative types of energy sources to Ukrainian beneficiaries. The first expected outcome, ratification of clean energy policies, is out of reach within the current duration of FUTF. The second outcome, establishment of Green Investment Fund, most likely needs dedicated efforts on behalf of SAEE,

MEEP, Ministry of Finance and other Ukrainian stakeholders to attract sufficient financing for GIF. The expected impact, increased investor confidence in the energy sector, is similarly out of reach.

3.4 Efficiency and fund management

3.4.1 Trust Fund management

Institutional arrangements and day-to-day management

The Trust Fund Agreement, the Cooperation Agreement, and the Trust Fund Guidelines were summarized in chapter 2.4. They provide definitions for the responsibilities of SAEE, NEFCO and MFA, and their respective roles in the implementation and management of FUTF. Similarly, the Terms of Reference for Coordination and Management Consultant specifies the duties and functions of the CMC team. There is also a well-defined project flow (see Annex 6) that provides step-by-step information about how a successful project proposal moves through FUTF pipeline. In practice, the role of SAEE has not been to identify and propose projects, but rather to participate in the evaluation and endorsement of proposals at the EMC. Overall, the MTE considers that institutional arrangements are well defined in FUTF.

Decision making in the Trust Fund is done on a consensus basis. At the EMC, SAEE and NEFCO need to together endorse projects before they move forward. EMC meetings have been organized flexibly (already four meetings organized in 2020) which is beneficial for the fund management. The meetings have been useful to SAEE, NEFCO and MFA to jointly draw lessons about Fund activities and use them in the further development of actions.

The feedback received during the interviews suggests that quality of day to day management is mostly good. In project development the CMC team is expected to work in close coordination with SAEE and the applicants (leading into approval of the project by N-IK and MFA). However, in project management (leading into successful completion of a TA or DP) CMC's duties expand into working with not just the applicants, but also with NEFCO and Finnish companies. The role of SAEE has been prominent in information sharing in Ukraine and in project development. NEFCO has important duties across the project flow.

Both the Ukrainian beneficiaries and Finnish companies appreciated the support provided by CMC during the TA projects. The Finnish companies communicated positive experiences about working with NEFCO (trusted, reliable, timely) and confirmed interest to work with NEFCO in future as well. Some communication problems came up in the discussions with Ukrainian beneficiaries whose projects EMC had endorsed. Information about the status of their projects had not been readily available and they were not clear about the next steps. In general, information gaps were mentioned.

With respect to TA projects that were either completed or are ongoing, responses were mixed. It was the view of the Finnish companies that face-to-face communication with the applicants and their staff is vital when projects are started. Even after meetings, the Ukrainian beneficiaries / applicants had had difficulties in supplying the required information to the partners in Finland. The Ukrainian utilities have capacity gaps, also in information management. Overall, incorporation of meetings with the beneficiary organizations were found essential for the successful completion of the assignment. Some comments were made that the information in the Terms of Reference for the assignments was not up to date. This may signal some communication gaps between the applicant and CMC team. Overall, the Ukrainian partners were satisfied with the services of the Finnish TA consultants. The services had been timely and of good quality. The results of the studies had fulfilled the beneficiary expectations.

The Demonstrative Projects have been most problematic to develop. The main reason is that the Ukrainian beneficiaries are not accustomed to conduct procurement based on NEFCO rules. Preparation of valid cost estimates has been an issue in two of the DPs.

The quality of progress reports produced by CMC and NEFCO is good. Same applies to the final reports of TA studies.

The stakeholders raised the effects and impacts of COVID-19 pandemic to their projects. The pandemic affects both Finland and Ukraine and travel between the countries has not been possible for quite some time. This has had implications on the work of ongoing projects. Workshops or seminars for final presentations cannot be organized face-to-face. Webinars can be organized but videoconferencing tools are not as effective for experience sharing and shared learning as face to face meetings are. For new projects, communication between the Ukrainian beneficiary and Finnish partners is more challenging. Difficulties in obtaining accurate and relevant data from the beneficiaries was cited by the Finnish companies. Projects that have a training component will probably need to seek an extension until such time that both trainers and trainees can meet in Ukraine. Ukrainian consultants can help alleviate part of the problem, but they cannot fully replace the Finnish expertise in the projects. Because of the above reasons, the MTE assumes that the delays in implementation may have some effects on disbursement rates well into next year.

The pandemic is not expected to have any significant implications on fund management responsibilities. For example, preparation of N-IK documents and procurement processes is expected to continue.

With exception of few issues the MTE considers that the Trust Fund is well managed. The issues are discussed below.

Backlog of projects in the pipeline

CMC has put much effort in the preliminary screening and processing of applications. This appears to be also one of the priorities for SAEE. In September 2020 there were more than 220 applications stored in the FUTF database. However, only about half of those fulfilled the project eligibility criteria and were reviewed at the EMC. The FUTF practice of jointly reviewing a long list of all applications considered eligible at the EMC level is not common. It reflects good governance and transparency and helps to reduce opportunities for corrupt practices. But there is also the other side of the coin: preparing long-lists for EMC meetings has required a lot of effort and may have distracted CMC team from the equally important steps of moving the projects already endorsed forward in the pipeline. There is a backlog of projects (14 projects in the pipeline on 20 October 2020[7]) that have been endorsed by the EMC but have not yet been approved by the N-IK. This has had an impact both on the achieved results and on the Fund delivery.

The Ukrainian beneficiaries struggle to develop the project proposal up to the level of N-IK approval. Hands on support from CMC experts is required. Overall, the MTE considers that FUTF should stop accepting and processing any new applications with immediate effect. This would allow CMC to focus on supporting the beneficiaries in having the projects approved.

As a first priority, CMC – obviously with NEFCO and SAEE support - would need to maintain a strict focus on developing the quality and contents of projects endorsed by EMC up to a level that meets the criteria of NEFCO Investment Committee. The second priority for CMC would then be organizing tendering and selecting TA consultants for studies as well as supporting the applicants of the Demonstrative Projects in procurement. This would be closely followed by the monitoring of the ongoing projects.

[7] Although for several of them, EMC decided that the responsibility for preparing the Terms of Reference for the assignment rests with the applicant, not with CMC).

Information and Communication

The Trust Fund Guidelines do not provide any guidance on information sharing and communication. The Terms of Reference for CMC services include responsibilities for supporting preparation of a communication plan and implementation of dissemination activities. The MTE considers that these important activities have not received adequate attention.

The potential Ukrainian beneficiaries have shown tremendous interest on the Fund and grant opportunities provided by it. This is all thanks to SAEE that has actively disseminated information about the Fund to the regional and municipal authorities in Ukraine. Also, SAEE webpage contains a section on the Trust Fund (instructions to apply). The MTE appreciates the SAEE efforts which also demonstrate high ownership. However, the efforts have attracted a lot of applications that have not fitted with the Trust Fund priorities and criteria (notably innovativeness, Finnish content).

NEFCO has recently added information about completed FUTF projects and their results on their website. MTE encourages SAEE to do the same in Ukraine.

The CMC team has actively promoted the fund and its opportunities in Finland, especially among DH companies and energy sector engineering experts, yet relatively few companies have expressed their interest in project procurements initiated by the FUTF. Based on interview findings, there is room for promoting the FUTF opportunities among other, less traditional yet relevant sectors, such as the technology industry, architects and construction designers. Many relevant business and industrial associations exist both in Ukraine and in Finland that could be contacted also for purposes of sharing experiences and lessons. Among the relevant ones in Finland are e.g. Technology Finland (Teknologiateollisuus), Finnish District Heating and Cooling Association (FinDHC), The Finnish Association of HVAC Societies (FinVAC), the Finnish Association of Architects and the Bioenergy Association of Finland.

Similarly in Ukraine, SAEE and CMC could establish cooperation for experience and lesson sharing purposes with, e.g., the Association of “Energy Efficient Cities of Ukraine” (connection with the municipalities), Association of energy auditors of Ukraine (connection with the professionals who support and prepare projects for municipal and commercial sectors), School of Energy efficiency (works with different stakeholders in energy efficient sector, and NGO "EcoClub" (works in the field of environment and energy).

Finland Ukraine Trust Fund is not the only MFA instrument that supports the involvement of Finnish private sector actors in aid projects. MFA also provides financing for e.g. Finnish Business Partnership Programme (Finnpartnership), the Public Sector Investment Facility (PIF), Developing Markets Platform (managed by Business Finland) and Finnfund. All these programmes are also involved in the Team Finland network that supports Finnish companies in accessing international markets. NEFCO and MFA could circulate information about FUTF through the Team Finland network. The MTE assumes that increased access to information about the business opportunities in Ukraine would attract more interest among the Finnish companies.

Issues with the Trust Fund Guidelines

As was argued earlier in the report, the Trust Fund Guidelines have sections that are no longer up to date. For example, both the applicants and the partners would benefit from a clear definition for the concept of ‘innovativeness’. NEFCO, SAEE and CMC would benefit from improvements in the Result Framework. SAEE, NEFCO and MFA need to assess whether a guideline revision will add value to the partners (or not). If the consensus is that that the current guidelines are sufficient and contribute to shared understanding of the Finland Ukraine Trust Fund and its expected objectives and priorities, then a revision would not be necessary. But particularly if the Fund continues beyond 2021 with any increase in the total contribution, then a revision is needed.

3.4.2 Financial delivery and allocations

For the period of May 2018-October 20, 2020, the total amount of funds disbursed from the Trust Fund is EUR 1 346 282. This amount includes both expenditure on projects and the management fees of NEFCO and CMC (Table 4). This is approximately 22% of the agreed MFA contribution to the Trust Fund (EUR 6 million).

Table 4. Funds disbursed during 8 June 2018 – 20 October 2020 (Sources: Expenditure on projects, FUTF Pipeline 20 October 2020 and Expenditure on fund management, FUTF Financial Report 3 September 2020)

Category	EUR
Payments to projects (7 completed and 4 ongoing)	676 076.00
Payments to Coordination and Management Consultant [a]	505 686.00
Administrative expenses (NEFCO)	34 658.94
Bank expenses (NEFCO)	1.10
VAT disbursement (NEFCO) [b]	129 860.25
Total, funds disbursed	**1 346 282.29**

[a] This expense category has been adjusted with respect to disbursements on project numbers FI05/1/2018 (SAEE's travel costs to EMC meetings in Finland and project stakeholders' visits to Finland) and FI05/2/2018 (Business Trips and Capacity Building for SAEE). Both are managed through CMC accounts.

[b] To be returned to the fund.

