

# A Forward Looking Review of Nefco's Energy Efficiency Programme in the Ukraine

COWI

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MARCH 2019  
NORAD

# A FORWARD LOOKING REVIEW OF NEFCO'S ENERGY EFFICIENCY PROGRAMME IN THE UKRAINE

REPORT



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## LIST OF ABBREVIATIONS

|       |  |
|-------|--|
| DAC   | Development Assistance Committee                                   |
| DSCR  | Debt-Service Coverage Ratio  |
| EBRD  | European Bank for Reconstruction and Development                   |
| EE    | Energy Efficiency  |
| EIB   | European Investment Bank   |
| ESC   | Energy Savings Credit  |
| ESCO  | Energy Service Company   |
| EU    | European Union   |
| E5P   | Eastern Europe Energy Efficiency and Environment Partnership       |
| GDP   | Gross Domestic Product   |
| GIZ   | German International Development Agency                            |
| IBRD  | International Bank for Reconstruction and Development (World Bank) |
| IDP   | Internally Displaced Person  |
| IFC   | International Finance Corporation                                  |
| IFI   | International financial institution                                |
| KPI   | Key performance indicator  |
| LFA   | Logical Framework Analyses   |
| NEFCO | Nordic Environment Finance Corporation                             |
| NF    | Naturvernforbundet (Nature Society)                                |
| NIU   | Nordic Energy Efficiency and Humanitarian Initiative               |
| NORAD | Norwegian Agency for Development Corporation                       |
| MRD   | Ministry of Regional Development                                   |
| PIU   | Project Implementation Unit  |
| PMSU  | Project Management and Support Unit                                |
| RBM   | Results-Based Management   |
| SIDA  | Swedish International Development Corporation Agency               |
| ToC   | Theory of Change   |
| UMIP  | Ukraine Municipal Infrastructure Programme                         |
| UNDP  | United Nations Development Programme                               |
| USAID | United States Agency for International Development                 |





## SUMMARY

### BACKGROUND

NEFCO has financed projects that promote energy efficiency and reduction of pollutant discharges in Ukraine since 2003. To alleviate the humanitarian crisis caused by the military conflict with Russia in eastern and southern Ukraine, the Nordic Energy Efficiency and Humanitarian Initiative (NIU) was initiated in December 2014. NIU is a grant programme modelled on NEFCO's small-scale demonstration lending mechanism Energy Savings Credits (ESC programme) for renovation of municipal infrastructure (schools, kindergartens, health centres and street lighting) in the rest of Ukraine.

Norway, as the largest contributor, has initiated the current review. Its objective is to draw lessons learned from experience gained and to prepare recommendations on how to enhance future action.

The review starts with an update of the context for operations, including policy and regulatory developments, and key stakeholders and institutions involved in the relevant sector(s). It then progresses to key results/achievements of the NIU-Programme. It compares these against those of ordinary NEFCO operations and the degree of compliance in relation to the OECD/DAC evaluation criteria. These are (i) relevance to the priorities of the affected stakeholders, (ii) effectiveness to achieve the objectives, efficiency in a least cost sense to achieve the objectives, (iv) impact or changes resulting from the intervention and (v) sustainability or likelihood that the impact will continue after completion of the intervention. The review concludes on a set of 10 recommendations. Before outlining these, it is helpful considering the contextual background and how NEFCO's EE Programme helps addressing the challenges related to energy efficiency.



ENHANCING  
ENERGY  
EFFICIENCY-KEY  
ISSUES AND  
OPPORTUNITIES  
AHEAD

Since the collapse of the Soviet Union in 1991, Ukraine has witnessed a marked decline in GDP. Despite small improvements in recent years, this decline in GDP has affected incomes negatively and caused an alarming deterioration of municipal infrastructure. This is true for all three sectors covered by this project – energy (energy efficiency in buildings, district heating and public lighting), water and waste. The Ukrainian economy is about 3-4 times more energy intensive than those of western Europe. Improving energy efficiency is not just important to reduce wasteful energy use and save fuel costs, it is also an integral component of reducing dependence on fossil fuel imports from Russia, boosting competitiveness, supporting democracy and closer ties with the EU (IEA, 2018).

Although the major international financing institutions have ramped up their financing for EE, comparatively more funds are directed towards supply-side measures, e.g. upgrade and construction of new power plants than towards reducing wasteful energy usage, particularly in residential and public buildings, which account for the majority of funding needs. Lack of coordination and expertise among market players (producers, consumers and financing institutions) combined with imperfect legislation and a poorly functional commercial banking sector are some of the reasons stated for this imbalance (Slovak Aid, 2017).

Major players for financing energy efficiency projects are state and local authorities, international financial institutions (IFIs) and local banks as financial intermediaries. The large IFIs, such as the EIB, EBRD and IBRD (World Bank) provide concessionary financing to the government in USD or EUR for projects with a budget larger than EUR 5 million.

By focusing on relatively simple measures (small and medium-sized projects with demonstration value), NEFCO avoids the bureaucracy and politics that are inherent features for larger IFI supported projects and hence fills an important funding gap for EE investments in municipal infrastructure. The maximum amount for the ESC programme is the UAH equivalent of EUR 400,000. For NIU (supplemented by E5P grants), the maximum project size has been EUR 600,000. The NEFCO investment fund finances medium-sized projects with NEFCO share of up to EUR 5,000,000 (i.e. NEFCO's maximum roughly corresponds to the minimum of other IFIs).

However, a city may leverage their own equity to obtain loans from the government through other funding sources also (e.g. such as State Fund for supporting Youth Housing and Programme of Local Authorities).

In recent years, some municipalities have experienced that their budgets have increased as a result of ongoing decentralisation. Together with the available financing mechanisms through NEFCO, the possibility to cooperate with other municipalities through so-called "amalgamated gramadas" are factors that are likely to stimulate financing for EE. The advent of performance contracting in which a special-purpose company such as Energy Service Company (ESCO) obtains payments for the achieved savings is yet another factor. It should be

noted that these developments – not least, the increase in municipal budgets – facilitates the possible establishment of revolving funds at the municipal level.

How NEFCO conducts its financing activities in the Ukraine is regulated in its framework agreement of 2009 with the Ukrainian government. In addition to acknowledging NEFCO as an international financing institution in the Ukraine, the framework agreement allows for application of own procurement modalities. Established in 2013, the NEFCO Procurement Guidelines emulate those of the EBRD. They are used for both ESC and NIU projects and are regarded more suitable compared to the new national system ProZorro, which, despite being established to increase transparency and minimize corruption in public tenders, frequently encounters long delays processing complaints.

When deciding on which procurement procedures to use, it is nonetheless, important to bear in mind that international donors have made substantial efforts to establish the new system. Consequently, there is a certain unspoken encouragement to apply it.

To identify, prepare and implement EE investments, NEFCO has established a Project Implementation Unit (PIU). The PIU is staffed with external consultants that work closely with the municipal project owners. This close working relationship and on-the-job-training that derives from it are integral features of NEFCO operations to minimize risk and maintaining momentum to achieve results quickly.

Key characteristics of NEFCO's financing for EE through the ESC and NIU are:

ESC – Main objective is to reduce CO<sub>2</sub> emissions

- > NEFCO can finance up to 90% of the investment cost for a loan limit of EUR 400,000.
- > Repayment is linked to savings made over a maximum payback period of 5 years.
- > A fixed interest rates of 3% and maximum project size the UAH equivalent of EUR 400,000

NIU – Main objective is to refurbish municipal infrastructure in conflict or vulnerable areas in eastern and southern Ukraine.

- > NEFCO provides grant financing up to the entire value of the investment, ranging from EUR 50,000 to EUR 500,000.
- > To be eligible, the host municipality is either located in the zone directly affected by military conflict in the east of Ukraine, or its communal/social infrastructure is overstressed due to a significant influx of IDPs from the conflict zone or from Crimea, or both.
- > It is also a requirement that the host municipality expresses interest in the project and commits to supporting its implementation, and to using the project results for the intended purposes.

As of end of 2017, 25 projects have been approved and presented to the donors. These amount to EUR 12 million in grant funding, of which nearly EUR 9 million have already been spent for 16 completed projects. The remaining nine, having received co-financing from the E5P administered by the EBRD, are delayed due to preparation of documentation for tax exemption. To strengthen the demonstration effect and where possible provide leveraging of donor funds by mixing NIU grants with ESC loans, a project pipeline for a fifth round of 16 projects was presented at the end of 2017/ beginning of 2018. These are now in preparation.

ACHIEVEMENTS AND  
ASSESSMENTS OF  
OECD/DAC  
CRITERIA

To assess the achievements of NEFCO's EE Programme in Ukraine, focus is on the humanitarian initiative. A comparison of actual results shows that performance in ESC projects is twice those of NIU. This relates to all indicators, and hence raises questions on nature of humanitarian impacts and justification for continuation of funding. The combining of ESC loans with grant financing in the ongoing 5th batch of NIU projects indicates that NEFCO taking action to increase the energy saved per unit of grant invested.

The key findings in terms of the OECD/DAC criteria (cf. Chapter 5) are:

RELEVANCE –  
MODERATE

NEFCO's EE Programme responds to an urgent need to reduce wasteful use of energy and modernize key public infrastructure and is considered highly relevant and effective, i.e. energy savings are achieved, and targeted assets are refurbished as planned. Outdated and poor quality of social infrastructure together with increased pressure on this infrastructure by IDPs translate into humanitarian needs that NIU potentially could address and help alleviate.

The humanitarian purpose of NIU is, however, considered less relevant on the grounds that the results framework lacks specificity on what the needs of IDPs are as well as indicators to measure those needs. As a result the overall development impact is not captured in the progress reporting. This compromises the ability of the programme to deliver on the rationale for its establishment. The suggested lesson is to revise the goal hierarchy.

EFFECTIVENESS –  
MODERATE

Review of the progress reporting shows that NIU is improving on project implementation, but emphasis on the humanitarian objective appears to decrease in successive funding batches. However, by supporting the counterpart PIUs the programme contributes important capacity-building, but the programme's effectiveness in this respect including wider impacts are under communicated.

The suggested lesson is to systematically focus on capacity building and improved reporting.

EFFICIENCY –  
GOOD

Efficiency of the NIU is assessed as being good, the reason being that energy savings per invested unit is about half those of similar ESC projects. Furthermore, it is noteworthy that prices for the refurbished assets are competitive within the NIU, demonstration effect is high, project implementation seems cost-effective and appropriate project selection is conducted (most

important in this connection is that energy tariffs do not distort selection of the projects with the highest potential for energy savings).

The suggested lesson is to clarify humanitarian rationale that follows from the ability of NIU to finance critical refurbishment works for municipalities that otherwise would not be able to afford this investment. Causal linkages that could be explored are the relationships between capacity building, implementation rate and credit-worthiness.

**IMPACT – GOOD**

Impact of NIU is assessed as good on basis that planned energy savings are achieved and actual impacts are larger than planned.

The suggested lesson is to revise the results framework and increase attention to capacity-building through cooperation with GIZ and SIDA.

**SUSTAINABILITY – GOOD**

Sustainability is strengthened through the established network and expertise that NEFCO has built up over the last decade. This enables NEFCO to quickly learn about potential problems and also helps to ensure that the threshold to ask for help is low. As NEFCO combine NIU grants with loans from ESC to scale-up its funding to improve energy efficiency, measures to strengthen sustainability is likely to become more important.

Suggested lessons to improve/ strengthen sustainability ties in with the preceding discussions on enhancing of demonstration effect/ replicability through increased focus and systematic approach to capacity-building, conducting of training needs assessment, establishing of dedicated PIUs and cooperation with other donors.

**RECOMMENDATIONS**

In order to ensure that NEFCO's EE Programme in Ukraine continues to stay relevant and that activities achieves the intended output in a cost-efficient manner, it is essential that financing is mobilized where it is most needed. This necessitates mechanisms for refining the programme in line with evolving needs. A set of recommendations on how to do this, has been developed.

The recommendations, 10 in total, attempt to address the span of activities that the programme entails - from planning through new investment areas and financing terms to geographic focus, monitoring, human resources development, synergies and knowledge-sharing. The recommendations, each with justification and possible next steps, are based on the findings and lessons learned.

Institution and capacity building is an overarching theme in the recommendations, the reason being that Ukraine is a country midst in a most difficult transition towards democracy, market economy and rule-of-law, a transition that, among others, NEFCO may and shall facilitate.

The recommendations are:

- > Introduce Theory of Change in programme cycle management to improve understanding of the overall objective of the Energy Efficiency Programme and the way it secures required changes in Ukraine; revision of the goal-

hierarchy in the results framework is identified as a necessary first step in this regard (coupled to improved reporting this will help to ensure that wider impacts are considered when making future adjustments to the programme design)

- > Consider new target groups and investment areas (e.g. industry, district heating and agriculture)
- > Examine the possibility of supporting the establishment and/or piloting of revolving funds at municipal level enjoying the firm commitment of the municipalities in question, thereby increasing access to financing for EE investments
- > Consider revising the way the payback period is established so as to make financing from the municipality even more attractive to borrowers
- > Consider allowing private contractors (ESCOs) to become eligible for receiving loans and introducing performance contracting on a broader scale
- > Continue and strengthen focus on small and medium municipalities
- > Maintain and strengthen relations in eastern and southern Ukraine
- > Harmonize monitoring requirements and combine these with capacity building initiatives at the municipal level
- > Develop existing synergies with other IFIs and donors active in Ukraine even further and reach out to relevant projects and programmes addressing EE at the municipal level.
- > Disseminate information about the projects carried out, success stories, challenges and possibly way-outs, as well as overall contribution of NEFCO to energy security, prosperity and institution building in Ukraine.



## 1 INTRODUCTION

### FINAL REPORT

This report constitutes the final report regarding the assignment "A Forward-Looking Review of the Nordic Environment Finance Corporation's (NEFCO) Energy Efficiency (EE) Programme in Ukraine". NORAD has entrusted COWI to undertake the assignment through a mini-tender under the current Framework Agreement for Clean Energy of 2017.

### NORWEGIAN SUPPORT

NORAD has initiated the review in response to the support the Norwegian Ministry of Foreign Affairs has provided to the Nordic Energy Efficiency and Humanitarian Initiative Ukraine (NIU). This grant programme is addressing energy efficiency measures in schools, kindergartens and health institutions as well as street lightning in the areas most affected by the military conflict with Russia in the eastern and southern parts of Ukraine. The EE measures supported by the NIU are similar to those carried out through NEFCO's conventional project portfolio for energy savings loans or credits (ESC) to municipalities in the rest of Ukraine. As such, the overall aim is that the review will also provide valuable insight for the ESC and NEFCO's other energy efficiency activities in the Ukraine.

In the ToR, the objective is articulated as shown below, cf. Box 1.



*Box 1. Objective of review*

"This review of NEFCO operations in Ukraine shall draw lessons from the experiences gained, and provide recommendations on how to enhance future action.

The purpose is thus multiple:

- Document key results/achievements of the NIU programme.
- Examine the overall efficiency and effectiveness of the NIU programme, compared to ordinary NEFCO operations in Ukraine.
- Get an update of the context for operations, including policy and regulatory developments, and key stakeholders and institutions involved in the relevant sector(s).
- Assess new intervention areas related to energy efficiency where NEFCO could add value in Ukraine.
- Summarise lessons learned and provide recommendations for future NEFCO operations (support modalities, topical or geographical areas and targets)."

Source: Terms of Reference (attached as Annex IV).

The review has been conducted according to the Terms of Reference (ToR) for Review (Annex IV) by the Consultant team comprising two international experts and a local expert, all with prior experience from evaluation of donor-financed projects related to energy efficiency in Ukraine and eastern Europe. The international and local specialists were also fluent in Russian, which was part of the qualifying criteria for the assignment. NORAD's Task Leader accompanied the team and provided valuable insight and guidance throughout the review. The review was carried out in a phased manner. It combined desk studies and field-based work with the following activities:

WORKFLOW FOR  
THE REVIEW

**Phase 1: Inception Period**

- > Review of Programme documents comprising multiple emails with Programme policy document, trust fund agreements and progress notes and implementation reports.
- > Meetings and interviews with the respective Task Leader and Fund Manager from NORAD in Oslo and NEFCO in Helsinki.
- > The Team presented the Inception Note prior to departing on the train to Dnipro to visit Project Owners on 11 April 2018. Towards the end of the field visit, the Consultant Team shared preliminary findings and overall impressions at a debriefing meeting with NORAD.

**Phase 2: Interviews Period**

- > Field mission to Ukraine from 9 to 14 April 2018 including meetings and interviews with NEFCO representation in Kiev, other IFIs, the Ministry of Finance and Project Owners in Eastern Ukraine (Kamenske and Pavlohrad municipalities in Dnipropetrovsk region).
- > The Team presented the Inception Note prior to departing on the train to Dnipro to visit Project Owners on 11 April 2018. Towards the end of the field visit, the Consultant Team shared preliminary findings and overall impressions at a debriefing meeting with NORAD.

### Phase 3: Analyses and Reporting

Comprises preparing of the review report, which has been revised 2 times. First Draft Final was submitted on 30 October 2018 following comments from Norad, the Norwegian Embassy in Kiev and NEFCO in August and September 2018. The Final version was submitted in January 2019 following more detailed discussions with Norad to among other aspects refine and operationalize the analyses and recommendations to recent regulatory adjustments for financing of EE-measures.

### Limitations

This is not an evaluation but a review to verify whether the program is on track with its implementation according to plan i.e. assess and describe the results of the Program so far and provide concrete recommendations for the future. The review relies on existing documentation such as project documents, earlier reviews, annual report and interviews with Program stakeholders and beneficiaries. No additional research was performed by the review team given the limited timeframe and resources for the assignment.

The review covers the entire NEFCO program in Ukraine, but gives particular attention NIU and is based on visits to a few selected projects. This report does not therefore present an in-depth assessment of all aspects of the entire program.

The subsequent reporting is organised into five chapters:

- > **Chapter 2** – presents NEFCO's activities in Ukraine and the reason hereof, highlighting the importance of energy efficiency to economic recovery in Ukraine, main organisations involved in energy efficiency measures and available funding mechanisms. The regulatory framework for the establishment and operation of NEFCO as an international financial institution (IFI) is also dealt with. Much attention is paid to NEFCO's EE Programme in Ukraine as well as those of other main organisations involved.
- > **Chapter 3** – presents the modalities for programme/project design and management. Starting at the programme level, the results frame and system for progress reporting to the donor(s) is assessed before progressing to the project cycle and procurement system within which both the ESC and NIU operate. Completion reports in two ESC and one NIU project are compared to illustrate the reporting system and differences between the two programmes.
- > **Chapter 4** – presents the overall achievements of the NIU and key findings from the review. It then continues assessment of performance of the Programme performance, but at a more detailed level against the OECD-DAC criteria.
- > **Chapter 5** – summarizes the strengths and weakness of the Programme and suggests lessons for potential improvement.



- > **Chapter 6** – presents the recommendations. These are developed from the suggested lessons. Theory of Change (results-based management), the ability of the Programme to catalyse a broader set of outcomes across other themes such as gender, environment, equality and governance and ways to increase financing are among the aspects that are discussed.

Four annexes are attached to the report:

- > **Annex I** – presents cited references and sources of data and information for the forward- looking review
- > **Annex II** – presents a list of persons met and interviewed
- > **Annex III** – provides a summary of the first 25 NIU projects
- > **Annex IV** – presents the Terms of Reference for the review.



## 2 BACKGROUND AND CONTEXT

### PURPOSE

This chapter presents the context for NEFCO's activities in Ukraine.

The objective is to provide additional insight into a few fundamental questions, including:

- > Why is it important to increase EE in Ukraine?
- > What is the current level of energy consumption per capita or unit GDP?
- > What is the level of investments in EE?
- > What major achievements have been accomplished since 2000?
- > What are the major outstanding issues?
- > What is the role of donors/IFIs in addressing these?

### 2.1 Energy in Ukraine

#### OVERVIEW

This section provides an overview of macroeconomic developments and, especially, developments in the energy sector in Ukraine since the collapse of the Soviet Union in 1991.

#### 2.1.1 Output decline and deterioration of infrastructure

#### NEIGHBOURING COUNTRY

Ukraine is a neighbouring country to the EU, almost the size of France with regard to area and population. It is a priority partner to the EU. Its relations with the EU have evolved considerably since 1994, when the Partnership and Cooperation Agreement between Ukraine and the EU was signed. Today, its relations with the EU is governed especially by the Ukraine-EU Association Agreement signed in 2014.

OUTPUT DECLINE

Since the collapse of Soviet Union, the country has suffered from an enormous output decline, cf. Figure 2. In recent years, however, it has witnessed a modest economic recovery. In 2017, the Ukrainian economy grew by 2.5%.

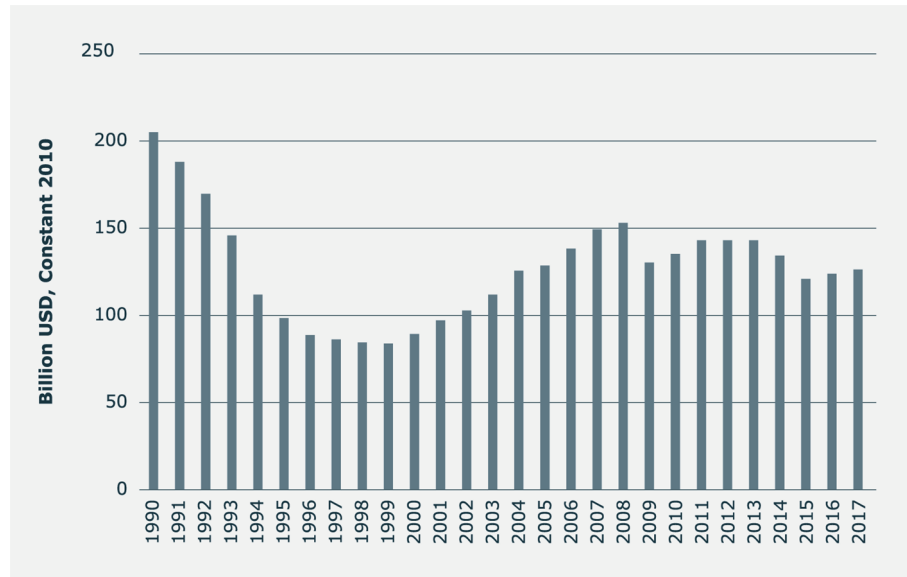


Figure 1. GDP decline has been profound, 1990-2017

Source: World Development Indicators, Ukrinform (2017).

This development in GDP over several decades has, among others, negatively affected public finances, household incomes and also investments in municipal infrastructure. Consequently, the municipal infrastructure has deteriorated. In some regions, it seems on the brink of collapse. This is true of all three sectors covered by this project – energy (energy efficiency in buildings, district heating and public lighting), water and waste.

DETERIORATION OF INFRASTRUCTURE

The deterioration of the municipal infrastructure is alarming. It endangers the well-being of the population and ultimately the economic growth of the country.

2.1.2 Overview of energy usage, investments and key issues

ENERGY INTENSITY

Starting with current rates of energy usage, a fact sheet published by the International Energy Agency in 2017 indicates that Ukraine used a total of 90 million tonnes of oil equivalent in 2015, which places it as number 26 of the most energy consuming countries in the world. Although the energy intensity of the Ukrainian economy has steadily improved since the dissolution of the Soviet Union in 1991, it is still about 3 to 4 times higher than that other countries in the Euro area<sup>1</sup> and other member countries (IEA, 2018).

<sup>1</sup> Energy intensity level of primary energy is the ratio between energy supply and gross domestic product measured at purchasing power parity. Energy intensity is an indication of how much energy is used to produce one unit of economic output. Lower ratio indicates that less energy is used to produce one unit of output

By implementing comprehensive and well-designed policies that target energy efficient measures at levels similar to those of the EU, Ukraine could reduce its energy consumption by some 17 million tonnes oil equivalents or 20.5 billion cubic meters of gas per year. The value of these savings are estimated at EUR 7.3 billion in 2010 prices (IEA, 2018) or double this amount in today's prices.

Although Ukraine is the World's 8<sup>th</sup> largest producer of nuclear energy and its energy mix is quite diverse with no single fuel accounting for more than 30% of consumption, its supplies are not sufficient to meet demand. This is the case particularly for natural gas and oil, which are both imported from Russia and are mainly used by households and for transport<sup>2</sup>.

The strategic role Ukraine has as a transit country for natural gas and petroleum liquids to its western neighbours combined with the geopolitical and financial crisis the country faces due to the conflict with Russia, implies that the positive knock-on effects of improving energy efficiency are widespread.

## ENERGY SAVINGS

In a national context, energy savings reduce pressure on public budgets that historically have shouldered millions of euros in energy subsidies. The increased utility value, whether this relates to staying conditions in buildings or feelings of safety from improved street lighting, relieves stress, which in turn can lead to increased productivity and positive feedback loops for businesses and society at large. Similarly, while reduction of waste emissions with CO<sub>2</sub> as main indicator of environmental performance underpins the economic rationale for international intervention and financial assistance, reduced reliance on fossil fuels and increased competitiveness are important political goals for promoting democracy and closer ties with the EU.

## EU ASSISTANCE

Between 2007 and 2014, Ukraine received over EUR 2.5 billion from EU public financial institutions for 56 projects in the country's energy sector, still only 15% of this support was spent on combating inefficient energy use or developing local sustainable energy sources (Bankwatch, 2015). Despite the huge potential for savings (up to as much as 40% for homeowners), there is a lack of expertise, access to capital and lingering mentalities that responsibility for implementing energy efficiency lies with the government. The major international financing institutions, including The UNDP, USAID and bilateral agencies in the European countries have ramped up their financing for EE. Their programmes tie into goals that Ukraine has set for itself at a national level, with Prime Minister Volodymyr Groysman saying on July 12, 2017 that Ukraine should seek to become energy independent by 2020 (Kyiv Post, 2017).

According to a recent review of financing mechanisms for energy efficiency (Slovak Aid, 2017), there is a large mismatch between funding needs and supply

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<https://www.indexmundi.com/facts/indicators/EG.EGY.PRIM.PP.KD/compare?country=ua#country=xc:ua>

<sup>2</sup> [http://www.iea.org/countries/non-membercountries/Ukraine/Ukraine\\_EU4Energy\\_Factsheet.pdf](http://www.iea.org/countries/non-membercountries/Ukraine/Ukraine_EU4Energy_Factsheet.pdf)

of international funds for improvement measures. Residential and public buildings account for the majority of funding needs with an estimated USD 51 billion, but with only USD 200 million in provided funding. This is in contrast to the energy producers where an estimated USD 6 billion is needed for upgrade of thermal supply systems and USD 700 million of provided funding. Lack of coordination between all market players (state and local authorities, donors and investors), imperfect legislation and bias towards supply-side measures are cited as the main reasons for the imbalance. In this regard, it is important to note that district heating is ubiquitous throughout Ukraine. With less consumption and a lack of new investments for maintenance, the infrastructure is vulnerable to technical difficulties and ultimately loss. Coordination between local authorities, producers and consumers is therefore important to balance the consumption and production of thermal energy.



Figure 2. Roles and relationships, Energy demand and supply

Source: Slovak Aid, 2017.

## MAJOR PLAYERS FOR FINANCING

Major players for financing energy efficiency projects are state and local authorities, IFIs and local banks as financial intermediaries. Large IFIs such as the EIB, EBRD and IBRD (World Bank) typically provide concessionary financing denominated in euro or US dollars for projects larger than EUR 5 million where the government or a public organisation is the main lender. Interest rates on these loans range from 2-4% and 6-10% for demand and supply-side measures respectively. The repayment term may be anywhere from 5 to 20 years. Such loans usually work in tandem with major policy and capacity building initiatives for the affected public entity. Relevant examples include support for setting tariffs, developing of functional energy markets, anti-corruption and transparency in procurement, just to mention a few (e.g. see Chapter 2.4).