The expenses on fund management constitute half of all disbursements. The MTE finds them justified considering the large volume of applications in the pipeline and the number of projects completed or ongoing. As the number of projects approved by N-IK increase, also the number of procurement processes that CMC and NEFCO need to manage will grow. Expenses related to Coordination and Management Consultant (FCG Finnish Consulting Group Oy until 20 May 2020 and Elomatic Oy from 21 May 2020 onwards) have remained within the agreed budgets.

The Trust Fund Agreement (Article 7) stipulates that "*NEFCO shall be entitled to an annual fee corresponding to 1.75 % (one point seventy-five per cent) of the Contribution ("The Administration Fee"). The Administration Fee reflects the expected cost of NEFCO for managing the funds over the Fund's expected lifetime.*" Based on discussion with members of NEFCO staff involved with the Trust Fund, either directly involved with the management of FUTF, supporting the Trust Fund by providing services in project preparation as technical experts or as members of the NEFCO Investment Committee making final decisions on projects, the MTE is of the view that the Administrative Fee does not cover all the costs of NEFCO for managing the funds. The average project size is rather small (approximately 113 000 EUR). The required administrative work is same regardless the size of a project. A fund that supports many small projects is more labour intensive to manage than a fund that supports a few, larger projects.

In Table 5 the disbursements, commitments and allocations of FUTF resources against the MFA contribution are compared. Two types of allocations are considered as firm commitments:

- Grants for projects approved at the NEFCO Investment Committee (consisting of both projects that are already ongoing and for which service providers are yet to be selected). It is assumed that the budgeted funds will also be disbursed.

- Fund management expenses that are based on the existing agreements (Trust Fund Agreement between NEFCO and MFA and on the Consultancy Agreement between NEFCO and Elomatic Oy). It is assumed that these expenses will realize as planned.

Table 5. Disbursements, commitments and allocations of FUTF resources (Source: FUTF pipeline 20.10.2020)

Decisions	Total, EUR	% of FUTF resources
Disbursements		
• Projects	676 076	11
• Fund management and administration	670 206	11
N-IK approvals (commitments to projects[8])	1 620 924	27
Fund management (commitments, an estimate based on MFA-NEFCO TFA and Consultancy Agreement for Elomatic Oy)	670 000	11
Projects initially approved by EMC (allocations)	1 560 000	26
Total, allocated	**5 197 206**	**87**
Unallocated	**802 794**	**13**

In total, 22% of the FUTF resources have already been disbursed. In addition, 27% of funds have been committed to projects through N-IK approvals. Further 11% of the resources have been committed to fund management expenses. Therefore, approximately 61% of FUTF resources have already been committed.

The current pipeline contains 14 projects for which EMC has made positive recommendations, but that have not yet been approved by N-IK. If all are approved, their budget allocations stand at approximately EUR 1.5 million. In total, approximately EUR 5.2 million have already been allocated (87%) leaving only EUR 0.8 million unallocated.

It is likely that EMC will cancel some projects, for example on grounds that the project has not moved forward as expected or because the applicant will not pass the second stage review of the project. It would be advantageous to the Trust Fund and its management if decisions on project cancellations could be made within the six-month rule stipulated in the EMC guidelines. This is obviously also a clause that SAEE and NEFCO should keep in mind when CMC plans are discussed.

Considering the project pipeline discussed in chapter 3.1 and the disbursements made, the costs of the Trust Fund are justified by the results. A lot of preparatory work has been done by NEFCO and CMC to transfer allocations into commitments. Therefore, the MTE expects that FUTF disbursements will significantly increase in 2021.

3.5 Expected impacts and sustainability

3.5.1 Expected impacts of the fund

As the discussion on results of FUTF suggests, the timing of the MTE is too early to fully analyse the expected impact of the Trust Fund interventions.

The MTE considers that potential impact of FUTF is threefold: it consists of results of studies that are assumed to contribute (or lead) into revised policies, Feasibility Studies that would lead into investment projects , and

[8] This figure consists of grants allocated by N-IK. With respect to ongoing projects, actual disbursements have been deducted from the amount.

demonstration projects that would encourage the uptake of new, innovative technologies by other actors in Ukraine. Some (minor) impacts in capacity development can be expected. The overall impact of the FUTF depends on the content and success of the projects funded.

So far, the few completed projects have only produced limited impacts in capacity building within the beneficiary organizations, partly because feasibility studies do not focus on capacity building efforts by nature. One Feasibility Study is expected to lead into a concrete investment project financed by the EIB. The other completed studies together with the activities in the pipeline may directly or indirectly lead to new renewable energy or energy efficiency projects.

Among the projects not yet completed, there are three demonstrative projects that have a chance to promote adoption of new, innovative energy technologies in Ukraine, yet their scale is somewhat small.

FUTF has contributed to the development of a national funding instrument for renewable energy by developing a concept for the Green Investment Fund. Clean energy policies have not yet been developed as part of the fund activities, and there are no significant plans to do so during the remaining fund period. According to the interviewees of the MTE, it might not be a feasible goal for a small fund like FUTF, as many donors are already supporting the policy development at national level.

The expected impact was defined in the original Result Framework as "Increased investor confidence in energy sector". It is measured by installed capacity (renewable energy, energy efficiency, waste-to-energy and smart energy systems). Although the installed capacity has grown, FUTF has not yet contributed to the measured change.

3.5.2 Sustainability of the Trust Fund achievements

Similarly, it is not timely to assess the sustainability of the achievements of the Fund. It can, however, be expected that some of the completed and planned interventions will provide a basis for future investments in renewable energy and energy efficiency.

The sustainability of the Fund depends also on the participating institutions capability and interest to adapt the strategies and learnings from the fund in their permanent operations. The number of completed projects is too small to draw any definite conclusions.

Technical achievements of the Fund are considered to have the best potential to be sustainable, also after the Fund period. Technical capacity building and knowledge transfer taking place in individual projects has been praised by Ukrainian beneficiaries, and it is likely that at least some of the lessons learned will be kept in use after the project periods.

Regarding economic sustainability, it can be expected but not yet confirmed that at least some of the demonstration projects, feasibility studies and other interventions funded by the project will lead to additional investments. If successful, especially the GIF may be able to leverage additional donor or private financing for important energy sector projects and investments. Also, some of the Finnish project partners have expressed their interest towards further operations in Ukraine, based on the experiences they have gained from the FUTF funded operations and from collaboration with NEFCO.

Environmental sustainability and impacts of the project are assessed before the project is approved in the NEFCO Investment Committee. The studies completed are not considered to have any negative environmental impacts. If the planned investments move ahead the approved projects are expected to produce positive environmental impacts due to CO_2 emissions reductions because of energy savings, improvements in energy efficiency, reduction of natural gas consumption and introduction of renewable energy sources.

From the socio-cultural perspective, the sustainability could be considered both in Ukraine and in Finland. In an ideal situation, the Fund accelerates further collaboration between the two countries and companies, generating lasting impacts also after the Fund period.

The three Demonstrative Projects are likely to increase the living comfort for students and improve the occupational health level of teachers and hospital staff and teachers. If an investment in a District Heating project would be implemented it would produce improvements in living comforts to all households connected to the district heating system and would increase awareness on the advantages of the district heating system over individual heating. The expected benefits would not be gender sensitive.

3.5.3 Enhancing or inhibiting factors to success of FUTF

One of the strengths of FUTF is its high relevance in Ukraine. Renewable energy and energy efficiency are high on the government agenda. While many donors and investors have invested tens and even hundreds of millions in the development of the energy sector, there is room for introducing innovative and small-scale solutions that strengthen Ukraine's ability to adapt to and engage in green growth at local and regional level. FUTF has been able to identify projects that fulfil this need.

Further on, grants as a financing tool in small-scale projects can be considered as a strength, as it allows also smaller project developers to promote their ideas through the fund. It also makes the fund attractive to many project developers, and therefore allows to select from a large variety of project ideas.

The lengthy project approval process, and experienced unclarity of project requirements can be considered as weaknesses from the Ukrainian project developers' perspective. Also, the slow overall progress during the first year of the fund weakened the ability to meet the objectives of the Fund, yet the speed has been caught up during later fund period. Further, the small size of the Fund and the fact that so far blending with NEFCO's, or other IFIs', other investment opportunities have not worked out belong to the list of weaknesses identified. Also, the capacity of Ukrainian applicants to prepare proposals to IFIs and similar investors, could be further strengthened.

If FUTF is expected to lead to successful policy changes within the energy sector, partnership with governmental organizations in Ukraine should be expanded from SAEE to multi-ministerial collaboration.

Within opportunities, the high interest in energy efficiency and renewable energy investments in Ukraine strengthen and enlarge the potential project pool also for FUTF. The fund also has potential to create tangible additionality in Ukraine especially through conceptualizing the GIF and by promoting sustainable use of biomass in energy sector. Requirements for Finnish content as part of the Fund also have potential for value added in the light of strengthening commercial and professional partnerships between Finland and Ukraine. Fulfilling all this potential, however, requires careful consideration of how the objectives and results of the efforts are disseminated particularly by SAEE, as engaging right kind of partners and stakeholders is a precondition for any success in these fields.

The threats to fulfilling the project objectives include the current uncertainty with the tariff system and the overall operational environment, which decreases the interest of international and Finnish companies and investors to operate in Ukraine. Also, the COVID-19 pandemic may threaten the implementation of some of the projects within the Fund, especially in cases where Finnish participation in Ukraine or travel of Ukrainians to Finland would be needed.

3.6 Lessons learned

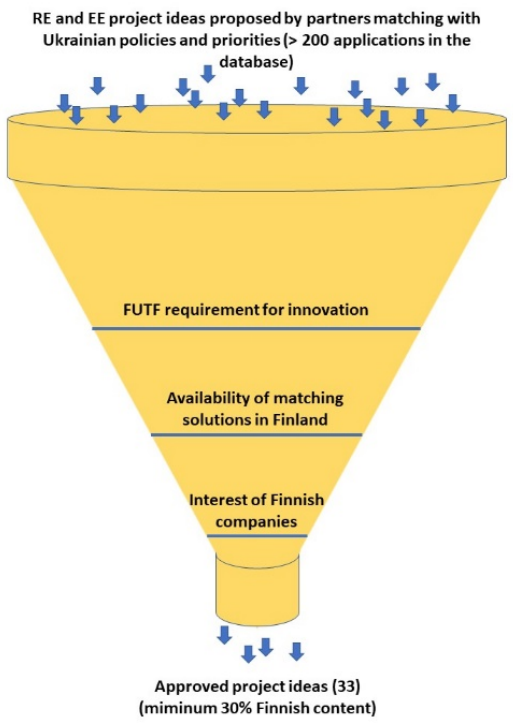

Figure 4. Project funnel with filters

As was discussed in chapter 3.2 the Ukrainian applicants have their view of the objectives and operating principles of FUTF. SAEE representing Ukrainian side and NEFCO and MFA representing Finnish side **have somewhat different understanding of the Fund and what could and should be achieved by it.** MTE has developed Figure 4., a project funnel with filters, as an attempt to visualize these differences in views and expectations.

There has been a high interest in the Fund as is demonstrated by the fact that more than 220 project proposals were lodged in the CMC database in September 2020. NEFCO's strong brand as a supporter of the District Heating sector may have contributed to this interest as well. The applicants, many of which have been city councils or DH Utilities, have prepared proposals that meet the energy efficiency and/or renewable energy priorities of Government of Ukraine policies. The applicants have assumed that mere submission of an application will result in a positive funding decision.

However, FUTF is different both from the other NEFCO trust funds and from the other donor funds. Despite its small size it is a highly ambitious fund and applies unique scoring criteria (the "filters" in Figure 4.). The first, very significant filter is that projects need to be innovative in the context of Ukraine. This means that the project idea must contain a solution, approach, technology or tool that is new to Ukraine. This has ruled out many applications that have applied support for energy efficiency measures or renewable energy technologies that are already widely practiced in Ukraine.

Second filter is based on the requirement of a minimum of 30% Finnish content. This has ruled out applications that have proposed innovative technologies which however are not available in Finland, either because the proposed technology is not commonly applied or there are no manufacturers of such hardware in Finland.

Difficulties experienced in identifying competent and qualified Finnish companies that are interested in working in Ukraine has been the final stumbling block for some applications. However, based on the interviews, the companies that have worked with NEFCO and/or other IFIs have a more positive outlook on working in the Ukrainian market.

It would pay off to revise the project eligibility criteria to acknowledge the fact that FUTF is a partnership between Finland and Ukraine and that it also incorporates business development objectives. Potentially "the project funnel" could be turned upside down and Finnish organizations encouraged to work together with Ukrainian organizations in identifying project ideas that would match the interests of both organizations and fulfil the FUTF criteria of innovativeness. The operating model could be somewhat similar to the Nordic Climate Facility earlier coordinated by NEFCO, encouraging also Finnish organizations to invest in project development by providing funding through calls of proposals rather than tendering out all Finnish contributions to the projects[9]. FUTF could operate as a matchmaker between Ukrainian and Finnish partners.

[9] The MTE understands that the call for proposals-approach for identifying projects was not initially considered because SAEE was expected to be the applicant for the projects and also identify and process applications from other

This would be particularly relevant for later phases of the Fund, i.e. if the Fund capital would grow from the present EUR 6 million.

Another lesson that the MTE has identified deals with the concepts of **innovation and replication.** EMC has preferred to endorse different types of projects, all of which should introduce something new to Ukraine, whether it is a technology, tool or approach. These solutions need to reflect Best Available Technology in Finland though. Replicability is one of the project eligibility criteria for Demonstrative Projects. However, the EMC policy that FUTF can only finance one project per type of technology or approach does not support replicability. In case of a new technology or solution, one project alone is seldom sufficient to lead into a sector wide adoption. Typically, a cluster of projects would be needed.

The **District Heating Utilities** have learned valuable lessons from the projects that will help them **to improve their position in the energy market, competitiveness and profitability**. A common lesson is that the utilities need to continue making improvements in many fields simultaneously: safety issues, management practices, production, infrastructure, customer satisfaction, etc. Twinning type of approach has helped to build capacities of DH utilities in a sustainable way and could be promoted also in later phases of the Fund.

The FUTF **practice of endorsing Pre-Feasibility Studies or Technical Studies** – based on NEFCO experience - is cost-effective. Technical studies help to analyse and compare different technical improvement options and assess benefits of each alternatives for the project early in the investment process. It is useful for an applicant to understand that alternative solutions are not always the least cost option.

4. CONCLUSIONS

The fund is well aligned with the Ukrainian energy sector policies and objectives. It actively contributes to increasing the share of renewables in the Ukrainian energy mix, and it introduces new solutions that could contribute to the national renewable energy and energy efficiency related objectives also at larger scale.

There are numerous donors, IFIs, government agencies and private investors participating in energy sector development in Ukraine. While FUTF is small compared to many other initiatives, it is critical to follow-up other stakeholders' contributions in renewable energy and energy efficiency as NEFCO is mandated to do. If done carefully, FUTF can have a leveraging role in attracting larger investments to innovative energy sector solutions, leading to clear added value of the fund. Communication with other bigger donors does not need to mean active collaboration in their slower investment processes but sufficient follow up of the sector should be maintained. Streamlining of efforts may also help identifying shared goals among donors and other stakeholders, making one's voice louder in negotiation tables when there's a need to receive commitment from other donors or Ukrainian authorities for further investments, for example.

Promotion of Finnish content in FUTF projects is a good way to link development cooperation to private sector development in Ukraine and to internationalization of Finnish companies. Challenges in engaging Finnish companies in FUTF projects, as well as lack of innovative project ideas, indicate that there could be room for new types of promotional activities in Finland, as well as revision of project development cycles allowing Finnish companies to be involved from the beginning of project development processes.

While the FUTF structure allows Ukrainian private companies to have a role in funded projects, the role of private sector has been limited so far. Based on the MTE findings, especially innovative energy efficiency solutions could have great potential among SMEs, for example through energy efficiency improvements with

potential applicants in Ukraine. In practice, SAEE has been one of the applicants but majority of approved projects have been proposed by other Ukrainian organizations.

artificial intelligence. In renewable energy, prosumer (producer + consumer) models could be interesting for both Ukrainian and Finnish private companies.

Among renewable energy options, biomass is the most under-developed sector in Ukraine. The biomass study conducted as part of the FUTF contributes to the subject, and its effectiveness depends on the success of its dissemination efforts. While agricultural residues and by-products consist the most relevant energy feedstocks among biomass, it would be crucial to pay attention also to sustainability of biomass supply chains in general, including also on wood-based energy. FUTF or the future GIF could have a role in promoting guidelines and systems for ensuring sustainability of bioenergy before the sector grows rapidly.

5. RECOMMENDATIONS

The MTE has the following recommendations to the partners:

1) **The MTE supports the recent EMC decision to temporarily stop accepting any new applications for FUTF in Ukraine.** The decision is important in several respects. Firstly, CMC team can focus on clearing the backlog of applications and on providing the much-needed support to the applicants of projects endorsed by EMC to prepare the NEFCO Investment Committee documents that are of required quality for project approval. This step requires working time inputs primarily from the applicant and CMC with support from NEFCO.

   Secondly, it will be equally useful to focus efforts on ensuring that implementation of the approved TA and Demonstrative Projects could start within the next few months. In case of DPs, this step requires concerted efforts by the applicants and CMC in preparing the necessary documents and managing the procurement processes. In case of TA projects, CMC's role in launching and managing the procurement processes is instrumental.

   Thirdly, the allocation rate of FUTF resources in already high (87%) and a large number of important and innovative ideas have been endorsed by EMC. Several TA projects may come up with investment proposals that would be potentially relevant to be financed as Demonstrative Projects from FUTF. It will be useful to keep some funds in stock for FUTF to be able to (co)finance the next step(s) as well. Opportunities for blended financing with NEFCO's or other IFI's/partner's instruments could be considered as well.

2) **NEFCO and SAEE could reconsider the application modalities of FUTF.** A revised modality whereby application processes would be periodic (e.g. every six months) and based on call for proposals would improve the efficiency of fund management. In this context, the role for Finnish companies in project development could be considered. The calls and selection criteria could be purposefully developed for each call to address a particular innovative technology or solution. In case a Finnish company has participated in project development, it should have a possibility to implement the project without a separate tendering process if the project meets the funding criteria and receives funding. This is also expected to encourage more innovative project ideas to be co-developed by Ukrainian and Finnish companies. If needed, a small co-financing requirement could be included to demonstrate the business development aspect of the approach, similar to NCF. The current tendering process for Finnish companies should be maintained for projects where no Finnish partner has had a significant role in project development, or where one is not willing to commit to the co-financing requirements. The recommendation has implications on the Trust Fund Agreement. Therefore, the TFA would need to be revised.

3) **More emphasis is needed on disseminating and communicating information about actual and expected results of FUTF both in Ukraine and in Finland.** Following the recent example of NEFCO, also SAEE would need to publish summaries of the results of the completed projects in its webpage and social media applications to encourage replication of proven solutions and technologies in Ukraine.

4) **NEFCO and CMC should disseminate information about the scope of FUTF and potential financing opportunities to a wider range of Finnish experts and companies.** It may be useful to expand the promotional activities from technical engineers to a wider group of experts somehow relevant to energy efficiency or renewable energy to promote identification of new and innovative solutions. This could be done in cooperation with industrial associations, such as Technology Finland, the Bioenergy Association of Finland, the Finnish Association of Architects, and others.

5) Similarly, **NEFCO and SAEE should consider engaging industrial associations and NGOs in Ukraine to share lessons learned and for potential replication of approaches and technologies.** Among potential collaborators are, for example, the Association of Energy Efficient Cities of Ukraine, the Association of Energy Auditors of Ukraine, School of Energy Efficiency, and NGO EcoClub.

6) **MFA and NEFCO should consider the linkages and potential synergies between FUTF, MFA's other private sector instruments and the support tools of Team Finland network.** A single project in Ukraine could gradually lead into a presence in the market and larger investments in Ukraine for Finnish companies. FUTF projects could generate interesting project leads for Finnpartnership, Business Finland, Finnfund and even IFIs to finance.

7) A lot of time and resources have been allocated on setting up this innovative Trust Fund and on developing its operations further. The Fund has proven its relevance during the initial phase. If FUTF scope on innovation can be developed to address energy efficiency issues beyond traditional engineering approach and if, as a result of implementation of the projects in the present pipeline, a demonstrated need for innovative Finnish solutions exists, **MFA and NEFCO could consider additional financing to the FUTF.**

Annex 1 TOR

Terms of Reference

Mid-Term Evaluation (MTE) of the Finland Ukraine Trust Fund at NEFCO (FUTF)

Dated 17 June 2020

1. Background to the evaluation

Ukraine is, per capita, one of the most energy intensive countries in the world, outpaced only by Middle East oil producing states. Thus, Ukraine has a great potential for energy efficiency improvements even though the energy intensity of Ukraine's GDP has been constantly decreasing over the past years. Ukraine has recently developed an agenda for the energy sector putting strong focus on energy efficiency (EE), including energy efficiency in District Heating. The main policy document, Energy Strategy by 2030, adopted in 2006, follows in principle the objectives of the European Union policies, notably the Europe 2020 strategy. To achieve the objectives of the Energy Strategy 2030, Ukraine requires substantial investments to modernise its infrastructure, increase energy efficiency and improve the quality of public services to promote the country's economic growth.