## TWO CATEGORIES

### 2.1.3 Existing funding mechanisms for EE investments

Funding mechanisms targeted towards smaller projects, e.g. such as for installing thermal energy meters and individual heat supply units, insulation and replacement of old windows and boilers can broadly be grouped into two categories for private and public EE investments, respectively.

For the private sector, the government backed "warm loans", and loans backed by the EBRD through the IQ Energy Both mechanisms enable financing through local banks with interest rates in the range of 20 to 30%.<sup>3</sup> Depending on whether the end-user is an association of residents in an apartment building or individual households, the terms of the loan may differ. Maximum loan amounts and repayment terms for the state-backed loans may be up to EUR 370,000 and 10 years with grants up to 70% of the investment compared to a maximum of EUR 1700, 3 years repayment and 35% grant portion for households. In comparison, the IQ Programme offers loans in combination with grants from the E5P funds for up to EUR 5000.

In the period from 2015-2017 these two mechanisms provided about EUR 90 million. For the state-backed loans, the government has reimbursed about half of the investment in grants compared to EUR 15 million from the E5P Fund EBRD backed IQ Programme.

The market for commercial private loans for EE investments is not widely developed due to very high interest rates among other aspects.

Interest rates on government bonds have declined in recent years. Among other aspects, this indicates that the banking system is functioning better and that risk levels and the price of capital are decreasing.<sup>4</sup>

The E5P Fund has started pilot funding mechanisms through commercial banks. The banks <https://www.kredobank.com.ua/> owned by PKO Bank Polski SA, the No 1 retail bank in Poland, and <https://www.ukrgasbank.com/> are participating in the programme. More information about the loan programme for private EE investments can be found at <http://www.iqenergy.org.ua/en>.

Whilst rising natural gas and electricity prices are a main motivation, so is the success of others as the excerpt below shows.

*Box 2. Huge jump in loans for EE measures*

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<sup>3</sup> At present four banks may provide "warm" loans: Ukreximbank, Oshchadbank, Urkgazbank and

Privatbank. The banks Ukrsibbank, Raiffeisen Bank Aval and OTP Bank are the distributors of the EBRD funds. Government resolution 1056 and the Online Catalogue of Technologies outline the respective requirement for obtaining a loan.

<sup>4</sup> Estimated by applying a discount rate of 9% as net interest rate on sovereign bonds (17%) <http://www.worldgovernmentbonds.com/country/ukraine/> minus inflation (8%) <https://tradingeconomics.com/ukraine/core-inflation-rate>

"Figures provided by the USAID backed Municipal Energy Reform Project show that, with the State Agency for Energy Efficiency, it had by the end of last month helped secure 219,294 loans for energy efficiency measures in the residential sector worth \$147 million. That figure has grown from a little under 4,000 loans issued as of June 2015.

The head of the USAID project, Diana Korsakaite, says the huge jump in demand for loans over the past two years has been stimulated by several factors, including informational campaigns and rises in the prices of household energy bills. One of the biggest influences has been homeowners seeing the success of others."

*Source: Kiev Post.*

For the public market for EE investments there is the NEFCO EE Programme and other government programmes, e.g. such as State Fund for supporting Youth Housing construction, Programme of Local Authorities where a city may lever its own equity to obtain additional loans from the government. Performance contracts with energy service companies (ESCO's) is a new form of financing where consumers' savings are used to pay for the service company's investment.

By focusing on relatively simple measures with project values of less than EUR 800,000, NEFCO avoids the bureaucracy and politics that are inherent features for larger IFI-supported projects. Necessary approvals for initial studies can often take more than a year and then much longer to reach bankable standards for financial close and implementation. In this way, NEFCO bridges an important funding gap for enabling a sustainable pathway for Ukraine to bolster its economy and become less reliant on energy imports.

## 2.2 NEFCO and its EE programme in Ukraine

### FOCUS

In this section the focus is on NEFCO and its EE programme in Ukraine.

### 2.2.1 Focus and funding sources

### MANDATE

The NEFCO is an IFI established in 1990 and owned by Denmark, Finland, Iceland, Norway and Sweden.

NEFCO's mandate is to invest in projects that generate tangible positive environmental benefits, meaning they are measurable through reducing pollutant loads to air, soil or water resources. The equivalent amounts of avoided CO<sub>2</sub> emissions is a common indicator that is applied.

Geographically, the fund focuses on projects that either directly or indirectly are of interest to the Nordic countries. With the Baltic Sea as a common area of interest, this explains the consequent emphasis on the bordering countries in eastern and central Europe. As the portfolio of fund management assignments have grown, NEFCO has expanded its area of operation to the Arctic and Barents



regions as well as central Asia, and has developed into a financial institution supporting green growth and the climate globally.

## FINANCING

For projects in these areas, NEFCO provides results-based green financing targeted at small and medium-sized projects (SMPs) with demonstration value, meaning the ability to serve as a forerunner enabling bigger projects and scaling-up possibilities.

The following sources of funding are available:

- > Investments in Eastern Europe – loans and equity on market terms of up to EUR 5 million per project.
- > NEFCO Global Facility – loans and equity on market terms of up to EUR 2.5 million per project.
- > Buyer credits to environmentally sound investments and deliveries of goods and related services.
- > Cleaner Production Facility – loans to both private and public enterprises on favourable terms up to EUR 500,000 per project.
- > Facility for Energy Saving Credits – loans to municipalities in Belarus, Russia and Ukraine on favourable terms of up to EUR 400,000 per project.
- > Agri Credit Facility – a small-scale loan financing for investments in manure handling systems at farms in Belarus, Russia and Ukraine.

Grant financing is targeted at projects that provide positive environmental benefits to the Arctic and Baltic Sea regions through four or a combination of four funding instruments and/or through project-specific funds.<sup>5</sup>

### 2.2.2 Current portfolio – ESC and NIU projects

## 150 PROJECTS

NEFCO's current project portfolio has more than 150 projects in Ukraine of which there are approximately 100 municipal projects. The total volume of financing is approximately EUR 65m as loans and EUR 39m as grants. The most important sectors are clean-tech, energy efficiency, renewable energy, wastewater treatment and modernisation of industrial facilities. Corresponding funding sources are commercial investments, cleaner production and energy savings credits. The latter account for most of the funding to the municipal projects.

To help alleviate the escalating humanitarian crisis, the Nordic ministers of foreign affairs decided in October 2014 to establish a separate trust fund called

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<sup>5</sup> <http://www.NEFCO.org/work-us/our-services/grants>

The Arctic Council Project Support Instrument (PSI) is a financial initiative focusing on projects approved by the Arctic Council to prevent and reduce pollution of the Arctic. It uses a broad range of funding arrangements to include grants and revolving instruments such as leveraging loans (see Loans and equity section).

The Barents Hot Spots Facility (BHSF) provides grants to finance technical assistance in the Arctic and the Barents region.

The Baltic Sea Action Plan Fund helps restore the ecological status of the Baltic Sea.



the Nordic energy efficiency and humanitarian support initiative for Ukraine or NIU.

The sections to follow present a summary on NEFCO's funding activities for energy efficiency through the ESC and NIU programmes. The status of funding disbursements and results achieved are, in the case of the ESC, documented in NEFCO's annual reports available at [www.NEFCO.org](http://www.NEFCO.org). For NIU, the Trust Fund Agreement sets out similar requirements. These consist of an annual financial report and activity update to the donors. Both have been forwarded along with accompanying email correspondence and are listed in the overview of documents received and collected along with other works cited under references in Annex I.

## ENERGY SAVINGS CREDITS (ESC)

This loan programme under the Nordic Environment Development Fund (NMF) covers the same thermo-modernisation improvements as the NIU, i.e. schools, hospitals and day care centres as well as street lighting systems. However, contrary to the humanitarian and geographic focus of the NIU, the ESC covers the whole of the Ukraine. An overview of the description as outlined on NEFCO's web pages follows.<sup>6</sup>

The main objective of the Facility is to promote emission reductions via reduced energy consumption, and the environmental monitoring focuses primarily on the release of carbon dioxide, nitrogen and sulphur oxides as well as volatile compounds.

Under the Facility, NEFCO can finance, in local currency, up to 90% of the investment costs of any project being financed under the credit programme. The maximum loan amount granted under the Facility is equivalent to EUR 400,000 in local currencies.

The repayment of the loan is directly linked to the estimated savings of the investment with a maximum repayment period of 5 years. To this date, NEFCO has 57 completed and on-going projects in Ukraine within the ESC.

The size of projects typically range from EUR 250,000 to EUR 500,000. It is expected that projects of this size will be launched and implemented within a reasonably short time, taking into account the current urgency of the necessary support. Depending on the specific needs for increasing energy efficiency, each project comprises one to several buildings. Examples of measures supported by NEFCO loans are:

- > Thermal insulation of enclosing building structures in municipal communal buildings (insulation of walls, roof overlappings, floors, replacement of windows for energy efficiency and replacement of doors etc.).
- > Replacement of indoor lighting in public buildings with energy-efficient lamps/ fixtures (mainly LEDs).

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<sup>6</sup> [https://www.nefco.org/sites/nefco.org/files/pdf-files/nefco\\_esc2013\\_eng\\_screen\\_final.pdf](https://www.nefco.org/sites/nefco.org/files/pdf-files/nefco_esc2013_eng_screen_final.pdf)

- > Replacement/restoration of outdoor (street) lighting to achieve energy saving without losing the quality of lighting (with the introduction of LED lighting and modern high-performance control systems).
- > Reconstruction of district heating systems and/or increase of their efficiency (for example, installation of individual heat points and reconstruction of local boilers).
- > The use of small wind turbines and solar collectors, if possible.

These projects are extremely important and useful for Ukraine. However, transforming the country's infrastructure for how heat is used and conserved is a major and financially difficult task. Municipalities do not usually have "free" funds for the thermo-modernization of buildings, and NEFCO not only lends a loan at a low interest rate of up to 6% in hryvnia (most often for cities this rate is 3%), but also provides professional support for the implementation of an energy efficiency project.

The benefits from EE improvements derive from the increased utility value of the upgraded infrastructure. This is illustrated below.



*Figure 3. Replacement of windows and radiators*

Source: From Consultant's visit at School No. 5 in Kamenske, April 2018.

NORDIC EE AND  
HUMANITARIAN  
INITIATIVE,  
UKRAINE (NIU)

As described above, the NIU uses the modalities and systems for implementation of the ESC projects as template. The NIU differs from the ESC in the form of grants and respective geographic and humanitarian focus on refurbishment of social infrastructure. The Action Plan of December 2014 defines the objectives, intervention criteria and method of implementation and monitoring.

Accordingly, the objective is:

*"to support the refurbishment and reconstruction of municipal buildings, as well as other municipal infrastructure in the affected or vulnerable areas of Eastern and Southern Ukraine".*

The Action Plan further specifies that NEFCO will contract the services of a Project Implementation Consultant to identify, support and carry out implementation monitoring of projects to be funded under the Initiative based on the following criteria:

The host municipality is either located in the zone directly affected by military conflict in eastern Ukraine, or its communal/social infrastructure is overstressed due to a significant influx of IDPs from the conflict zone or from Crimea, or both.

Specifically, the proposed project is expected to result in one or more of the following outcomes or improvements in the municipality:

- > Achievement of energy savings in communal infrastructure freeing resources for addressing the immediate needs of IDPs and overstressed infrastructure.
- > Improved indoor conditions of social facilities in the stressed areas, such as schools, kindergartens and health service facilities.
- > Improved outdoor conditions for the population in the stressed areas, such as improved street lighting, roads, sidewalks, etc.
- > Improved housing conditions for internally displaced persons.

It is also a requirement that the host municipality expresses interest in the project and commits to supporting its implementation, and to using the project results for the intended purposes.

Recommendations for NIU can also be seen in relation to the perceived ease and speed the interventions could be implemented, i.e. in a reasonably short time, given the current urgency of support needed.

The typical project size is in the range of EUR 50,000 –EUR 500,000 and each project covers simple thermo-modernisation measures in one or several buildings.

Main risk factors include limited capacity at local level to specify needs. As a result, special efforts have been directed towards building on relations and experiences from nearby ESC projects to identify projects that can be implemented quickly, offer a high potential for energy savings and can be downscaled should the security situation dictate so. The Action Plan also emphasizes the importance of cooperation and synergy building with other IFIs active in the area (such as GIZ, USAID, the EBRD and others) and of continuous dialogue with other partners to avoid overlap and to coordinate efforts.

Until the end of 2017, 25 projects had been approved and presented to the donors. Geographically, they are located in 21 cities in the south-east of Ukraine, 12 projects are located in the government-controlled areas of the Donetsk and Lugansk regions, while the remainder are located in the surrounding regions receiving a major influx of internally displaced persons from the conflict area. In total EUR 12 million has been pledged. Apart from the EUR 31,000 co-financing and EUR 1.5 million received from the E5P, NORAD has contributed the remaining funds.

A fifth round of 16 projects has been identified and the first seven feasibility assessments are now under preparation. The ambition for the fifth round is to strengthen the demonstration effect, and where possible, provide leveraging of donors' funds by combining NIU grants and credit financing, primarily from NEFCO's Energy Saving Credits (ESC) facility. The table in Annex II presents an overview of the progression of the initiative from its approval in December 2014 until present. An overview is included overleaf.

The current state of affairs is that during 2017 eight projects were completed, bringing the total number of completed projects to 15. The projects still ongoing are the project in Chuguev, which experienced delays due to non-performance of the contractor, and the nine projects co-financed by the E5P. The E5P-supported projects are mainly delayed due to preparation of documentation for tax exemption.