The State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) is a central executive authority governed and coordinated by the Cabinet of Ministers of Ukraine through the Ministry of Energy and Environmental Protection of Ukraine. It is responsible for the implementation of the state policy in the fields of energy efficiency, renewable energy sources and alternative types of fuel. SAEE has the following strategic goals:

- To reach 11% of renewables in final energy consumption in accordance with the National Renewable Energy Action Plan-2020; by 2035 up tp 25% of energy, produced from RES in the structure of primary energy supply
- To reach -9 % of energy saving comparing to the average final energy consumption in 2005- 2009 in accordance with the National Energy Efficiency Action Plan-2020.

1.1 Finland Ukraine Trust Fund

On 24 January 2017, the Ministry for Foreign Affairs of Finland (MFA) and SAEE signed a Memorandum of Understanding (MoU) on cooperation in the fields of Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. The MFA and SAEE are interested to strengthen the cooperation between Finland and Ukraine and decided to promote the development of cooperation with emphasis on energy efficiency, renewable energy, waste-to-energy and smart energy systems. Cooperation comprises power and heat generation, biofuels, district heating networks and smart energy systems.

In the follow-up of the MoU, the MFA decided to establish a Trust Fund (the Fund) that can finance capacity building, institutional strengthening and demonstration projects in the fields of cooperation agreed in the MoU. Specific attention is paid to SAEE's strategic goals. According to the Trust Fund Agreement between MFA and the Nordic Environment Finance Corporation (NEFCO) (the TFA), NEFCO is responsible for the management and administration of the Fund.

The total funding available amounts to EUR 6 million and funding can be granted to both Technical Assistance (TA) as well as to demonstrative projects that fit the Fund's financing criteria. The implementation period of the Fund is for the time being from 2018 to 2021. The Fund and its activities are described in detail in Annex 1.

2. Rationale, purpose and objectives of the evaluation

In the TFA, the MFA and NEFCO agreed that prior to the end of 2019 NEFCO shall undertake an independent Mid-Term Evaluation (MTE) of the performance and achievements of the Trust Fund activities. Later on, it was commonly decided to postpone the MTE with one year. The purpose of the MTE is to assess the relevance, efficiency, effectiveness, impact and sustainability of the Fund and activities financed by it. The MTE is also expected to assess the overall performance of NEFCO's fund management activities, SAEE´s performance and the technical assistance provided by the Coordination and Management Consultant (CMC) engaged by NEFCO.

The MTE is an independent and external exercise. It is a participatory, open and transparent learning process for all stakeholders. The approach of the MTE shall ensure that all relevant stakeholders are consulted during the Assignment. The MTE is expected to enable NEFCO and the MFA to make informed decisions during the remainder of the Trust Fund implementation period. In addition, the MTE shall also identify and document lessons learned and give recommendations that NEFCO, MFA and other stakeholders may use to improve design and implementation of other related projects and programs.

3. Issues to be addressed and evaluation questions

The main issues should be studied against the evaluation criteria below. The evaluation team may also take up other issues and should not limit the evaluation only to these priority issues.

Relevance

- To what extent is the Trust Fund consistent with the needs and priorities of Ukraine and the beneficiaries of projects financed by the Trust Fund? Are the groups of beneficiaries satisfied with the support modalities, objectives and results of the project(s)?
- Has the relevance changed since the beginning of the Trust Fund? Which conclusions could be drawn with respect to the remaining part of the Trust Fund implementation and in general?
- How well can the Trust Fund support cooperation between Finland and Ukraine, and can measures be taken to enhance this relevance?

Efficiency

- How well have the activities transformed the available resources into intended results in terms of quantity, quality and time? Can the costs of the Trust Fund be justified by the results?
- Quality of technical assistance, including performance of TA projects against ToRs? Quality and quantity of long-term TA provided by the CMC against the scope of the Trust Fund?
- Quality of demonstrative projects against the set objectives, including innovativeness and transfer of BAT technologies?
- Quality of the day-to-day management including coordination and communication? How well are possible problems in implementation addressed? Functioning of the institutional arrangements, including cooperation and communication between stakeholders?

- Quality of monitoring and reporting.

Effectiveness

- To what extent has the Trust Fund achieved its purpose and results or will do so in the future?

Impact

- How well have the projects funded by the Trust Fund succeeded to make progress towards achieving the overall objective(s) of the Trust Fund including the integration of human rights-based approach (do no harm level)?

Sustainability

- What are the possible strengths, weaknesses, opportunities or threats that enhance or inhibit the implementation and achievement of the programme objectives?

- To what extent is it likely that the achievements of the Trust Fund will continue after withdrawal of external support? The analysis shall be broken down by economic, financial, institutional, technical, socio-cultural and environmental sustainability.

4. Methodology

The MTE is seen as a participatory, open and transparent learning process for all stakeholders including the final beneficiaries. It will follow an approach to ensure that all the relevant stakeholders are consulted during the assignment. Defining of methods to be used to gather information and to perform the evaluation is left to the tenderer to propose. The use of multiple methods, both quantitative and qualitative, is recommended. In the Inception Report the Consultant is expected to continue to develop the methodology by producing an evaluation matrix including a detailed description of the methodology that they are going to employ. The review should be done in accordance with OECD/DAC's Evaluation Quality Standards (OECD/DAC Evaluation Network, 2007).

5. Time schedule

The Assignment is expected to start in September 2020 and be completed within 12 weeks of the start of the Assignment. If possible due to the covid-19, the field work will be carried out in Ukraine, mainly in Kyiv but also in other project locations if regarded necessary.

6. Reporting

During the course of the Assignment, the Consultant shall deliver the following reports:

- An Inception Report - within 3 week of the commencement of the Assignment

The Inception Report shall include description of the Consultant's initial findings and conclusions of the desk study, an evaluation matrix and a more detailed description of approach and methodology.

- Draft Final Report - within 9 of the commencement of the Assignment

The Consultant will receive comments to the Draft Final Report within two weeks after the receipt of the Draft Final Report by NEFCO and prepare a Final Report within 12 weeks from the commencement of the Assignment. All comments shall be addressed as necessary in the Final Report.

The reports shall be submitted in the following way: Inception Report shall be submitted to NEFCO electronically in English language; Draft Final and Final Reports shall be submitted to NEFCO electronically in English. The final report will be published at the website of the Ministry for Foreign Affairs of Finland.

7. Expertise required

The Assignment should be carried out by the Consultant and his dedicated in-house or assigned experts with knowledge about energy related issues in Ukraine, with due experience from similar programme evaluations. One expert shall be nominated as the Team Leader. The evaluation team shall ensure solid experience and knowledge in the following fields:

- Programme evaluations in the energy sector;
- Project cycle management (PCM) and Results Based Management (RBM), and their application in programme design, monitoring and evaluation (M&E);
- Relevant sectoral experience, including experience from Eastern Europe and Ukraine in particular;
- Other experience and knowledge relevant to the evaluation; and
- Experience in integrating cross cutting objectives in project planning, implementation, monitoring and evaluation: in particular promotion of human rights, gender equality and non-discrimination.

The Consultant shall be responsible for organizing the site visits, trips and interviews as required for the Assignment. NEFCO will provide assistance to the Consultant as appropriate.

8. Mandate

The evaluation team is entitled and expected to discuss matters relevant to this evaluation with pertinent persons and organizations. However, it is not authorized to make any commitments on behalf of Nordic Environment Finance Corporation (NEFCO) or the Government of Finland.

Annex 1. Finland Ukraine Trust Fund description

1. General

The objective of the Trust Fund is to promote cooperation and identify opportunities for projects, both consultancy services and investments, in the fields of energy efficiency, renewable energy and alternative types of energy sources in power and heat generation and in district heating networks. The funds are not meant to support the use of fossil fuels.

The activities of the Trust Fund will focus on the following segments:

(i) Renewable Energy and Waste-to-Energy
- Integration of Renewable and Waste-to-Energy sources into power systems while ensuring national system stability
- Use of these energy sources in electricity production as well as heating and cooling sectors
- Increasing the share of electricity produced from renewable and waste-to-energy sources
- Efficient logistical arrangements for bioenergy, utilization of waste fuels
- Creation of new national funding instrument for attraction of investments in renewable sector

(ii) Power and heat generation
- Smart energy and power systems, utilizing locally available clean energy sources

(iii) District heating networks; energy efficiency in buildings and industry

(iv) IT solutions and distribution networks

(v) Development of partnerships in the context of multilateral development programs and pro-jects of International Finance Institutions.

1.1 Funding terms

- The total value of the Trust Fund is EUR 6 million and funds will be used exclusively to fund activities that meet the ODA criteria determined by the OECD DAC.
- The procurement of goods and services shall be tied to Finnish content (see below section 2).
- The funds are available for disbursement until the end of 2021.
- Funding for demonstrative projects can be provided as grant funding to Ukrainian public and private with preference to SMEs (small and medium sized enterprises) for both public and private projects.
- Project owners' own contribution is typically required, however technical assistance, such as e.g. consulting and software, can be supported with grant up to 100% of the total cost.
- There is an opportunity to blend the grant with NEFCO's other financing tools – Investment Fund loans, Facilities for Cleaner Production and Energy Saving Credits – in order to achieve a bigger impact.

2. Finnish content

Each project must have a Finnish interest in the form of consulting, supplies or investment as defined by Finnvera from time to time as Finnish content for export credit guarantees. The consultants selected shall be mainly firms registered in Finland.

3. The Results Framework - Trust Fund indicators

The table below shows the progress made towards achieving the objectives of the Trust Fund, as originally agreed between the MFA and SAEE.

Level	Result	Indicator	Target	Assumption	Results as of 31.12.2019
Impact (development objective)	Increased investor confidence in energy sector	Annual investments in RE, EE, W2E and Smart energy systems	Total installed capacity 10,900 MW by 2020 (640 MW/a of electricity based on SAEE calculations): 2,300 MW Solar - 2,280 MW Wind - 950 MW Bioenergy - 5,330 MW Hydro - 20 MW Other	Reforms in several sectors needed	By the end of 2019, the total installed capacity was 11,500 MW[1] 5,478 MW Solar 1,170 MW Wind 170 MW Bioenergy 4,734 MW Hydro
Outcome (immediate objective)	Clean energy policies ratified	# of policies/sub laws	1-3 per year	Availability of credit lines and reforms	-
	National funding instrument for RE	Fund developed and operational	Green Investment Fund (GIF) ratified by end of 2019	Political stability	Green Investment Fund assignment signed.
Output	Consultation on policy design	# of policies received expert support	3-5 during the implementation period of the Fund	Efficient collaboration	One study signed (Biomass study) and another one, Green Investment Fund, signed both include policy issues.
	Consultation on technology and projects feasibility	# of feasibility studies and technology reports	3-5 feasibility studies per year	Relevant topics identified	Four technical assistance projects signed, feasibility studies (Vyshneve, Kamianske, Ukrainka) and pre-feasibility study (Imatran Lämpö DH II).
	New technology introduced	# of pilot projects designed & commissioned	1-2 implemented projects	Matching need and technology	Two demonstration projects signed (Rivne Heat Pump and Volochysk Individual Heat Substation).
	Partnerships with private sector and/or financiers	# of partnerships	1 per year	Political and economic stability; investor confidence	One project signed (Kamyanske - NEFCO - EIB).
	Additional output: Training and transfer of know-how	*# workshops and study tours*	*2 workshops & 1 study tour per year*		Seminar on Biomass study´s results together with experience transfer between Ukrainian and Finnish companies in bioenergy sector. "Seminar on knowledge transfer of Finnish and Ukrainian District Heating systems" as a part of Kamyanets-Imatra twinning project. Two projects approved: General (SAEE's and other stakeholders' travel costs); Business trips and capacity building for SAEE. Two training sessions to SAEE's EMC members in connection to EMC meetings.
	Additional output: Finnish content	*% of Finnish content in each project*	*Min 30%*		All projects are required to have Finnish content. In addition, two projects on transfer of Finnish know-how signed (Kamyanske-Imatra and Biomass study).

[1] Figures based on SAEE calculations

4. Responsible Management Bodies

For the management of the Fund and to support the preparation and development of suitable and eligible projects the following structure has been established.

4.1 SAEE - Ukrainian Coordination

The main coordinator in Ukraine is the State Agency on Energy Efficiency and Energy Saving (SAEE), which will search for and propose projects for implementation.

SAEE shall in cooperation with a Coordination and Management Consultant (referred to as CM Consultant):

(i) Identify project opportunities in the Trust Fund's agreed fields of cooperation.
(ii) Identify new opportunities for policy support and institutional strengthening, to be financed by the Trust Fund.
(iii) Review and assess Indications of Interest of projects, submitted by potential beneficiaries/partners. Propose suitable grant or mixed grant and credit funding to facilitate implementation.
(iv) Prepare project proposal submissions and presentations to the Evaluation and Monitoring Committee (EMC)
(v) Present project proposals to the EMC, together with the CM Consultant.

4.2 Evaluation and Monitoring Committee (EMC)

The EMC is composed of representatives from SAEE and NEFCO; the MFA may act as an observer. The EMC has the following main tasks:

(i) to evaluate project proposals prepared by SAEE and CM Consultant and presented for EMC approval by the CM Consultant
(ii) to recommend project proposals to NEFCO Investment Committee for further preparations and approval
(iii) to review and approve, with the support of the CM consultant, project progress and completion reports submitted by the project developers/owners

The EMC will have regular meetings, minimum two times a year. Meetings can be held also via videoconferencing and via exchange of e-mails. Minimum one representative from both SAEE and NEFCO needs to be present to constitute a quorum. Decisions shall be made by unanimous vote.

4.3 Coordination and Management Consultant (CM Consultant)

The CM Consultant provides Technical Assistance (TA) for the Trust Fund. TA involves technical expertise to help identify, design, procure, implement and supervise projects and TA service providers. CM Consultant is mainly in charge of the management and monitoring of the approved projects. The CM Consultant also acts as secretary to the EMC meetings and is responsible for calling the meetings and for preparing and distributing the meeting material.

The Consultancy Agreement for CM Consultant Services for Finland Ukraine Trust Fund between NEFCO and FCG Finnish Consulting Group was signed on 8 May 2018. Two of the key team members in FCG´s team left the company on 1 October 2019 to Elomatic Oy and have since then been working as sub-consultants for FCG on the assignment with NEFCO´s no-objection. As of 21 May 2020, Elomatic Oy is acting as the CM Consultant for the Trust Fund.

4.4 NEFCO Investment Committee (N-IK) and MFA´s role

In accordance with the Trust Fund Agreement, the activities and projects to be funded by the Trust Fund shall be approved by NEFCO's Investment Committee (N-IK); additionally the MFA will approve projects on a no-objection basis.

5. Status of the Trust Fund

The Trust Fund was officially kicked off in Kyiv on 23 May 2018. At the same occasion, NEFCO and the State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE) signed a Cooperation Agreement for the identification and implementation of projects under the Trust Fund. Thus, CM Consultant and SAEE work closely together for identification and pre-evaluation of the project applications. By the end of May 2020, EMC has had seven EMC meetings and approved twenty-five projects out of which twelve projects have been approved by N-IK, two project has been completed and four projects have been removed from the pipeline by EMC. Majority of the approved projects are relatively small consultancy assignments.

In the end of May 2020, the project portfolio included three demonstration projects and 18 technical assistance projects. The projects are listed in Table 1 below.

Table 1. Trust Fund project list

	Project name	Beneficiary	Grant allocation (EUR)[2]	Disbursed	Status as of 12.5.2020
1.	General (SAEE's travel costs to EMC meetings in Finland and project stakeholders' visits to Finland)	SAEE	20,000	9,958	Approved at N-IK 4.9.2018 Implementation on-going
2.	Business Trips and Capacity Building for SAEE	SAEE	20,000	3,864	Approved at EMC #1 Approved at N-IK 6.11.2018 Implementation on-going
3.	Ukrainka Alternative Heat Supply - Pre-feasibility study	Ukrainka City Council	50,000	49,944	Approved at EMC #2 Approved at N-IK 11.3.2019 **Project completed**
4.	Finnish days at the Ukrenergo Labs (TA Capacity Building Project)	State Enterprise "National Energy Company "Ukrenergo"	*46,000*		Approved at EMC #2
5.	Identification of potential for new biomass-to-energy facilities, develop the pipeline of projects and feasibility study development (SAEE)	SAEE	170,000	136,000	Approved at EMC #2 Approved at N-IK 2.7.2019 Contract signed 7.10.2019. Implementation on-going.
6.	Feasibility Study development for rehabilitation of the District Heating System in the city of Vyshneve	Communal Enterprise "Vyshnivskteploenergo"	100,000	80,000	Approved at EMC #2 Approved at N-IK 11.3.2019 Contract signed 3.9.2019. Implementation on-going.
7.	Feasibility Study development for thermo-modernization of public buildings in the city of Kamyanske	Kamyanske City Council	120,000	12,000	Approved at EMC #2 Approved at N-IK 11.3.2019 Contract signed 18.11.2019. Implementation on-going.
8.	Reconstruction of Hot Water Supply for 2 Dormitories with Geothermal Heat Pumps	National University of Water and Environmental	145,000		Approved at EMC #2 Approved at N-IK 11.3.2019. Contract signed 2.7.2019. Tendering on-going.

[2] Grant allocations approved at EMC meetings should be considered indicative and are subject to further assessment and approval by NEFCO's Investment Committee.

		Engineering (NUWEE)			
9.	Installation of IHS in previously thermally modernised school in Volochysk	Volochysk City Council	50,000		Approved at EMC #3 Approved at N-IK 18.6.2019. Contract signed 19.9.2019. Tendering on-going.
10.	Green Investment Fund of Ukraine (Business Plan)	SAEE	322,000	49,564	Approved at EMC #3 Approved by N-IK 19.9.2019 Contract signed 22.1.2020. Implementation on-going.
11.	Feasibility Study for Landfill Gas	SAEE	*90,000*		Approved at EMC #3
12.	Hydraulic Modelling & GIS for public DH Utility - Ternopilmiskteplo-komunenergo	Public Utility of District Heating Networks "Ternopilmiskte-plokomunenergo"	120,000		Approved at EMC #3 Approved by N-IK 19.11.2019 Procurement on-going.
13.	Solar power station construction on the rooftop of School №60 in Mykolaiv city	Mykolaiv city	*87,000*		Approved at EMC #4
14.	Feasibility Study for Lviv Municipal Wastewater Treatment Plant Sludge Utilization and Regional Farms Biogas Production Potential	Lviv Regional Administration	*74,500*		Approved at EMC #4
15.	Biofuel CHP (2.5 MWe) in Myrhorod - Feasibility Study	Myrhorod city council	*70,000*		Approved at EMC #4
16.	Kamyanets-Podilskiy - Imatra District Heating Twinning Programme	Imatran Lämpö Oy / Public Utility "Miskteploenergiya"	35,000	32,501	Approved at EMC #4 Approved at N-IK 2.7.2019. **Project completed.**
17.	Pre-feasibility Study on energy saving solutions for "Miskteploenergiya"	Imatran Lämpö Oy / Public Utility "Miskteploenergiya"	35,000	5,000	Approved at EMC #5 Approved at N-IK 20.1.2020 Contract signed 3.2.2020. Implementation on-going.
18.	Research - Lignin Pellets	LLC "IMMIDZH-TOMALESK"	*144,000*		Approved at EMC #6
19.	Opportunities for Demand Response in Ukrainian Irrigation and lift pumping stations: A Scoping Study	State Enterprise "National Energy Company "Ukrenergo"	*120,000*		Approved at EMC #6
20.	Study – District Heating System planning considering significant disconnection tendency in Ukraine	Utility Enterprise "Tokmac teplenergiya" TMR	*40,000*		Approved at EMC #6
21.	Upgrading of Antonivka School in Kherson City	Educational Department of the Kherson City Council	*62,700*		Approved at EMC #7
		Total approved by EMC, not yet approved by N-IK	**2,019,200**		
		Of which approved by N-IK	**1,157,000**		
		Total disbursed to projects		**379,834**	

By the end of May 2020, EUR 2,019,200 has been allocated by EMC to different projects, EUR 1,157,000 has been approved by N-IK and EUR 379,834 has been disbursed to projects. Total disbursements reach EUR 854,993 including CM Consultant and NEFCO management fees.

6. Reporting practices

Various reports are prepared by the CM Consultant and NEFCO within the Trust Fund.

The CM Consultant prepares following reports to NEFCO:

- Quarterly reports on the assignment's progress
- Completion Assignment Reports addressing relevant information on each completed project
- Annual Reports covering the activities of the Trust Fund during the year

In addition to the above mentioned reports, different documents are prepared by the CM Consultant in connection to EMC meetings and procurement activities. The CM Consultant prepares the EMC meetings´ invitations, meeting materials and minutes. Procurement documents prepared by the CM Consultant include Terms of Reference, Request for Proposal, tender documents for demonstration projects and Tender Evaluation Reports. All these documents and reports are being reviewed and commented by NEFCO.