Table 1. Overview of NIU projects

| Batch #                | Municipalities covered   | NIU (EUR) | ESP (EUR) | ESC (EUR) | SUM (EUR)  |
|------------------------|--|-----------|-----------|-----------|------------|
| 1 (Feb. 2015)          | Severodonetsk<br>Krematorsk<br>Pavlohrad<br>Lozova<br>Berdiansk  | 1,450,000 | -         | -         | 1,450,000  |
| 2 (April 2015)         | Kupyansk<br>Chuguev<br>Izium<br>Dniprozerzhinsk<br>Dniprozerzhinsk   | 2,491,363 | -         | -         | 2,491,363  |
| 3 (June 2015)          | Chuguev<br>Krematorsk<br>Druzhkiva<br>Pavlohrad<br>Melitopol<br>Kherson  | 2,520,170 | -         | -         | 2,520,170  |
| 4a (May 2016)          | Kreminna<br>Slovyansk<br>Dobropillia<br>Myrnohrad<br>Kurakhove<br>Vugledar   | 1,573,335 | 1,466,665 | -         | 3,040,000  |
| 4b (November 2016)     | Svatove<br>Druzhkivka<br>Pershotravensk  | 1,085,667 | 514,333   | -         | 1,600,000  |
|                        |  | 9,102,065 | 1,980,998 |           | 11,083,263 |
| 5a (end of 2017)       | Kupyansk<br>Pershotravnevyi<br>Rubizhne<br>Bakhmut<br>Selidova<br>Konstantynivka<br>Ternivka   | 1,970,000 | -         | 1,700,000 | 3,670,000  |
| 5b (beginning of 2018) | Bahmut<br>Rubizhne<br>Pershotravnevyi<br>Kupiansk<br>Ternovka<br>Selidove<br>Kostiantynivka<br>Pokrovsk<br>Novogrodivka<br>Berdiansk<br>Lozova<br>Izium<br>Kreminna<br>Dobropillia<br>Kurakhove<br>Chuhuiv | 2,970,000 | -         | 5,100,000 | 8,070,000  |

## 2.3 Complementing initiatives

### MOST IMPORTANT INITIATIVES

This section presents the most important complementing initiatives. The overview is, to a large extent, based on information gained from the meetings with major stakeholders involved in energy efficiency in Ukraine.

### 2.3.1 GIZ – Deutsche Gesellschaft für Zusammenarbeit

#### SINCE 1997

GIZ is a main provider of donor funds from the Federal Government of Germany. The Framework Agreement between the Government of Ukraine and the Government of Germany on advisory and technical cooperation ratified by the Law N 32/97-BP dated 24.01.1997 regulates GIZ's activities in the Ukraine.

A synopsis can be found on the GIZ website (<https://www.giz.de/en/worldwide/302.html>) as well as <http://eeim.org.ua>. Among other aspects, it explains that GIZ focuses on good governance, energy efficiency (EE) and sustainable economic development. GIZ is implementing measures in Ukraine on behalf of five German ministries, the EU and also the British and Swiss Governments. In the field of good governance, it has supported establishment of a digital platform for public procurement called ProZorro.

GIZ has funded projects similar to those of NEFCO in the conflict-affected areas and in doing so, there has also been some coordination. However, GIS projects are more geared towards capacity building and technical assistance. GIZ does not allocate money for complex thermos-modernization and sees NEFCO as a strong and reliable partner in such projects.

Ukraine has large decentralisation processes where more funds are distributed to cities and towns. Amalgamated gramadas or municipalities that cooperate receive a lot of funds from the state. This is potentially a big market, where challenges for financing and payment for energy savings abound. GIZ mentioned that it can cooperate with NEFCO to address these challenges (e.g. see Recommendations, Chapter 4.5).

### 2.3.2 SIDA - Swedish Agency for International Cooperation and Development

#### SINCE 1995

SIDA is a state institution under the Ministry of Foreign Affairs. SIDA has been cooperating with Ukraine since 1995. The SIDA activity in Ukraine is governed by the Agreement between the Cabinet of Ministers of Ukraine and the Government Kingdom of Sweden on General Conditions of technical and financial cooperation. The agreement is ratified by the law N 320-VI (320-17) dated 04.06.2008.

SIDA is one of NEFCO's most important partners in Ukraine. In 2011, SIDA, NEFCO and the Ukrainian government agreed on joint implementation of an investment programme aimed at supporting energy-efficient projects in Ukraine.

To implement the program, called "DemoUkraine", the Swedish government through the SIDA agency allocates SEK 40 million. The funds will be used for the reconstruction of communal heating networks. For its part, NEFCO will ensure the management of the activities of the program, in particular, the efficiency of spending and the rationality of technical solutions, conducting the necessary consultations with specialists in the field of heat supply.

According to the terms of the signed agreement, SIDA grants and NEFCO loans are provided to ten projects for the modernization of heat networks. The maximum grant and credit for each of these projects will be EUR 400,000 and EUR 300,000, respectively. Municipal projects are financed under a new investment program, since all loan agreements with Ukrainian municipalities must be approved by the Ministry of Finance.

The agreement also provides for the improvement of information exchange on energy efficiency between Swedish and Ukrainian municipalities. This is an area where NEFCO can contribute its extensive expertise from ESC and NIU projects.

Thermo-modernisation of universities is another initiative that has gained increasing political interest where SIDA is cooperating with GIZ, EBRD, NEFCO and the EIB. Of the EUR 160 million that has been pledged, NEFCO will provide EUR 30 million. Greatly exceeding the limit of EUR 5 million of projects that NEFCO typically finances, the nature of NEFCO's role emerged as one area of concern.

### 2.3.3 The EIB – European Investment Bank

SINCE 2004

Since 2004, Ukraine has been cooperating with the European Investment Bank (the EIB), which makes it possible to attract long-term financial resources of the bank for implementing important infrastructure, energy efficiency, environmental and other investment projects of national importance. In 2005, a Framework Agreement was concluded between the Ukrainian Government; it was ratified in February 2006 (law No. 3292-IV), and it regulates the EIB's activities in Ukraine.

The EIB caters not only for EU members, but also for its Eastern European members. The Bank's activities in the region aim at supporting the goals set up by the EU's European Neighborhood Policy. This is done by financing projects that promote prosperity and increased regional integration, which contributes to the stability of these regions and helps forging stronger intraregional partnerships.

The Bank's primary sectors of activities include:

- > Local private sector development, in particular support to SMEs.
- > Development of social and economic infrastructure.
- > Climate change mitigation and adaptation.

The Bank offers three principle kinds of services to its clients:

- > Loans
- > Technical assistance
- > Guarantees.

The EIB's work in the environmental sector focuses on:

- > Improving the quality of living in an urbanized environment, namely, public transport projects.
- > Environmental protection and public health (e.g., reducing industrial pollution, water supply and water treatment).
- > Climate change, including energy efficiency and renewable energy sources.
- > Protection of flora and fauna.
- > Protection of natural resources and wastes management.

On 23 July 2015, the European Investment Bank (the EIB) signed a lending agreement (EUR 400m) with the Government of Ukraine for the Ukraine Municipal Infrastructure Programme (UMIP). UMIP is a multi-sector investment programme that supports public infrastructure projects in medium and large municipalities that aim at protecting, rehabilitating and avoiding deterioration of municipal infrastructure. The Programme targets investments in energy district utilities' rehabilitation, energy efficiency, street lighting, water supply, wastewater and solid waste management. For UMIP, the Government of Ukraine has appointed the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine (MRD) as the national level promoter.

The Programme Management and Support Unit (PMSU), located within the MRD, was established in early 2016 for overall management and monitoring of the UMIP and it is fully in line with EIB priorities.

As of today, a Preliminary UMIP Project List exists. It consists of 22 projects within the five sectors totalling EUR 475m. Energy-related projects account for as much as 63%, cf. Figure 4. There are further six projects on a reserve list.



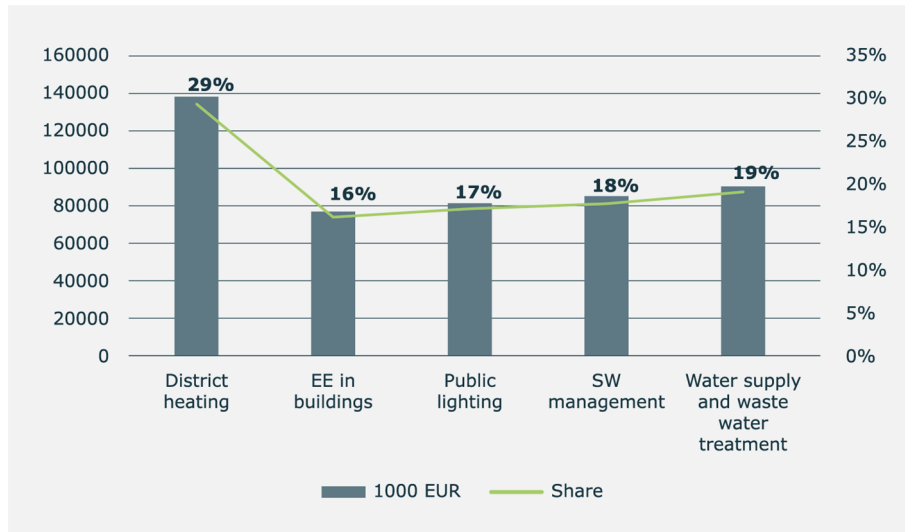


Figure 4. Preliminary UMIP Project List, Overview. Source: umip.org.ua.

Nine of the 22 projects on the Preliminary UMIP Project List are now on the UMIP Mature Projects List. For these, feasibility studies and Environmental Impact Assessments (if needed) have been prepared, and Project Implementation Units (PIUs) have been set up. The list was approved by the Steering Committee at its meeting on December 14, 2017. Projects on the list amount to a total of EUR 184.6m. The next step is to make a due diligence of the projects, which is carried out by the EIB.

The EIB provides loans and guarantees for financing projects in priority sectors of the economy. Within energy efficiency in Ukraine, the EIB is the main investor and lender for the modernisation of universities. It is providing a loan of EUR 120m. In addition, substantial grant money is also helping this project, which will cut energy consumption by 30-60% and reduce greenhouse gas emissions (EIB, 2018).

### 2.3.4 EBRD

SINCE 1991

EBRD has been active in Ukraine since the establishment of EBRD in 1991.

Currently, EBRD's activities in Ukraine are regulated by the Agreement between the Government of Ukraine and the European Bank for Reconstruction and Development Cooperation and activities of the Permanent Delegation of the EBRD in Ukraine. The contract is ratified by the Law N 319-VI (319-17) dated 04.06.2008. Among other aspects, the agreement says that grants are to be exempt of local taxes and VAT.

EBRD is a main promoter and funding agency of EE projects in Ukraine. It also hosts the E5P initiative, which is a EUR 180 million multi-donor fund initiated during the Swedish Presidency of the European Union in 2009. Of the Nordic countries, Sweden is the main contributor with EUR 27 million. Norway and Denmark have both provided about EUR 5 million each, Finland EUR 2 million and Iceland EUR 56,000. The goal of the E5P is to encourage energy efficiency and environmental projects in the Eastern Partnership region. Initiated in the

Ukraine in 2014, the fund has now extended its activities to Armenia, Georgia, Moldova and Belarus.

With reference to the E5P's ongoing initiative to ramp up financing for EE measures in the residential sector through cooperation with commercial banks this may be an area where NEFCO's expertise could add value, especially as regards preparation of all the technical documentation and monitoring of energy savings (e.g. see Chapter 2.1).

### 2.3.5 USAID - United States Agency for International Development

SINCE 1992

USAID leads international development and humanitarian efforts to save lives, reduce poverty, strengthen democratic governance and help people progress beyond assistance. In 1992, USAID signed a bilateral agreement on humanitarian, economic and technical cooperation with Ukraine to help the country develop its economic, political and societal potential.

USAID and the Ukrainian government identified three strategic objectives:

- > To create a broad-based market economy.
- > To help build a participatory democratic political system.
- > To assist in social sector reforms to ease the difficulties of transition, particularly among the most vulnerable members of society.

To accomplish these objectives, USAID has recently changed its strategy away from direct support to implementation of EE projects, e.g. such as district heating together with the EIB and the EBRD, towards policy-related matters. Municipal reforms, anti-corruption and regulatory support are examples of ongoing initiatives.

In accordance with Article 1 of the governing Agreement with the Ukrainian government, the activity of USAID in Ukraine is implemented free of local taxes and through companies that are registered with USAID and have status as an organisation for international technical assistance.

The strategic shift away from implementation of physical measures implies that USAID is a less obvious partner for NEFCO. Similarly, the requirements for registration and exemption of local duties/taxes imply bureaucratic hurdles that can constrain the opportunity space of potential cooperation, especially for projects where swift implementation is essential.





### 3 PROGRAMME DESIGN AND MANAGEMENT

**PURPOSE** This chapter outlines and assesses the goal hierarchy, reporting and procurement system as basis for the assessment in the chapter to follow.

#### 3.1 Results framework

**DEFINITION** Results framework (or Results-Based Management) is a management tool aimed at ensuring that program implementation is conducted and assessed in direct relationship to progress in achieving results at project level, at the outputs, outcomes, and impact levels. Hence, it is a useful tool, not only to the top management of an IFI, but also to donors (or donor countries) of an IFI. It enables stakeholders to keep track of program implementation.

**MANAGEMENT** For the NIU, the Trust Fund Agreement, Article 5 Management, Clause 2 specifies that "the parties will hold regular, meetings including video/conference calls as required to discuss and agree on matters related to management of the fund". Concerning reporting, Article 9, clause 5 specifies that "NEFCO shall ensure that appropriate results frameworks are prepared for the project activities of the fund". Further, this clause stipulates that NEFCO on an annual basis shall provide reports to the Ministry on the achievements of results in relation to such frameworks including analyses on how the results contribute to expected outcomes of the activities, explanation of any deviations from plans and other information as deemed relevant.

**GOAL HIERARCHY** Applying the guiding principles for log frame analyses (or logical framework analyses), the results framework articulated in the Trust fund Agreement and NIU Action Plan might look as shown in the table overleaf. Text in red denotes assessed objectives and indicators.

Questions that emerge from this exercise relate to interpretation of where the articulated objectives belong in the goal hierarchy, the degree to which these fully describe the intended effect as well to causal relations between the objectives.