NEFCO is reporting to MFA on the Trust Fund activities. An Annual Report covering the activities of the Trust Fund is prepared for MFA. In addition, NEFCO prepares ad-hoc reports to MFA on the Trust Fund´s activities and projects for example in connection to ministerial meetings and business trips. On project level, NEFCO submits each project´s Investment Committee meeting material to MFA for approval (no-objection).

Annex 2 Documents Reviewed

Finland Ukraine Trust Fund

1. Memorandum of Understanding in the Fields of Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources between the State Agency on Energy Efficiency and Energy Saving of Ukraine and the Ministry for Foreign Affairs of the Republic of Finland, January 24, 2017
2. Finland Ukraine Trust Fund at NEFCO. Description of Fund activities. Helsinki 2 November 2017 (annexed to Trust Fund Agreement and Cooperation Agreement)
3. Trust Fund Agreement between Ministry for Foreign Affairs of Finland as the Contributor and Nordic Environment Finance Corporation (NEFCO) as the Fund Manager for the management and disbursement of funds, made available by the Ministry for Foreign Affairs of Finland for the purpose of financing projects on Energy Efficiency, Renewable Energy and Alternative Type of Energy Sources in Ukraine, 29 November 2017
4. Finland Ukraine Trust Fund Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. Human Rights Report. FGC Design and Engineering 28.9.2018
5. Finland Ukraine Trust Fund at NEFCO. Annual Report 2018. Final 8 April 2019
6. Cooperation Agreement between State Agency on Energy Efficiency and Energy Saving in Ukraine (SAEE) and Nordic Environment Finance Corporation (NEFCO) for the identification and implementation of projects on Energy Efficiency, Renewable Energy and Alternative Type of Energy Sources in Ukraine with funding made available by the Ministry for Foreign Affairs of Finland, dated 23 May 2018
7. Finland Ukraine Trust Fund at NEFCO. Annual Report 2019. Final 30 March 2020
8. 1st Amendment to the Trust Fund Agreement (correspondence between NEFCO and MFA 2019).
9. EMC meeting invitations and materials and meeting minutes # 1 – 8, meetings organized on 25 September 2018, 13 December 2018, 26 April 2019, 14 June 2019, 29 October 2019, 20 February 2020, 23 April 2020 and 9 June 2020
10. FUTF Pipeline, status 20.10.2020
11. FUTF Financial Report (8.6.2018-3.9.2020)
12. NEFCO Finland Ukraine Trust Fund https://www.nefco.org/fund-mobilisation/funds-managed-by-nefco/finland-ukraine-trust-fund/ accessed on 16 September 2020

Coordination and Management Consultant

13. Finland Ukraine Trust Fund at NEFCO. Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. Trust Fund Monitoring Services. Terms of Reference for rendering Coordination and Management Consulting Services, 15 January 2018
14. Consultancy Agreement with NEFCO and FCG Finnish Consulting Group Oy for services related to the management and coordination of the Finland Ukraine Trust Fund, 8 May 2018
15. Addendum no. 1 to Consultancy Agreement. Relating Consultancy Agreement originally signed on 8 May 2018 for providing services related to the management and coordination of the Finland Ukraine Trust Fund, 28 February 2019
16. Finland Ukraine Trust Fund Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. Coordination and Management Consulting Services. Quarterly Reports Q3-4/2018, Q1-4/2019 and Q1-Q3/2020.

17. Finland Ukraine Trust Fund Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. Coordination and Management Consulting Services. Annual reports 2018 and 2019
18. Finland Ukraine Trust Fund. Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources: Coordination and Management Consulting Services. Assignment Completion Report. FCG Finnish Consulting Group Oy, 1.6.2020
19. Finland Ukraine Trust Fund at NEFCO. Energy Efficiency, Renewable Energy and Alternative Types of Energy Sources. Trust Fund Monitoring Services. Terms of Reference for rendering Coordination and Management Consulting Services, 6 March 2020
20. Consultancy Agreement with NEFCO and Elomatic Oy for services related to the management and coordination of the Finland Ukraine Trust Fund, 29 April 2020

Projects

21. Ukraine **Biomass FS** – Final Approval. NEFCO Investment Committee 03.2.2019
22. VTT 2020. Customer Report (Final). Development of Opportunities for Utilization of Biomass Residues in the Renewable Sector of Ukraine. VTT-R-00082-20, 15.6.2020
23. **Vyshneve DH** – Final Approval. NEFCO Investment Committee 11.3.2019
24. Planora Oy 2020. Feasibility Study Development for Rehabilitation of the District Heating System in the City of Vyshneve. Baseline Study and Technical Assessment. May 2020
25. **Kamyanske EE** – Final Approval. NEFCO Investment Committee 11.3.2019
26. Feasibility study development for thermo-modernization of Public Buildings in the City of Kamyanske. Final Feasibility Study. Nomine Consult, Vilnius 2020
27. **Rivne Domestic Hot Water** – Final Approval. NEFCO Investment Committee 11.3.2019
28. **Volochysk** – Final Approval. NEFCO Investment Committee 18.6.2019
29. **Imatran Lämpö DH Twinning** – Final Approval. NEFCO Investment Committee 2.7.2019
30. Imatran Lämpö. Final Report for Twinning between Public Utility ”Miskteplovodenerhiya” and Imatran Lämpö Oy, December 19,2019
31. **Imatran Lämpö DH II** – Final Approval. NEFCO Investment Committee 20.1.2020
32. Imatran Lämpö. Technical Study for Energy Efficiency Measures at the Miskteplovodenerhiya DH plants. Final Report. June 30, 2020.
33. Technical Study to investigate the possibility of installation condensers on solid fuel boiler (Imatran Lämpö II). Project Completion Report
34. Pre-Feasibility Study for **Ukrainka Alternative Heat Supply**. Final Report. Pöyry, April 3, 2020
35. Feasibility Study of alternative heat supply for Ukrainka City, Project Completion Report, 2020
36. **Ukraine Green Investment Fund** – Final Approval. NEFCO Investment Committee 19.9.2019
37. Terms of Reference (TOR). Consultancy Services for a study supporting the development of a Green Investment Fund in Ukraine, 13 September 2019
38. Climate Wedge Oy and Sigra Group AS 2020. Draft Study Report. Green Investment Fund Ukraine, June 2020
39. **Kherson School II** – Final Approval. NEFCO Investment Committee 15.6.2020
40. **Kramatorsk and Melitopol Landfill Gas** – Final Approval. NEFCO Investment Committee 10.7.2020
41. **Lviv Region Biogas**– Final Approval. NEFCO Investment Committee 24.8.2020

42. **RADA Biogas** – Final Approval. NEFCO Investment Committee 21.9.2020
43. **Ukrenergo Demand Response** - Final Approval. NEFCO Investment Committee 5.10.2020
44. **Volyn Diagnostic Laboratory Building** – Final Approval. NEFCO Investment Committee 19.10.2020

Government of Ukraine

45. State Agency on Energy Saving and Energy Efficiency of Ukraine, http://saee.gov.ua/en accessed on 16 September 2020

Government of Finland

46. MFA 2011. Wider Europe Initiative. Finland's Development Policy Framework Programme. Implementation Plan for 2011-2014, December 2011
47. MFA 2016. Finland's Development Policy: One World, common future – towards sustainable development. Government report to Parliament, 4 February 2016
48. MFA 2017. *Ukraina, NEFCO/Ukrainan energiatehokkuutta, uusiutuvaa energiaa ja vaihtoehtoisia energialähteitä tukeva Suomen rahasto, Hanke-esitys UH2017-033678, UHA2017-004452, 86501358, 15.7. 2017, ITÄ-20 Hyrkkänen Minni* [Project proposal for MFA Quality Group Approval, July 2017, prepared by Unit for Eastern Europe and Central Asia]
49. MFA 2017. *Ukraina, NEFCO/Ukrainan energiatehokkuutta, uusiutuvaa energiaa ja vaihtoehtoisia energialähteitä tukeva Suomen rahasto, lausunto laaturyhmälle UH2017- 035202, 86501358, 23.9.2017, Horn Henri, Toimialapolitiikan yksikkö* [Asssessment of the Proposal and Statement to the MFA Quality Group, September 2017, prepared by Unit for Sectoral Policy]
50. MFA 2018. Strategy for Development Cooperation Ukraine 2018-2022.
51. MFA. Development Cooperation in Ukraine. https://um.fi/ukraine accessed on 16 September 2020
52. MFA. Goals and principles of Finnish Development Cooperation Policy. https://um.fi/goals-and-principles-of-finland-s-development-policy Accessed on 15 October 2020

Others

53. Aarva P (ed.) 2011. *Suomen ja Venäjän välinen lähialueyhteistyö vuosina 2004–2009. Evaluaatio-raportti.* [Evaluation Report of the neigbbouring area cooperation between Finland and Russia during 2004-2009]. Impact Consulting Oy. Evaluation commissioned by MFA Finland.
54. Association of Energy Efficient Cities of Ukraine, https://enefcities.org.ua/en/ Accessed on 27 October 2020
55. Association of Energy Auditors of Ukraine https://aea.org.ua/ Accessed on 27 October 2020
56. EBRD in Ukraine https://www.ebrd.com/ukraine.html Accessed on 27 October 2020
57. EIB. Ukraine and EIB. https://www.eib.org/en/projects/regions/eastern-neighbours/ukraine/index.htm Accessed on 27 October 2020
58. FCG Finnish Consulting Group 2012. Mid-Term Evaluation of the Wider Europe Initiative. Final Report. September 2012. Evaluation commissioned by MFA Finland.
59. IEA 2020. Ukraine Energy Profile, April 2020. https://www.iea.org/reports/ukraine-energy-profile Accessed on 25 October 2020.
60. NEFCO 2020. NEFCO Annual Report 2019
61. NGO EcoClub. https://ecoclubrivne.org/ Accessed on 27 October 2020
62. School of Energy Efficiency. http://see.org.ua/en/ Accessed on 27 October 2020
63. USAID in Ukraine. https://www.usaid.gov/ukraine Accessed on 27 October 2020

64. Ukraine Municipal Infrastructure Programme (UMIP). http://umip.org.ua/en/modernization-of-the-district-heating-systems-in-the-city-kamyanske-former-dniprodzerzhynsk-2/ Accessed on 25 October 2020

65. World Bank Country overview Ukraine. https://www.worldbank.org/en/country/ukraine/overview#3 Accessed on 30 October 2010

Annex 3 Persons interviewed

KEY STAKEHOLDERS INVOLVED IN TRUST FUND MANAGEMENT

NEFCO

1. Ms Helena Lähteenmäki, Investment Director, Project Director (FUTF)
2. Ms Vivi Avikainen, Investment Manager, Project Manager (FUTF)
3. Mr Amund Beitness, Investment Director, member of NEFCO Investment Committee
4. Mr Ulf Bojö, Vice President, member of NEFCO Investment Committee
5. Mr Ronny Nilsson, Senior Adviser, District Heating
6. Mr Alexey Kapustinskiy, Programme Officer (FUTF)

MFA

7. Mr Jouko Eskelinen, Adviser, development policy and Desk Officer, development cooperation projects
8. Mr Juhani Toivonen (retired, former Ambassador and Senior Adviser for development cooperation)
9. Ms Anu Hassinen, Senior Energy Advisor
10. Ms Minni Hyrkkänen, Programme Officer

Embassy of Finland, Ukraine

11. Ms Maria Ågren, Councellor

State Agency on Energy Efficiency and Renewable Energy (SAEE)

12. Mr Kostiantyn Gura, Acting Head of Agency
13. Ms Mariia Malaia, Head of legal department

Elomatic Oy, Coordination and Management Consultant

14. Mr Jarkko Olkinuora, International Team Leader
15. Ms Katazina Andrukonyte, Technical Expert
16. Mr Andrei Levkonyuk, Local Team Leader
17. Ms Natalia Potomkina, Local Project Coordinator, CMC

COMPANIES IN FINLAND

AFRY (Pöyry) Finland Oy

18. Mr Pekka Ruohonen, Project Manager

Ax Process Oy

19. Mr Jarmo Hellstedt, CEO
20. Ms Henna Nurminen, Expert

Climate Wedge Oy

21. Mr Kristian Bruning, CEO

Elemenco Oy

22. Mr Jani Vartiainen, Project Manager

Imatran Lämpö Oy

23. Mr Vesa-Pekka Vainikka, Managing Director

Planora Oy

24. Mr Esa Teppo, Managing Director

SWECO Structures Ltd
25. Mr Kari Nöjd, Project Manager

VTT
26. Mr Matti Virkkunen, Project Manager

Other
27. Herkko Lehdonvirta, consultant

BENEFICIARIES IN UKRAINE

Kamianske City Council
28. Mr Oleksandr Ivanovych Skakun, Associate Head of Economic Development Department

Ternopilmiskteplokomunenergo
29. Mr Vitalii Grubeuk, Chief engineer, Director

Kherson City Council, Educational Department
30. Mr Olexander Skorohod, representative of the Ukrainian subcontractor

Ukrainka City Council
31. Mr Volodymyr Petrovych Lutsenko, First Deputy of Mayor

INTEGRITES, ATTORNEYS' AMALGAMATION
32. Mr Oleg Zahnitko, Managing Partner

Volochysk City Council
33. Ms Iryna Volodymyrivna Dzionyk, Head of the department

Myrhorod City Council
34. Ms Tetiana Usyk, Head of energy management department

National University of Water and Environmental Engineering (NUWEE)
35. Mr Pavlo Leonidovych Samoilov, Adviser to the Deputy Pro-Rector

State Enterprise "National Energy Company "Ukrenergo"
36. Ms Oksana Mykolaivna Chikalo, Head of Social Responsibilities Department

INTERNATIONAL INVESTORS AND DONORS

European Investment Bank
37. Adam Bruun, Principal Adviser, Public Sector East Lending Operations in EU Neighbouring Countries
38. Alexander Antonyuk, Energy Economist
39. Andriy Parinov, Consultant to EIB

European Union
40. Torsten Woellert
41. Krzysztof Gierulski

IFU - Investment Fund for Developing Countries (Denmark)
42. Olexiy Parkhomchuk, Investment Director Ukraine

Annex 4 Project Summary

Table 1 Projects completed (source: FUTF Pipeline 20 October 2020)

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
1. Ukrainka Alternative Heat Supply – Pre-Feasibility Study, UKR006	Ukrainka City Council	EMC # 2, 18.12.2018	100 000	11.3.2019	50 000	49 944	Completed	Pöyry Finland Oy
2. Identification of potential for new biomass-to-energy facilities, develop the pipeline of projects and feasibility study development, KYI037	SAEE	EMC # 2, 18.12.2018	250 000	2.7.2019	170 000	170 000	Completed	VTT Technical Research Centre of Finland Ltd
3. Feasibility Study development for rehabilitation of the District Heating System in city of Vyshneve, VYS040	Communal Enterprise "Vyshnivskteplo-energo"	EMC # 2, 18.12.2018	100 000	11.3.2019	100 000	100 000	Completed	Planora Oy
4. Feasibility Study development for thermomodernization of public buildings in the city of Kamyanske, KAM035	Kamyanske City Council	EMC # 2, 18.12.2018	120 000	11.3.2019	120 000	119 842	Completed	Nomine Consulting (Lithuania) and Sweco Structures Ltd (Finland)

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
5. Green Investment Fund of Ukraine, TOR for Business Plan development, NAT-008 TA	SAEE	EMC # 3, 4.4.2019	325 000 out of which 22 000 for TOR devt.	2.7.2019	22 000	20 864	Completed	Consultant H Lehdonvirta
6. Kamyanets-Podilskiy – Imatra District Heating Twinning, KHM-010-TA	Imatran Lämpö Oy & Public Utility "Miskteploener-giya"	EMC # 4, 14.6.2019	35 000	2.7.2019	35 000	32 501	Completed	Imatran Lämpö Oy
7. Pre-feasibility Study on energy saving solutions for "Miskteploenergiya, KHM-011-TA	Public Utility "Miskteploener-giya"	EMC # 5, 15.10.2019	30 000	2.7.2019	35 000	35 000	Completed	Imatran Lämpö Oy

Table 2 Projects approved by N-IK (source: FUTF Pipeline 20 October 2020)

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
1. General (SAEE's travel costs to EMC meetings in Finland and project stakeholders' visits to Finland), NAT009	SAEE	n/a, 4.9.2018	-	4.9.2018	20 000	9 958	Ongoing	n/a
2. Business Trips and Capacity Building for SAEE, NAT004	SAEE	EMC # 1, 25.9.2018	20 000	6.11.2018	20 000	4 867	Ongoing	n/a

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
3. Demonstrative project – Reconstruction of Hot Water Supply for 2 Dormitories with Geothermal Heat Pumps, RIV021 Increase of funds - Reconstruction of Hot Water Supply for 2 Dormitories with Geothermal Heat Pumps, RIV021 (RIV-001-1-DP)	National University of Water and Environmental Engineering	EMC # 1, 25.9.2018 & EMC # 7, 23.4.2020	130 000 & 30 000	11.3.2019 & 15.6.2020	145 000 (115 000+30 000)	-	Ongoing; Grant agreement signed 2.7.2019., Tendering done, Construction contract signing in process	-
4. Demonstrative project – Installation of IHS in previously thermally modernised school in Volochysk, KHM-009-DP	Volochysk City Council	EMC # 3, 4.4.2019	25 000	18.6.2019	50 000	-	Ongoing; Agreement signed 19.9.2019, extension letter signed 13.8.2020, tendering ongoing	-
5. Green Investment Fund of Ukraine (Business Plan) NAT-008-TA	SAEE	EMC # 3, 4.4.2019	325 000 out of which 302 000 for Business Plan	19.9.2019	300 000	86 100	Ongoing since January 2020	Climate Wedge Oy

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
6. Hydraulic Modelling and GIS for public DH Utility – Ternopilmiskteplokomun-energo, TRN-002-TA	Public Utility of District Heating Networks Ternopilmiskteplo-komunenergo	EMC # 4, 28.6.2019	120 000	19.11.2019	120 000	0	Ongoing since June 2020	AX-Process
7. Demonstration Project – Upgrading of Antonivka School in Kherson City, KHE-002-DP	Educational Department of the Kherson City Council	EMC # 7, 23.4.2020	62 700	15.6.2020	70 000	47 000	Ongoing, Contract signed in July 2020	Elemenco Oy
8. Feasibility Study for Kramatorsk and Melitopol Landfill Gas, NAT-010-TA	SAEE	EMC # 3, 4.4.2019	90 000	10.7.2020	90 000	-	-	-
9. Feasibility Study for Lviv Municipal Wastewater Treatment Plant Sludge Utilization and Regional Farms Biogas Production Potential, LVI-006-TA	Lviv Regional Administration	EMC # 4, 14.6.2019	74 500	24.8.2020	95 000	-	Tendering ongoing	-
10. Feasibility Study and Environmental and Social Audit for Construction of Biogas Facility for utilization of organic waste and chipping machinery for utilization of mixed solid residues waste, KVO-010-TA	Specialized Environmental Enterprise “Rada”	EMC # 8, 9.6.2020	135 000	28.9.2020	135 000	-	-	-

Project name and number	Beneficiary	EMC approval		N-IK approval		Disbursements, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
11. Opportunities for Demand Response in Ukrainian Irrigation and lift pumping stations: A Scoping Study, KVC-013-TA	State Enterprise "National Energy Company" Ukrenergo	EMC # 6, 21.1.2020	120 000	5.10.2020	120 000	-	-	-
12. Demonstration Project – Design, construction, delivery and erection of prefabricated modern diagnostic laboratory for Volyn Regional Children's Territorial Medical Center (COVID-19 response), NAT-018-DP	Volyn Regional Children's Territorial Medical Center	EMC # 8, 9.6.2020	500 000	19.10.2020	600 000	-	-	-

Table 3 Projects approved by EMC (source: FUTF Pipeline 20 October 2020)

Project name and number	Beneficiary	EMC approval		N-IK approval		Disburse-ments, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
1. Finnish days at the Ukrenergo labs (TA Capacity Building Project), KYI032	State Enterprise "National Energy Company" Ukrenergo	EMC # 2, 18.12.2018	46 000	-	-	-	-	-