Starting at the top, energy saved and emissions reductions are correctly matched as objectively verifiable indicators of the desired end-state of improved energy efficiency. Another indicator could be growth in GDP (in relation to an agreed baseline) to assess the rate at which Ukraine is able to transform its energy intensive economy in line with western European economies. However in comparison with the ESC, energy savings and CO<sub>2</sub> reductions does not capture the humanitarian impact the NIU intends to achieve. Increased ability of municipalities to manage challenges imposed by IDPs, e.g. possibly tied to establishing of functional PIUs is one example of how the goal hierarchy could be expanded to cater for reporting on humanitarian impacts.

To achieve the goal of energy savings, the purpose stated in the NIU Action Plan of supporting refurbishment and reconstruction of public infrastructure is appropriate. However, in a log-frame the purpose or outcome is more appropriately related to the the social and utility gains that the refurbished assets provide. The intervention criteria (3.1.1) in the NIU Action Plan – *"freeing resources for addressing immediate needs of IDPs and better conditions of social facilities"* then become the outcomes. Cost savings, improved functionality of the refurbished facilities and number of IDPs/ beneficiaries reached are examples of corresponding indicators. Energy saved and reduced CO<sub>2</sub> emissions could also be included as indicators at the outcome level.

Keeping with this logic, the purpose in the NIU Action Plan "To support of refurbishment and reconstruction of municipal infrastructure works, can then be matched to the envisaged outputs in terms of number of renovated assets, replacement of insulation windows etc.

On causal relations, the envisaged outcome of energy savings to free up resources to meet the immediate needs of IDPs solicits value judgement on what those needs are. Without clarity identification and verification of indicators become problematic. Similarly, the output "better condition for social facilities" is vague. An alternative formulation might be, "a healthy and well-functioning infrastructure that caters for needs of users". Maintenance of standards for indoor temperature, ventilation, availability of sanitary facilities, water supply, and sewerage etc. are relevant and objectively verifiable indicators in this regard.

From analyses as shown above, a mechanism to report on what humanitarian effects the NIU intends to achieve, how these targets are met and will be refined as experience is gained are ambiguous and considered to be missing in the results framework. Such a mechanism to enable reflection and discussion of these linkages at programme level can also be viewed as an enabler to promote dialogue between the donors.

Table 2. Translation of logical results framework for the NIU

| <b>Objectives</b>   | <b>Measureable Indicators</b>   | <b>Means of Verification</b>  | <b>Important Assumptions</b>   |
|---|---|---|--|
| <p>Goal/ Impact<br/>Wider problem that is intended to be resolved</p> <ul style="list-style-type: none"> <li>- Improved energy efficiency in ODA-approved OSCE countries, Russia and the Arctic.</li> </ul> <p>Ref. Trust Fund Agreement Art. 3. Objective and Purpose</p>  | <p>Quantitative ways of measuring or qualitative ways of judging timed achievement of goal</p> <ul style="list-style-type: none"> <li>- Energy saved, reduced CO<sub>2</sub> emissions.</li> </ul> <p>Bredere samfunnsutvikling</p>   | <p>Cost-effective methods and sources to quantify or assess indicators</p> <ul style="list-style-type: none"> <li>- Reporting on progress and results by the PIU and monitoring consultants (Audit of energy consumption and costs before and after intervention).</li> </ul> | <p>(Goal to super goal)<br/>External factors necessary to sustain objectives in the long run.</p> <ul style="list-style-type: none"> <li>- Interest and commitment of recipient municipalities.</li> </ul>   |
| <p>Purpose/Outcome<br/>The immediate impact or benefit to be achieved</p> <ul style="list-style-type: none"> <li>- Energy savings and freeing resources for addressing the immediate needs of IDPs and overstressed infrastructure;</li> <li>- Better conditions of social facilities</li> </ul> <p>Ref. NIU Action Plan, 3.1.1 Intervention's Criteria</p>   | <p>Quantitative ways of measuring or qualitative ways of judging timed achievement of purpose</p> <ul style="list-style-type: none"> <li>- Cost savings</li> <li>- Indoor climate, functioning and clean sanitary facilities</li> <li>- Number of IDPs/ beneficiaries reached.</li> </ul> | <p>Cost-effective methods and sources to quantify or assess indicators</p> <ul style="list-style-type: none"> <li>- Reporting on progress and results by the PIU and monitoring consultants (Audit of energy consumption and costs before and after intervention).</li> </ul> | <p>(Purpose to goal)<br/>External conditions necessary if achieved project purpose is to contribute to reaching project goal</p> <ul style="list-style-type: none"> <li>- Allocation of funds by municipality for regular O&amp;M</li> <li>- Capacity of municipality to follow-up.</li> </ul>             |
| <p>Outputs<br/>These are the specifically deliverable results expected from the project to attain the purpose/outcome</p> <ul style="list-style-type: none"> <li>- To support refurbishment and reconstruction of municipal infrastructure in the conflict-affected areas.</li> </ul> <p>Ref. NIU Action Plan, 2.1 Objectives.</p>  | <p>Quantitative ways of measuring or qualitative ways of judging timed production of outputs</p> <ul style="list-style-type: none"> <li>- Number of projects completed (e.g. renovated heating systems, replacement of windows/ insulation, street lighting).</li> </ul>                  | <p>Cost-effective methods and sources to quantify or assess indicators</p> <ul style="list-style-type: none"> <li>- Reporting on progress and results by the PIU and monitoring consultants.</li> </ul>   | <p>(Outputs to purpose)<br/>Factors out of project control which, if present, could restrict progress from outputs to achieving project purpose</p> <ul style="list-style-type: none"> <li>-Deterioration of supporting infrastructure, electricity network, fuel subsidies, political changes.</li> </ul> |
| <p>Activities<br/>These are the tasks to be done to produce the outputs</p> <ul style="list-style-type: none"> <li>- Establish PIU adjacent to NEFCO office in Kiev</li> <li>- Identify and prepare projects for funding</li> <li>- Provide necessary support to municipalities</li> <li>- Monitor of project implementation viz. schedules and technical specifications</li> <li>- Monitor energy efficiency and humanitarian effect and draw lessons learned</li> </ul> <p>Ref. NIU Action Plan, 2.2 Objectives of NEFCO Intervention and 4. Activities</p> | <p>Inputs<br/>This is a summary of the project budget</p>   | <p>Financial report as agreed in grant agreement</p> <ul style="list-style-type: none"> <li>- Number of projects identified, prepared and implemented to specifications.</li> <li>- Delays and deviations (cost over-runs)</li> </ul>   | <p>(Activity to output)<br/>Factors out of project control which, if present, could restrict progress from activities to achieving outputs</p>   |



## 3.2 Reporting

### VARIOUS TYPES

To fulfill the requirements for reporting, which consists of annual financial report and activity update to the donors, NEFCO Fund Manager has prepared and submitted:

- > Progress Report NIU 27/8, 2015 on 1st and 2nd batch of projects submitted to MFA.
- > Project Report 8/11, 2016 on the investment programme for co-financing by the E5P submitted to the E5P.
- > Status Report 30/3, 2017 on status of NIU and plans for combining ESC loans for 5th batch of projects submitted to MFA.
- > Project Report 7/12, 2017 on the status of the NIU projects co-financed by the E5P submitted to the E5P.
- > Annual Reports 2015, 2016, 2017 submitted to MFA.

The progress, status and annual reports for the NIU consists of a 1-3 page note with descriptions under the following headings: overall status, outline of activities, expenditures, environmental outcomes and next steps. A tabular overview of key details on project status and an audited financial statement is annexed to the status/progress and annual reports respectively.

The progress reporting emphasise the importance of capacity-building of the counterpart PIUs as integral to enable appropriate design, timely implementation and sustainable operation of the financed projects. With reference to the results matrix above, the progress reporting describes the improved utility effect of the refurbished assets as well as the degree to which the planned energy savings are achieved, but very little about the nature of the resulting humanitarian impact nor status of accumulated savings from the number of projects completed.

The latter is described in the completion and post-completion monitoring reports at the project level, and as such could be aggregated and presented with relative ease.

### COMPLETE PICTURE DOESN'T COME EASY

As far as the financial reporting is concerned, NEFCO has kept the donors informed about planned and actual progress of expenditures and steps taken to mitigate delays and cost-overruns (refer progress reporting and email correspondence). This information is presented in a narrative format. To obtain a complete picture, the reader must collate information from several reports. With an increasing number of batches of projects being approved for funding and progress on the projects varying within each batch, tracing expenditures becomes an arduous exercise.

### 3.3 Project Cycle Management

PIU

To carry out the tasks of identifying, preparing and implementation projects i NEFCO has established a Project Implementation Unit (PIU). The objectives of of the PIU are also to provide the necessary support to municipalities involved with procurement and implementation, monitor implementation and closure of the projects as well as reporting.

NEFCO has tendered the services of project implementation to an external consultancy. The PIU is located adjacent NEFCO's office in Kiev, which helps to facilitate collaboration with NEFCO's ordinary staff. The tasks of the PIU follow from NEFCO's Project Implementation Manual and are also specified in the Terms of Reference for the PIU consultant.

STAGES

The stages of the project cycle for ESC AND NIU are as follows:<sup>7</sup>

**0. Client relations** - The relations with clients, as well as key project details and status, are managed in the Dynamics Hamster System.

**1. Project Proposal/Statement of Interest** - The municipality fills in and sends an application (a very simple two-page form) to NEFCO. The project officer conducts an initial evaluation and then submits the results to the Pipeline Meeting for review and approval. This is a prerequisite for the continuation of project preparation. In addition to technical design, the PIU consultants also assist in preparing an environmental impact assessment and audits the project for subsequent approval by the NEFCO investment committee.

**2. Adoption by the NEFCO investment committee** - Proposals for project financing are submitted initially to the Investment Committee, and then to the NEFCO Board of Directors for information (ESC) and to the Donors for No-objection (NIU).

**3. Signing of a loan/grant agreement.**

**4. Implementation stage** - After signing the contract, the investor will start the project, and NEFCO is carrying out the ongoing control of the specified financial and environmental indicators.

**5. Completion of the project** - Upon completion of the project, the financing and participation of NEFCO cease.

**6. Evaluation** - An estimation of the achieved environmental effect is carried out and other results of the project are summarized.

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<sup>7</sup> The financing proposals for the NEFCO investment fund and the Nordic Environment Development fund (NMF) are first presented to the investment committee (abbreviated N- IK and M- IK respectively) before presentation to the board of directors. Decisions on ESC (as part of NMF credits) are presented to the Board for information. For NIU as a Trust Fund, the pipeline and status reports are presented to the Board for information.



## MONITORING

In addition to the PIU consultant, NEFCO has also contracted the services of a monitoring consultant whose task is to review and provide independent advice on the progress of selected investments.

To assess the results framework at project level, the project description and progress reports for the following ESC investments were examined:

- > Project Completion Report, "Partially thermo modernization of the children's infant schools (Kindergartens) of Pavlohrad city", Oslo 5/9, 2014 by Ensi Energy Saving International AS.
- > Progress Report #3, "Implementation of energy saving measures in budgetary institutions and modernization of street lighting system of Varash city", Kiev 2/5, 2018 by C consulenten Ukraine.

For the NIU-projects, project descriptions only in the form of short feasibility studies have been made available.

In both cases, the project description is a business plan for the proposed investment, which follows a standardized template.

For ESC projects, there are parallel texts in English and Ukrainian. Specifying planned energy saving, bill of quantities, cost and reporting schedules, it is also an integral part of the loan agreement. Requirements to progress reports are tied to milestone disbursements and repayment of the loan (annual intervals). Despite the 4-year age difference, the reporting templates are the same.

Because the NIU projects are grant-financed, requirements to progress reporting end with submission of the completion and post completion monitoring reports.

In both cases, the progress reporting focuses on verifying the degree to which the envisaged energy savings are achieved and culminates with a conclusion on the constructed works. Presumably, lessons learned shall also be discussed. However, it is only included in the first of the above-listed reports.

## 3.4 Procurement systems

### KEY FOR.....

For many reasons procurement is key. Being inevitably an integral task of implementing projects in a way that complies with principles of good governance, as well as intimately connected to the municipalities need to build capacity, it is therefore useful to outline the requirements NEFCO works under when it comes to procurement. Although NEFCO uses its own guidelines as those are believed to be more suitable for combined quality cost evaluation for projects involving more complex works, there are mounting pressures to increase use of national guidelines. These aspects are further described below.

### 3.4.1 General matters

### FRAMEWORK CONTRACT

NEFCO has financed environmental projects in Ukraine since 2003. In 2009, NEFCO and the Ukrainian government signed a new framework agreement. The

agreement acknowledges NEFCO's status as an international financial institution operating in Ukraine, and was signed to pave the way for new energy efficiency projects in the country. Ratified by Law of Ukraine #2533-VI of September 21, 2010, it entered into force on 18 November 2010.

Most importantly, the Framework Agreement allows NEFCO to decide on procurement modalities, including application of own rules depending on the nature of works (goods and/or services) to be tendered.

To ensure transparency, competition and economic efficiency in procurement processes for works, goods and services, NEFCO has established and enacted the framework regulation in December 2013. These are known as NEFCO Procurement Guidelines and are modelled after EBRD Procurement Policies and Rules. Starting from 2015, NEFCO has used own procurement/tender documents that are suitable for small public-sector projects (mostly in the range of EUR 100,000-500,000 per project). Presently, NEFCO has prepared and started using the following types of tender documents:

- > Tender document for Nordic Initiative for Ukraine (procurement of plant and related services via selective tendering).
- > Tender document for ESC projects in Ukraine (procurement of plan and related works and of works via open tendering).
- > Recommended Tender Documents to be used in all NEFCO-supported public-sector projects (procurement of plant and related works and of works via open tendering).
- > All these documents are generally based on Master Procurement Documents adopted by Multilateral Development Banks and other IFIs in 2008.

### 3.4.2 Ukrainian national system of public procurements ProZorro

#### NEW SYSTEM

Despite the NEFCO procurement system being aligned with those of EBRD and other multilaterals, the advent of the new national online system ProZorro, which has been specifically developed to promote transparency and combat corruption, implies a certain unspoken pressure to adopt the new system. The new Procurement Law entered into force in 2016.

The most important features of the ProZorro system include:

- > Full and unrestricted access to the system for both participants of procurement processes and any interested parties.
- > Competitiveness of procurement processes via the "reverse auction" mechanism.
- > Possibility of all interested parties to monitor all procurements and to complain to relevant authorities.
- > Possibility to carry out a basic integrity check of any participant of a procurement process (via integration with State Register of Legal Persons).

The ProZorro procurement system could potentially be used for procurement in NEFCO-managed public sector projects under the sub-clause 3.11 of NEFCO's Procurement Guidelines, which states that "Local Competitive Tendering in accordance with national procurement procedures may be the most economic and efficient method of procuring goods, works or services when:

a) Contract values are small; b) works are scattered geographically or spread over time; c) the goods, works or services are available locally at lower prices than from the international market; or (d) by their nature or scope the contracts are unlikely to attract foreign competition."

Since many NEFCO-managed projects could probably satisfy the conditions for the use of national procurement procedures outlined above, NEFCO contracted a review of the two procedures (LGID Ltd., August 2017). Among other aspects, the objectives were to ascertain whether ProZorro would qualify as an acceptable procedure for using NEFCO tendering. And if so, in which cases would it be preferable to use for small and medium-sized NEFCO projects in Ukraine (given NEFCO's previous practice not to review the procurement documents and contracts in Local Competitive Tendering prior to contract award).

### 3.4.3 Requirements for use of open tendering

#### THRESHOLDS

The Ukraine's Public Procurement Law sets an estimated contract value threshold for open tendering at UAH 200,000 (about EUR 7,000) for goods and services and UAH 1,500,000 (about EUR 50,000) for works, which is significantly lower than the corresponding NEFCO's thresholds (EUR 100,000 and EUR 500,000, respectively). Similar to NEFCO rules, the law prohibits splitting a contract into smaller lots to avoid open tendering.

In addition, the Law requires that tender announcements be published on ProZorro, and in English if the estimated contract value exceeds EUR 133,000 for goods and services and EUR 5,150,000 for works. Presumably, this is to facilitate participation of foreign contractors.

A comparison shows that ProZorro can be used in NEFCO-financed projects for small-size contracts given that the national procurement procedures conform to the main criteria for being acceptable for NEFCO, but with the following limitations:

- > Only for procurement of goods with well-defined requirements, such as off-the-shelf goods (e.g. supply of lighting fixtures), for which a selection of contractors via reverse e-auction are acceptable in principle.
- > Only in cases where procurement time delay is not critical, given that the ProZorro tenders are frequently delayed due to claims and complaints.

Procurement of plant and works that are not standardised or are below the threshold for open tendering should be performed according to NEFCO procedures, i.e. as these allow for a detailed evaluation of the proposed

programme of works, technical methods, materials, equipment and personnel, and involve less administrative burden.



## 4 ASSESSMENT

### PURPOSE

The chapter comprises the assessment of the degree to which the NIU programme has achieved its intended objectives and is based on the progress reporting and other relevant reporting made available by NEFCO. The chapter starts with overall achievements before delving into more detailed discussion of the how the programme performs in relation to the OECD-DAC evaluation criteria. Among other aspects the assessment herein contains conclusions about:

- > Actual results / degree of goal-fulfilment
- > Effectiveness of ESC versus NIU
- > Reporting to the Ministry of Foreign Affairs of Norway
  - > Extent to which the goal hierarchy and the reporting system is suitable to inform about progress and results made
  - > Extent to which energy savings and reduced CO<sub>2</sub> emissions are adequate indicators to assess the effect of the programmes.

### 4.1 Overall achievement of the NIU Programme

### GOAL AND PURPOSE REACHED?

An overview of the NIU project portfolio for the first 5 batches is compiled in Annex III. For each project invested amounts and estimated energy savings are listed along with key features with reference to email correspondence and progress reporting.

From the fact that targeted investments are refurbished and deliver energy savings, intended results are reached. The question is how well and how quickly in relation to potential alternatives, and whether the needs of IDPs are being met. These aspects are discussed as follows.

## CO<sub>2</sub> REDUCED IN NIU AND ESC PROJECTS

Mention of specific targets for higher level impacts, such as plans for aggregate energy savings and CO<sub>2</sub> reductions per year was not found in the documentation on NEFCO's web pages ([www.NEFCO.org](http://www.NEFCO.org)) nor among the documents provided in the email correspondence. Therefore, assessment of programme performance is conducted by comparing the planned and achieved outputs for the NIU and selected ESC projects in both portfolios and by applying the criteria of unit abatement cost in NEFCO's Environmental Sustainability Guidelines (NEFCO, 2017).

Considering the first 15 projects, CO<sub>2</sub> savings are estimated at 6,138 tonnes per year for a total investment of nearly EUR 6,5 million. These figures are similar to those provided by NEFCO, which are 6,538 tonnes per year and EUR 6,2 million invested (e.g. see excel sheet Annex III).

The project report on the ESC and NIU to the E5P dated 8/11, 2016 provides an overview of the proposed funding allocations as well as envisaged energy and CO<sub>2</sub> savings. On average, energy and CO<sub>2</sub> savings in ESC loan financing are nearly double of those financed by the NIU grants. Requirements on payback times mean that ESC projects focus specifically on energy-efficient activities as opposed to NIU projects which can include a significant part of measures that do not bring any energy savings. It can be large volumes of new electrical cables and poles in the streets for street lighting. In buildings it can be repair of premises, installation of internal doors, installation of sanitary ware, repair of a roof, and other. Also, NIU projects can include "heavy" energy-efficient measures, such as insulation of floor overlap, which have very long payback periods, whereas in ESC projects they are not implemented.

In ESC projects, the focus on payback time is rather used as an implicit indicator of affordability to ensure repayment of the loans rather than as an environmental indicator. Instead requirements for environmental cost-effectiveness have been adapted to be within the range of Nordic shadow prices. At the time of establishment of the fund it was expected that unit or marginal abatement cost (UAC/MAC) to be in the interval from (-13 til -70 EUR /t reduced CO<sub>2</sub>). These figures are at the lower end of the cost scale and typically represent relatively low-tech measures such as replacement of lightbulbs, windows and insulation (World Bank, 2016). The higher average abatement cost in the NIU portfolio can be explained by the fact that many of the measures included in the overall investment are more technical and carry higher cost.

The figures below summarize the main achievements of the ESC and NIU.



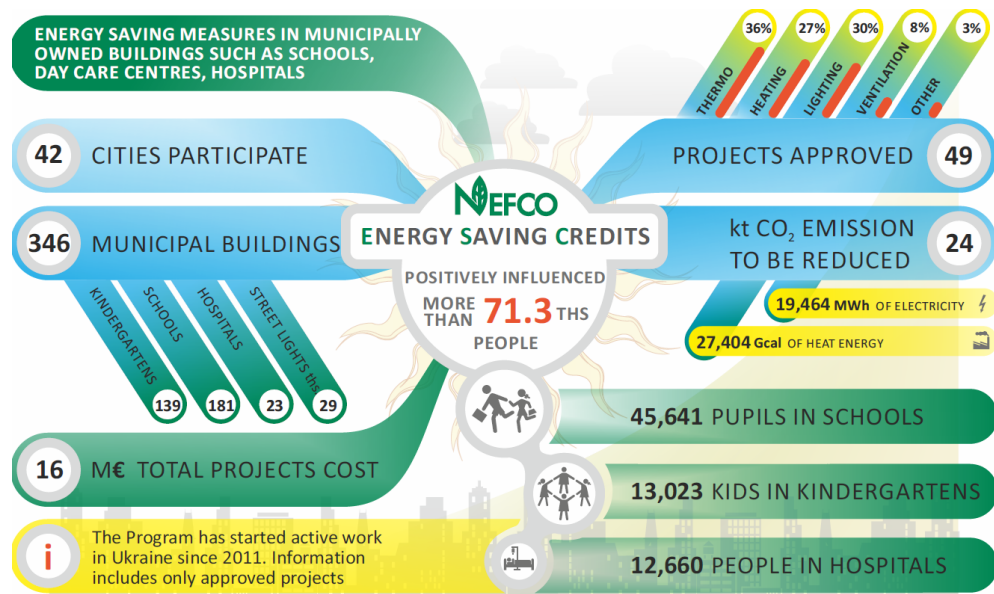


Figure 5. Performance of ESC Portfolio (Source NEFCO)

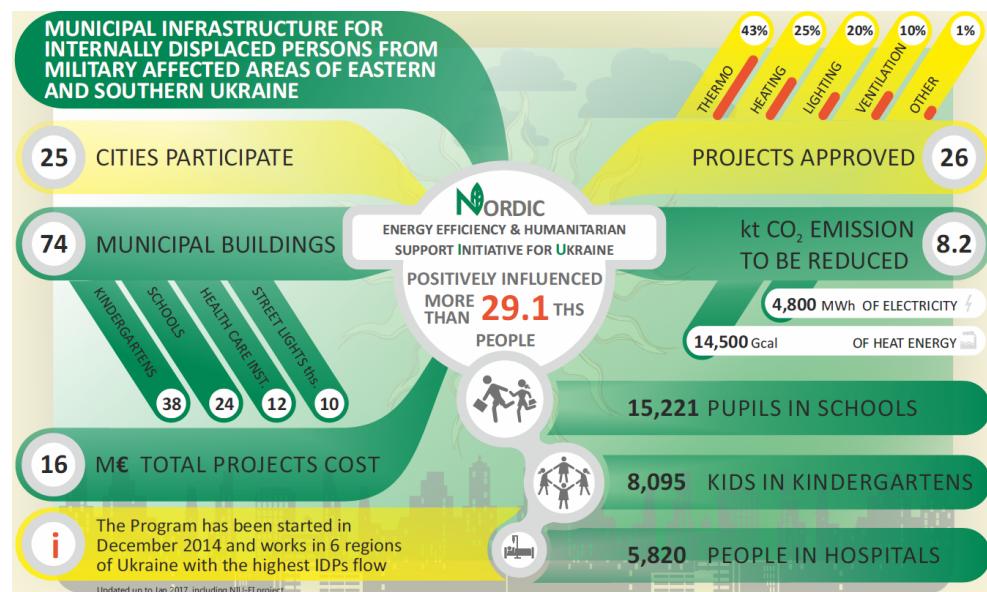


Figure 6. Performance of NIU Portfolio (source NEFCO)

**JUSTIFICATION FOR CONTINUATION OF NIU AND NATURE OF HUMANITARIAN NEEDS**

The higher cost of energy savings combined with fewer people positively impacted by the NIU programme, raise questions of the justification for continuation of funding. This concern is likely to increase as the projects with highest potential for energy savings are implemented and marginal returns diminish. How the military conflict and humanitarian situation evolve may yet be the most crucial factor that underpin the continuation of the NIU support.

The combination of ESC loans with grant financing in the ongoing 5th batch of NIU projects indicates that NEFCO is very aware of these concerns and is consequently taking action to increase the energy saved per unit of grant invested (e.g. refer Annex II – Summary of first 25 NIU Projects).

However, other than to acknowledge the number of users that gets to experience the improved social facilities, e.g. as also shown in the above figures, the nature of the humanitarian and overall development impact of the programme are ambiguous. From anecdotal reference in the progress reporting to the demonstration effect (of reducing wasteful use of energy that can be better spent for other uses), continuous need to follow-up to mitigate bureaucratic delays, provide support in procurement and other matters, it can be inferred that capacity-building of the municipality's organisation is recurring-theme that points to the development impact of the programme.

In light of the urgency implicit in the humanitarian motif, a corollary to this is whether NEFCO should have solicited and accepted extra funding from E5P (through EBRD) when it knew that the bureaucracy associated with satisfying the requirement that measures financed by E5P be exempted from value added tax could cause significant delays.

In summary, NEFCO through its staff and PIU achieves the established objectives of the NIU Programme, i.e. improving of energy efficiency by refurbishing outdated social infrastructure, and that the programme is progressing reasonably well.

To help identify underlying factors that when appropriately harnessed can strengthen the humanitarian purpose of the NIU as well as overall Programme performance, the assessment continues within the framework of the OECD-DAC below.

## 4.2 OECD-DAC Evaluation

### FIVE CRITERIA

Focusing on the NIU and overall information about the similar ESC mechanism for loan-financed projects, this review aims at establishing the achievements of the NEFCO's EE Programme in terms of produced outputs, the outcomes resulting from the outputs, and the sustainability of the benefits.

The assessment elaborates these aspects in relation to the OECD-DAC evaluation criteria, which frequently are used to review the performance of IFIs, donors and other organisations providing support to development within a certain field in a country, region or world as a whole<sup>8</sup>. There are five criteria. The below tables provides an overview of these five criteria.

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<sup>8</sup> Cf. OECD, 1991.



Table 3. OECD-DAC Criteria

| Criteria       | Brief definition  |
|----------------|---|
| Relevance      | The extent to which the activities are suited to the priorities and policies of the target group, recipient and donor.  |
| Effectiveness  | The extent to which the activities reach the stated objectives.   |
| Efficiency     | The extent to which the activities comply with principles of cost-effectiveness, i.e. are the least amount of resources deployed to achieve the desired output. |
| Impact         | The changes produced by the activities, positive or negative, directly or indirectly, intended or unintended.   |
| Sustainability | The extent to which positive impacts are likely to continue after completion of the activities.   |

For each of the criteria the assessment uses a rating scale of Good, Moderate and Low. A rating of Good reflects that achievements exceed targets. There are hence few or no shortcomings. A rating of Moderate reflects that targets have largely been met, but with some shortcomings. A rating of Low considers that performance is unsatisfactory with several shortcomings.

#### 4.2.1 Relevance

DRIVERS...

The need to reduce wasteful use of energy to reduce costs and pollution emissions underpins national and donor priorities for Ukraine to reduce its dependency on fuel imports, increase competitiveness and democracy. The Policy Paper on justification, focus and approach for NIU dated 24 October 2014 states that the need in Ukraine for energy efficiency measures and refurbishment of district heating systems has been made acute by rising gas prices and that the military conflict in Eastern Ukraine has exacerbated the need to intervene.