Project name and number	Beneficiary	EMC approval		N-IK approval		Disburse-ments, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
2. Demonstrative Project - Solar Power station construction on the rooftop of School No. 60 in Mykolaiv City, MYK-004 DP	Mykolaiv City	EMC # 4, 14.6.2019	87 000	-	-	-	-	-
3. Biofuel CHP (2.5 MWe) in Myrhorod – Feasibility Study POL-005-TA	Myrhorod City Council	EMC # 4, 14.6.2019	70 000	-	-	-	-	-
4. Research – Lignin Pellets, ZPR-004-TA	LLC "IMMIDZH-TOMALESK"	EMC # 6, 21.1.2020	144 000	-	-	-	-	-
5. Study – District Heating System Planning considering significant disconnection tendency in UA, KVC-013-TA	Utility Enterprise "Tokmak teplene-riya" TRM	EMC # 6, 21.1.2020	40 000	-	-	-	-	-
6. Energy Management of Aviation Infrastructure of Ukraine as the way for Decarbonization, KVC-021-TA	European-Ukrainian Energy Agency (EUEA)	EMC # 8, 9.6.2020	54 000	-	-	-	-	-
7. Introduction of new biomass types in biomass market and introduction of fuel quality assurance mechanism in in Ukraine, NAT-105-TA	SAEE	EMC # 8, 9.6.2020	120 000	-	-	-	-	-
8. Development of the Ukraine transition to circular economy concept, NAT-106-TA	SAEE	EMC # 8, 9.6.2020	120 000	-	-	-	-	-

Project name and number	Beneficiary	EMC approval		N-IK approval		Disburse-ments, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
9. Apros ® (dynamic simulator) utilization as Training simulator, KVC-022-TA	TeploEnergoGroup	EMC # 8, 9.6.2020	150 000	-	-	-	-	-
10. Feasibility study of the construction of a peak reserve gas piston power plant with a capacity of 100 MW in Pervomaisk, Kharkiv Region, KHA-003-TA	LLC Research and Production Association "Ther-mosystems"	EMC # 8, 9.6.2020	300 000	-	-	-	-	-
11. Assistance to the policy makers in improvement of the Independent Power Project (IPP) Framework enabling increase of RES share in Ukrainian United Energy System (UES), KVC-016-TA	INTEGRITES, ATTORNEYS' AMALGAMATION	EMC # 8, 9.6.2020	200 000	-	-	-	-	-
12. Consulting services on the development of a Model BOO Agreement for the RES Integration PPP tenders, KVC-017-TA	INTEGRITES, ATTORNEYS' AMALGAMATION	EMC # 8, 9.6.2020	49 000	-	-	-	-	-
13. Technical Feasibility Study for a Biodiesel Plant, KVC-018-TA	UMG Investments LLC	EMC # 8, 9.6.2020	110 000	-	-	-	-	-

Project name and number	Beneficiary	EMC approval		N-IK approval		Disburse-ments, EUR	Project status	Finnish partner
		Meeting	Grant, EUR	Meeting	Grant, EUR			
14. Mobilisation support for new plant O&M (e.g. procedures, practices, IT tools, external services) + pre-feasibility study for rehabilitation, KHA-007-TA	Public Utility "Kharkivski teplovi merezhi"	EMC # 8, 9.6.2020	70 000	-	-	-	-	-

Table 4 Project approvals cancelled by EMC (source: FUTF Pipeline 31 August 2020)

Project name and number	Beneficiary	EMC decisions	Amount of cancelled grant, EUR	Reason for removal
Energy Storage System Development for Renewables Integration: technical, legal and market aspects – BAT analysis, legal and market study, KYI038	SAEE	Approval: EMC # 2, 15.10.2019 Cancellation: EMC # 5, 15.10.2019	400 000	Overlapping assignment initiated by other IFIs (World Bank/ICF Ukraine Storage, ref "B8996-08/19
Technical Assistance for municipally owned ESCO company in Pokrovsk City, POK036	Pokrovsk City Council	Approval: EMC # 2, 15.10.2019 Cancellation: EMC # 5, 15.10.2019	50 000	Funds attracted from another source (UNDP), not relevant anymore for FUTF
Feasibility Study of Energy Efficiency Measures – Business Hub in Kyivska Oblast, KVC-005-TA	First Dnipro Investment Company LLC	Approval: EMC # 3, 4.4.2019 Cancellation: EMC # 5, 15.10.2019	90 000	No progress made by the Applicant.
Feasibility Study for implementation of a two-stage process of recycling solid waste including energy focus	Kyivspetstrans PJSC	Approval: EMC £ 3, 4.4.2019, Cancellation: EMC # 6, 21.1.2020	150 000	ESIA needs to be done before a Feasibility Study.

Annex 5 FUTF Result Framework

Table below presents the Revised Results Framework (15 Apr 2019) and achievements of FUTF (by October 2020).

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
Impact (development objective):					
Increased investor confidence in energy sector	Annual investments in RE, EE, W2E and Smart energy systems	Total installed capacity 10 900 MW by 2020 (640 MW/a of electricity based on SAEE calculations): 2 300 MW solar, 2 280 MW wind, 950 MW bioenergy, 5 330 MW hydro, 20 MW Other	By the end of 2019, the total installed capacity (figures based on SAEE calculations) was 11 500 MW: 5 478 MW solar, 1 170 MW wind, 170 MW bioenergy, 4 734 MW hydro	Reforms in several sectors needed	The achievements reported are a result of the existing Government of Ukraine policies and activities of private and public sector project developers and financiers (national and international). FUTF has not yet made any contributions to the impact statement and its indicator. A revised impact statement could be considered, e.g. along the lines of addressing increased adoption of renewable energy and innovative energy efficiency solutions in Ukraine.
Outcomes (immediate objective):					
Clean energy policies ratified	# of policies / sublaws	1-3 per year	-	Political stability	FUTF has not yet contributed to the first outcome regarding development of clean energy policies. It is not likely to be achieved within the duration of FUTF. Also, regarding the second outcome, preparatory work for Green Investment Fund is ongoing. To have the GIF operational, dedicated efforts from SAEE, government ministries and
National funding instrument for RE	Fund developed and operational	Green Investment Fund ratified by end of 2019	-	No delays in legislation	

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
					other Ukrainian stakeholders will be required to attract sufficient financing for GIF. The outcome level does not incorporate investment project development and implementation of Demonstrative Projects, for which majority of FUTF resources have been allocated. One combined outcome statement could be developed to incorporate improved RE and EE policies, improved access to funding, and increased access for investment financing in RE and EE by the applicants. For a combined outcome statement, one of the indicators could be adopted from the MFA 's aggregate indicators ("Number of people with improved and equitable access to affordable and clean, sustainably produced renewable energy").
Outputs					
Consultation on policy design	# of policies received expert support	3-5 during implementation period of Fund	Two studies: • Biomass study completed (2020) • TOR preparation for Green Investment Fund completed (2019); actual preparatory assignment for	Efficient collaboration	Biomass study useful for FUTF in prioritizing and selecting future projects. One proposal for taking the policy recommendations forward endorsed by EMC in June 2020 (SAEE, Introduction of new biomass types in biomass market and introduction of

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
			Green Investment Fund ongoing		fuel quality assurance mechanism in Ukraine).
Consultation on technology and projects feasibility	# of feasibility studies and technology reports	3-5 feasibility studies per year	Completed: • Pre-FS for Ukrainka Alternative Heat Supply Project • FS for rehabilitation of DH System in Vyshneve • FS for thermomodernization of public buildings in Kamyanske • District Heating Twinning between Kamyanets-Podilsky and Imatra • Technical study (Pre-FS) on energy savings for Mikstep-loenerhiya (Kamyanets-Podilsky) Ongoing: • Hydraulic Modelling and GIS for DH Utility Ternopil Tendering ongoing • FS for Lviv Municipal WWTP Sludge Utilization (biogas) N-IK approval received • FS for Kramatorsk and Melitopol Landfill Gas	Relevant topics identified	The two Pre-Feasibility Studies (Ukrainka and Kamyanets-Podilsky) and the FS for Vyshneve are not expected to lead into concrete investment projects. In case of Ukrainka and Kamyanets-Podilsky the intended investment project was not in the pipeline of any financing organization. Vyshneve was considered for the Sweden Ukraine District Heating Fund but did not meet the criteria. All studies have contributed to improved capacities at DH Utilities and better understanding of requirements and preconditions for energy efficiency investments.

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
			• FS for Construction of Biogas facility for utilization of organic waste • Scoping study, Opportunities for Demand response in irrigation and lift pumping stations		
New technology introduced	# of pilot projects designed and commissioned	1-2 implemented projects	Ongoing: • Kherson School (batteries and lightning protection for a Green School) Procurement ongoing: • Installation of geothermal pump for hot water supply (NUWEE) • Installation of IHS for thermally modernized school, Volochysk N-IK approval received: • Prefabricated modern diagnostic laboratory for Volyn Regional Children's Territorial Medical Center	Matching need and technology	The small FUTF input to Kherson school is significant considering the original humanitarian investment of Government of Finland. The upgrading of the energy system increases the demonstrative value of this flagship intervention of Finland Ukraine partnership. The project with NUWEE is innovative (choice of technology). It also has replication potential because it supports the environmental management curricula of the University. The demonstrative value of the Volochysk school projects is to show that investments in structures (insulation) do not produce the expected energy savings without internal building automation.
Partnerships with private	# of partnerships	1 per year	One completed FS (Kamyanske) will be financed by EIB loan.	Political and economic stability; investor confidence	This is the only large-scale investment project supported by FUTF that could benefit a population of an entire town

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
sector and/or financiers					and have a high leverage factor (FUTF input EUR 120 000, expected EIB loan EUR 15 million).
Training and transfer of knowhow	# of workshops and study tours	2 workshops & 1 study per year	Capacity development beneficiaries: • SAEE (policy studies, participation in two international events in 2019), two training sessions to SAEE members in connection to EMC meetings • Partners of the twinning project (Miksteploenerhiya and Imatran Lämpö Oy) • DH Utility staff and City Councils in Kamyanske, Ukraina and Vyshneve • Seminars: Biomass study results with experience transfer between Ukrainian and Finnish companies in bioenergy sector; Seminar on knowledge transfer of Finnish and Ukrainian District Heating Systems as part of Kamyanets-Podilskiy project		The experience of the twinning partners in Kamyanets-Podilsky and Imatra was positive. Imatran Lämpö Oy benefited from the project too. Twinning has potential for project development and could be more widely considered.

Level and Result	Indicator	Target	Achievements	Assumptions	MTE Observations
Finnish content	% of Finnish content in each project	Min. 30%	Involvement of Finnish private sector institutions: • one independent consultant involved with one assignment • two companies involved with delivery of CMC services • 8 companies involved with TA or DP projects		The MoU between MFA and SAEE emphasises joint projects and shared benefits for Finnish and Ukrainian institutions. MFA has a number of instruments that support the involvement of Finnish private sector actors in development activities (The Finnish Business Partnership Programme (Finnpartnership), the Business with Impact (BEAM) Programme, the Public Sector Investment Facility (PIF), Finnfund). The output statement could be revised to "Involvements of Finnish private sector institutions" to separate it from the precondition of minimum 30% Finnish content.

Annex 6 FUTF Project Flow

The chart below is based on the original Project Flow from NEFCO