... STILL VALID

At the time of writing this report these drivers (e.g. rising energy prices and displacement of people from military activities) are still very valid. Combined with the severe budget constraints that public governments at all levels face, it is noted that NEFCO's activities in Ukraine in the field of EE are well-known to other IFIs and donors – and also that they very much appreciate the objectives of these.

NEFCO with backing from Norwegian donor support can add value to catalyze increasing investments in energy efficiency through its extensive expertise and network in working with municipalities. In contrast to larger IFIs, such as World Bank, EIB and others who focus much of their effort on GoU to promote policy reform and financing for the large investment projects, NEFCO fills an important financing gap to effect change at the grass-roots level. This is a competitive edge that NEFCO can develop even further. The relevance of NIU and NEFCO as implementing agency for promoting energy efficiency is therefore considered good.

HUMANITARIAN  
PURPOSE

The humanitarian purpose of NIU is, however, considered less relevant on the grounds that the results framework lacks specificity on what the needs of IDPs are as well as indicators to measure those needs. As a result the overall development impact is not captured in the progress reporting. This compromises the ability of the programme to deliver on the rationale for its establishment.

Another factor is the time aspect of delivering quickly. This is not formulated as an objective, but rather implied from the NEFCO's communication to the donors during start of the NIU in later 2014/ early 2015.

Anticipating difficulties and consequent delays with obtaining exemption of value added tax and general unwillingness of Ukrainian banks to issue guarantees for advance payments, the managing director of NEFCO (Magnus Rystedt) recommended in his letter to the donors at the onset of the NIU in February and April 2015 that the condition of tax exemption be waived and that they accept the advance payment risk.

When NEFCO later in December of 2015 decided to add EUR 3 million in funds from E5P to be split equally between NIU and ESC, it also knew that this would introduce delays due (i) reporting requirements, that although similar to those of NEFCO, require different templates and hence introduce additional work and (ii) bureaucracy of obtaining exemption of value added tax, which is a condition of the E5P financing.

The decision to accept complementary grant financing from the E5P at contradictory terms to concessions already made appears to have compromised the urgency implicit in the humanitarian response.

From a humanitarian perspective the relevance of NIU is therefore assessed as potentially high, but in practice moderate to low due to its lack of focus on humanitarian improvements in its results framework. Nonetheless, it is important to bear in mind that NEFCO through daily follow-up with the municipal PIUs has contributed significant capacity-building, which in turn has stimulated interest and ability of the municipality to implement energy efficiency improvements to its infrastructure. Capacity-building is identified as a key strength and cross-cutting theme mentioned under both effectiveness and efficiency below. It is further discussed under suggested lessons in the chapter to follow.

#### 4.2.2 Effectiveness

EFFECTIVE

The fact that targeted assets are refurbished to achieve their projected energy savings shows that NIU is effective. However, less so from an humanitarian perspective since it is unclear how the objective of energy savings frees resources for addressing the immediate needs of IDPs.

Starting with the the quality and realism of the pre-project target (energy savings and number of impacted IDPs) the assessment of effectiveness focuses

on the relative ease of carrying out the inherent implementation steps (from project preparation, procurement and monitoring) and reporting on progress as discussed in the previous chapter.

NUMBER OF  
PROJECTS, ENERGY  
SAVINGS AND  
NUMBER OF IDPS  
TO BE REACHED

From the overview in Table 1, the number of projects increase from 5 in the first 3 batches to 9 in Batch 4 where co-financing from E5P is introduced to 7 in Batch 5a and 16 Batch 5b. However, reporting for Batch 5 was not ready at the time of the review and has not been examined. Other than the Batch 4 projects (delayed to preparation of documentation VAT exemption), the progress reports states that projects largely are progressing according to schedule.

Comparing the project plans for the Batch 1 with progress made in NIU status update dated 27 August 2015, shows that all projects issued invitation for tenders in April and May and had started works by end of August. With implementation time ranging from 6 to 10 months these projects were planned for completion in 2015. The project in Berdiansk and one sub-project in Pavlohrad is lagging behind this schedule by 3 months. These projects were estimated produce xx tons of CO<sub>2</sub> reductions and are located in Donetsk and Lugansk where influx of IDPs are highest (cf attached map from OCHA in Annex 1 to the report). According to the number the pre-project targets appear realistic and progress largely as planned.

After the first batch the progress and status updates from NEFCO provides a brief narrative of progress made and challenges encountered, but no overview as referred to above. Details of planned versus actual progress on energy savings and number of IDPs impacted are difficult to extract. In successive funding batches it appears the focus is more on the demonstration effect of energy efficiency than on humanitarian objectives.

Concerning project implementation NEFCO's progress reports state that procurement is a recurrent challenge. Procurement affects the effectiveness in two ways. One way has to do with delays due additional time needed for follow-up with and support to the municipal PIUs. Another way has to do with how tender evaluation procedures are applied to ensure that most appropriate solutions are selected. Because both arguments contains elements of cost-effectiveness they could also be considered under efficiency. Applying a similar reasoning to the assessment of reporting system (cf. Chapter 3), identified shortcomings may be more relevant to assessment of impacts. Not overlooking these dualities, these aspects are discussed below.

PROCUREMENT – A  
MAJOR CHALLENGE

The Annual Report of 2015 remarks that for many Project Owners, NIU is their first encounter with international procurement. While it acknowledges that delays have consequently occurred, it points to the positive educational effect and lowering of the threshold for future projects.

Despite efforts to plan for procurement during the feasibility stages to mitigate bureaucratic delays, the subsequent Annual Reports in 2016 and 2017 lament that weak technical capacity within the receiving municipal administrations combined with political pressure to fully utilize grant amounts and low interest

for small public works contracts, all add to the time needed for clarifications and follow-up.

Concerning procurement, the visit report from the Ministry of Foreign Affairs' review mission to Krematorsk in February 2016 remarked that significant cost savings were obtained by choosing other products (Czech hot water heaters) than budgeted, but that such changes should be reviewed carefully due to risk of corruption. The visit report cites the opinion of the NF (Naturvernforbundet "Nature Society") that works closely with SOS Krematorsk on low-cost solutions for simple energy efficiency measures, including training of local technicians. The NF regards savings potential for smarter procurement as substantial and calls for review of standards and procedures with NEFCO. However, when consulting Project Owners on this suggestion, the visit report cites their emphasis on transparency and the importance that tenders and results are published online (i.e. in line with principles of the ProZorro) even if this may make the procurement process more time consuming.

In this context, the analyses of the applicability of ProZorro in NEFCO tenders (LGID Ltd., August 2017) notes that because any tenderer can object the evaluation results that must be published online, this may lead to rent seeking behaviour. Apparently, the problem is widespread. Investigations of potential collusion have recently been launched by the Ukrainian Prime Minister Mr Groyzman (LGID Ltd., August 2017).

The ability of the counterpart municipal PIUs to use available guidelines in their intended spirit to carry out procurement to the betterment of the project can be understood as crucial to overall success and demonstration effect of replicating the experience gained to the next project. In this respect the support from NEFCO makes an important contribution to strengthen institutional capacities.

REPORTING  
SYSTEM –  
HARMONIZING OF  
REQUIREMENTS IS  
IMPORTANT

Recalling the comparison of reporting between ESC and NIU in the preceding chapter, it appears that reporting requirements for the ESC are stricter than for the NIU and that this involves a similar commitment for performance. As NEFCO combines NIU and ESC funds, it would make sense to harmonize reporting modalities for the NIU with those of the ESC.

Similarly, because capacity-building is not listed as an objective in the results framework, the reporting does not capture the true effectiveness of the programme.

Based on the above analyses the effectiveness of NIU is assessed as good with respect to energy efficiency and moderate with respect to humanitarian objectives.

### 4.2.3 Efficiency

THREE ASPECTS

Taking into consideration the lower energy savings and unclarity and under reporting on the nature of humanitarian impacts, the efficiency assessment looks at particular three aspects as means to justify as less efficient grant financed

programme that makes important contributions to building awareness and capacity among the recipient municipalities. These are (i) lowering the hurdle rate for investing in EE, (ii) the rate of project implementation and (iii) whether projects with potential for higher energy savings and number of impacted IDPs are selected before less attractive alternatives. These aspects are discussed below.

DEMONSTRATION  
EFFECT -  
STIMULATING OF  
AND INCREASING  
PROJECT  
IMPLEMENTATION  
CAPACITY

Easing of financial requirements is especially important for municipalities that otherwise do not qualify or cannot afford to take up loans. Arguments in support of this builds on anecdotal references of eliciting interest and increasing capacity of the municipal administrations to prepare and implement similar energy efficiency improvements. The impressions gained from the Review Team's visits in Kamenske and Pavlohrad including respective meetings with the mayors and their teams helped to substantiate this.

Among other aspects it confirmed that the support from the NIU made a big difference to enable much needed improvement works. The funds from NEFCO were said to complement financing from IFIs for related activities. Hence, the respective municipalities were of the opinion that there were essential synergies to be derived.

The Mayor of Pavlohrad recommended NEFCO, saying that it differs from other IFIs in its focus on real projects and tangible results. He also remarked that NEFCO, in comparison with other IFIs, has the best implementation procedures – understandable, affordable and effective as well as very good project support from technical assistance consultants.

When questioned about the lessons learned, both municipalities conceded that capacity for project preparation and implementation was a severe constraint. Without going into details, adherence to correct procedures as stipulated in laws and regulations was emphasised as was the fact that accompanying functions are deployed across different units.

IMPLEMENTATION  
RATE

Review of the progress and status updates by NEFCO shows that most projects generally are progressing as planned. Sufficient information has not been made available to enable comparison with ESC projects.

PROJECT  
SELECTION

Optimising energy savings and numbers of IDPs reached implies that the projects are selected in order of decreasing returns. Although the NIU-Action Plan specifies number of IDPs as a criteria for intervening this aspect is not assessed in the progress or status reporting. Instead the criteria is considered fulfilled by geographic focus on those areas having received the largest influx of IDPs.

The aspects of whether projects are selected in order of decreasing potential is therefore more evident for ESC projects where time needed to pay-back energy saved is the sole selection criteria. Avoiding so called "cherry picking" of projects is essentially a principal agent problem of moral hazard and adverse selection. It is evident in the ESC projects where the objective is energy savings.

Resulting from information asymmetry between buyer and seller in a deal, i.e. the municipality as buyer to obtain loans and NEFCO as seller to provide funds, the perhaps most obvious way in which this can occur relates to meeting the requirement of payback time for obtaining ESC loans. Obtained by dividing the value of the investment by the projected annual savings in energy costs, projects which pay higher energy tariffs will result in shorter payback times compared to those paying lower tariffs.

From the overview of the progression of the NIU portfolio provided in Annex 2, it follows that energy prices vary substantially both regionally and locally. Hence, there could be an implicit motivation for project owners to base their business case on the most expensive supplier. The local consultant was hence requested to examine this aspect and reported the following:

- > Tariffs for each project are extracted at the time the energy audit is completed and a business plan is drawn up. Even in one Batch, dates for different cities may differ in a few months. The rate of the hryvnia is very unstable, especially in 2014-2015. This is the reason for the difference in tariffs for electricity (for example, in 2014, when the tariff for electricity was the same for all regions of Ukraine).
- > Since January 2017, electricity tariffs have become different for different companies - electricity suppliers.
- > Tariffs for heat energy in Ukraine have always significantly differed by region and city. For example, in Dnipro there are 4 heat supply organizations. Tariffs differ by more than 3 times and the reason for this is the use of various types of fuel.
- > Based on selective check of about a dozen tariffs in different packages, it is impossible to establish whether they correspond to the truth by 100%, since the dates of development and adoption of business plans are not known. However, everything looks plausible. There are no significant deviations.

Judging eligibility on payback time alone is problematic as the positive benefits that accrue over the economic life of the asset are not accounted for.

From interviews and visits made and assessment of accounts received, activities appear to be implemented in a cost-efficient way. Viewing the financial statements for the NIU in 2015, 2016 and 2017, consultancy services appear to account for approximately 8% of spent funds. This is considered representative of what can be expected considering the project owner's limited capacity and the nature of bureaucracy in Ukraine.

Efficiency is hence assessed as good.

#### 4.2.4 Impact

MANY PEOPLE  
AFFECTED  
POSITIVELY

The ESC and NIU have affected many people positively, both directly and indirectly. As remarked in previous sections focus is on saving energy, reducing costs and CO<sub>2</sub> emissions. Comparison with before and after documentation

shows that targeted structures are renovated to desired standards and that planned energy savings are accomplished.

Furthermore, the borrowers (or project proponents) have noticed and do appreciate the impact made. Impacts directly or indirectly resulting from these outcomes are not specifically considered in the progress reporting and other available documentation. The reason being lack of specific objectives and indicators on the desired development effect of the programme.

In reality the impacts of the NIU are larger than assessed. In addition to demonstrating the positive effects and strengthening the capacity of the counterpart municipal PIUs to implement energy efficiency improvements, there are many impacts that are not reported.

For example, the representatives of the health clinic, schools and municipalities, that the Review Team held meetings with during the field visit, indicated that the absence rate of school children had dropped, that patients reported less anxiety about visiting and staying in the hospital, hence doctors were able to respond faster to serious health problems. Similarly, they noted that increased amenity from street lighting appeared to attract people to experience the city in the evening.

As both the ESC and NIU programmes evolve, programme and project planning could probably benefit from wider consideration and discussion on these types of repercussions. Nevertheless, as the intended refurbishments and savings were largely accomplished according to schedule, impact is assessed as good.

#### 4.2.5 Sustainability

##### CLOSE WORK RELATIONS WITH MUNICIPALITIES

Overall sustainability is assessed as good on the basis of the close work relations that NEFCO has established with its borrowers the last 10 years. Its staff, albeit not in a formal way, therefore learns about the extent to which investments made are properly operated and maintained after project completion. The established network ensures that the threshold for making contact is low. Despite the fact that monitoring ceases one year after completion, this helps to ensure that institutional knowledge is carried forward.

Other ways sustainability may be affected is if municipalities take up loans for an investment project out of the development budget without due focus on the affordability of the government budget or population to cover operational expenditure. If so, the sustainability of the project in question is at stake. The project may depend on supporting infrastructure and is hence vulnerable to a wider setting of how municipality manages its assets.

##### ISSUE OF SUSTAINABILITY

The issue of sustainability is not easy to address in Ukraine today. Many legitimate interests and concerns are at stake, hard budget constraints prevail, and rules of the game may change overnight due to, for instance, changes in legal and regulatory framework. Institutional knowledge within NEFCO resides within a small team and is therefore also vulnerable to turnover of staff.

Depending on resources and expertise for follow-up and maintenance at the municipal level sustainability may be strengthened through one or a combination of the following measures:

- > Reporting – can be followed-up better and the period extended from 1 to 5 year to match that of ESC projects.
- > Incentives – can be created/ developed for municipalities to maintain and further develop the expertise gained.
- > Capacity-building – NEFCO can focus more systematically on relevant and lasting capacity-building.

In such a situation, it seems important for IFIs and donors to exchange lessons learned, good ideas and intelligence and to do whatever possible to pay attention to the legal and regulatory framework to ensure that financial, environmental and social sustainability is facilitated. This may require a policy dialogue with governments at all levels, foremost the national government.





## 5 KEY FINDINGS AND SUGGESTED LESSONS

### PURPOSE

This chapter summarizes for each of the OECD-DAC criteria the key findings and suggests, based on the assessments made, lessons where the NIU and the ESC programmes might improve in the years ahead.

### 5.1 Key findings

### RELEVANCE– MODERATE OVERALL

NIU complements NEFCO's ordinary lending activities through the programme for energy savings credits (ESC) to support municipalities achieve energy savings by refurbishing outdated and energy inefficient infrastructure in schools, kindergartens health centres and street lighting. These projects are typically less than EUR 1 million, which is below the level funded by IFIs. NEFCO Therefore fills and important funding gap for energy efficiency in Ukraine. From the perspective of energy savings NIU is therefore very relevant. To the municipalities this is reflected in reduced subsidies, to the Government in less dependency on import of fossil fuels and, hence, improved security and to NORAD in reduction in CO<sub>2</sub> emissions and also improved security.

By focusing on areas with the highest influx of IDPs from the military conflict with Russia in eastern and southern parts of the country NIU also aims to address humanitarian needs. The intervention is made within a context where the conflict has reached a stalemate and is likely to continue for many years a key. This leads to the key finding that the humanitarian issue is not only a question of alleviating immediate needs, but also one of creating a pathway for positive change.

To justify the use of grant funds, this begs the question of the nature of humanitarian achievements and how the wider impacts of improving of living conditions in the targeted areas are measured. Neither are defined in the results

framework. This is considered a main weakness, which prevents systematic reflection and communication of the development impact(s) in the progress reporting and hence the ability of the programme to deliver on the rationale for its establishment.

Overall relevance is therefore assessed as moderate. The suggested lesson points to the need to revise the goal hierarchy.

EFFECTIVENESS –  
MODERATE

Review of the progress reporting shows that NIU is improving on project implementation and achieving the desired energy savings. Emphasis on the humanitarian objective appears to decrease in successive funding batches. However, by supporting the counterpart PIUs the programme contributes important capacity-building, but the programme's effectiveness in this respect including wider impacts (ref above) are under communicated. The latter will not be possible to remedy without revising the goal hierarchy (cf. relevance above).

It is also noted that relevant information on progress and achievement of objectives are gathered and analysed by NEFCO at project level, but the information is not aggregated and applied in reporting to the donors at programme level.

Effectiveness is therefore assessed as moderate overall. More systematic focus on capacity building and improved reporting with respective training in smart procurement and harmonizing of reporting requirements between ESC and NIU projects emerge as potential lessons.

EFFICIENCY –  
GOOD

Efficiency of the NIU is assessed as being good, the reason being that energy savings per invested unit is about half those of similar ESC projects. Furthermore, it is noteworthy that prices for the refurbished assets are competitive within the NIU, demonstration effect is high, project implementation, including PIU support, seems cost-effective and appropriate project selection is conducted. The latter is particularly a concern for ESC projects. Since these must satisfy the requirement of payback within 5 years there is a risk that subsidies will distort selection, i.e. favouring those projects which pay higher energy tariffs. Even though evidence in support of this was not confirmed, it is an aspect to be noted due to the large variation in energy tariffs.

Taking into account the finding that the programme seems having various indirect effects in addition to the direct effects, a separate lesson learned is that more attention could be paid to the indirect effects, including the measuring of these. This could be done in terms of introduction of specially designed KPIs. Causal linkages that could be explored are the relationships between capacity building, implementation rate and credit-worthiness.

**IMPACT – GOOD** Impact of NIU is assessed as good on basis that planned energy savings are achieved and actual impacts are larger than planned. Here lies also room to improve the results framework, as in its current form, a more targeted reporting and discussion on the development impact of the programme is not supported.

**SUSTAINABILITY – GOOD** NEFCO has over the last decade built up an extensive network and expertise in carrying out energy efficiency projects in municipalities. This helps to boost sustainability through ensuring that (i) NEFCO quickly learns about potential problems and that (ii) the threshold to ask for help is low. On this basis, sustainability is assessed as good.

Suggested lessons to improve/ strengthen sustainability ties in with the preceding discussions on enhancing of demonstration effect/ replicability through increased focus and systematic approach to capacity-building, conducting of training needs assessment, establishing of dedicated PIUs, cooperation with other donors.

## 5.2 Suggested lessons

**FIVE LESSONS** The preceding assessment and accompanying discussion lead to the following five suggested lessons:

- 1 Improved target setting and accompanying indicators so as to define desired change pathway.
  - > Revise the results framework and system for monitoring and evaluation and reporting on results accordingly. For example, increased capacity to handle procurement could be defined as an objective at the outcome level and tied to the goal of improved governance at impact level.
- 2 Continue with grant-based development aid, but with increased focus on capacity-building.
  - > Define the needs of municipality, understanding of roles and responsibilities, procurement and tasks to follow-up project implementation.
  - > Conduct training needs assessment, agree with the municipality the team that will be involved, establish dedicated PIUs and cooperation with other donors as appropriate.
- 3 Improved attention of capacity-building.
  - > Devise systematic approach including modalities to facilitate structured cooperation with other donor initiatives, e.g. SIDA and GIZ.
- 4 Improved reporting.
  - > Tailor reporting to revised goal-hierarchy in the results framework

- > Aggregate information on project status (outputs in refurbished assets) and progress towards outcomes in energy savings and impacted IDPs
- 5 Formalized follow-up of completed investment projects may be introduced to strengthen the sustainability and demonstration effect.
- > Harmonize reporting requirements between NIU and ESC projects.

**AWARENESS BUILDING**

To help build awareness and educate local banks on the opportunities from investing in energy efficiency reporting on NIU projects should be harmonized with those of ESC projects. This will make it easier to assess the level of grant financing needed to attract the interest of other financing sources. It will also help illustrate the different types of risks, a logical follow-up being ways to reduce risks. Capacity building of national and local banks are regarded as important aspects to strengthen the demonstration value and local financing for investments in energy efficiency (UNDP, 2017).

**CAPACITY-BUILDING**

In deducing lessons NEFCO appreciate the importance of capacity-building to handle procurement more efficiently. By acknowledging the risks of mixing multiple financing sources to minimize funding overlaps, conflicting works and parallel lines of reporting, NEFCO's self-assessment appears to be largely confined to the realm of optimizing project cycle management. In addition they note the importance of awareness of the fact that many of the EE-improvements attract public attention and are therefore vulnerable to political factors that can lead to unexpected delays.

In this regard NEFCO mentions two incidences where political factors have caused unexpected delays:

- > Local elections which coincided with the launch of procurement for the third batch of projects in the autumn of 2015 (the NIU Status Report, February 2017)
- > After visiting a project in Kramatorsk (project NIU 13/15), the Governor of the Regional Administration (Oblast) in Donetsk in a public announcement on Facebook confused the EE measures funded by the NIU with another project at the same premises. The other project had not progressed as planned. Because of the public confusion, the regional administration has refused to sign the approval of the municipalities' procurement plan, which is necessary for tax exemption (NIU Status Report, October 2017).

This second incidence also illustrates the inherent reputational risk in participating in projects where multiple funding sources are involved.





## 6 RECOMMENDATIONS

### PURPOSE

In this chapter we present our recommendations for further improvement of NEFCO's Energy Efficiency Programme in Ukraine to increase value added by the programme.

The recommendations follow from the assessment carried out, including comments made by people met, cf. Chapter 4 and suggested lessons in Chapter 5.

Most importantly in this regard are:

- > There is an urgent need for investments in energy efficiency in Ukraine. This is acknowledged by governments at all levels (national, regional and municipal), as well as IFIs and donors active in Ukraine.
- > NEFCO may play an important and even greater role than today in ensuring effectiveness as well as efficiency in energy efficiency investments in Ukraine.

There is a total of 10 recommendations. Each of them is presented the same way. First, the suggested lesson on which the recommendation is based followed by the recommendation itself. Second, its justification. Third, possible next steps to be carried out by NEFCO if the recommendation is well received.

## 6.1 Target setting, monitoring and reporting on impacts

### Recommendation

NEFCO may introduce Theory of Change (ToC) in its programme cycle management, thereby paving the way for an improved and more detailed understanding of the overall objective of the Energy Efficiency Programme and the way it secures required changes in Ukraine. ToC may ensure that external factors are properly accounted for, provide further guidance in developing Key Performance Indicators further, increased insight in impacts of the programme and monitoring of these, and a clearer vision on how to induce changes in mindsets of stakeholders at all levels (national, regional and municipal). Furthermore, NEFCO may develop and implement Results Based Management (RBM) to support the application of ToC. Revision of the goal-hierarchy in the results framework is identified as a necessary first step in this regard.

In ToC the focus is on what will change for whom as a result of our efforts, NOT on what we will do or achieve (INTRAC, 2015). ToC is an analytical and an iterative process and is designed to inform results frameworks. The below figures illustrate this.

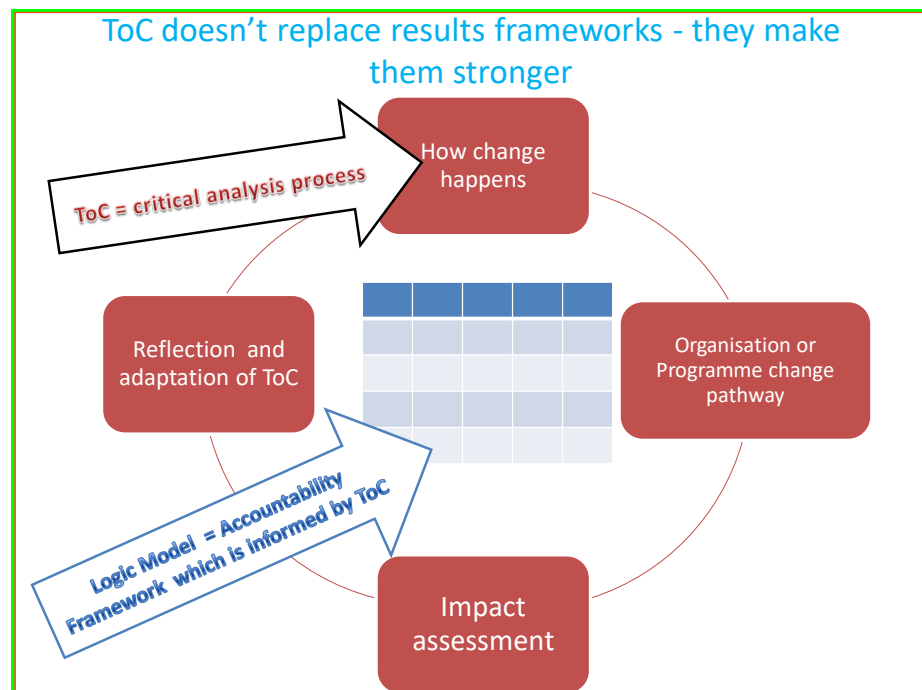


Figure 7. Theory of Change and RBM. Source: INTRAC, 2015.

With reference to the assessment of the results ToC appears an appropriate mechanism to elicit and guide donor dialogue on higher level objectives and outcomes. For example, referring to the translation of the results framework in Chapter 3, one train of thought that could be discussed in greater detail is, what were freed-up resources in energy saved used for? How did it meet the needs for IDPs and improve municipality? In this case the outcome freeing up resources should be linked to the higher-level goal of strengthening financing

and credit-worthiness. Renovation of selected infrastructure, delivery of certain services, number of jobs created could then be selected as indicators of the intended needs to be fulfilled.

However, if one neglects actual needs met and accept that this is implicit in the number of impacted IDPs, and instead focus on the capacity-building to achieve the desired demonstration effect. The ability to replicate successive EE-projects with greater effectiveness and efficiency could be tied to amount of provided support from NEFCO in terms of hours, number training sessions and trained staff as relevant indicators. Similarly, as mentioned under key findings in the previous chapter, improved expertise in procurement could also be linked to governance.

The RBM ensures that results are identified and tracked with the use of indicators and milestones. Most important is that RBM may provide a solid framework for strategic planning and insight on the differences between outputs and outcomes and, hence, draws attention to impacts – and, not least, emphasizes the importance of partnerships with government bodies (all levels), IFI's and donors, NGO's and others since these are key to achieve stated outcomes. A Strategic Results Framework usually constitute a part of the RBM; it is aimed at promoting effective partnerships., acknowledging the fact that external factors matter and should be addressed.

This recommendation addresses all five lessons mentioned in Chapter 5 with emphasis on #1 -Target setting, #3 - Attention to capacity-building and #4 - Improved reporting.

### **Justification**

As mentioned, NEFCO may play an important and even greater role than today in ensuring effectiveness as well as efficiency in energy efficiency investments in Ukraine. All the more reason there is to revisit and clarify in much bigger detail than today the objective of the programme and, not least, how, through which pathways, it may ensure that wider changes are made in Ukraine, thereby ensuring that sustainability prevails. Application of Theory of Change will put focus on these wider changes, including changes in legal and regulatory framework.

The application of ToC and accompanying RBM may provide NEFCO and its partners with various advantages:

- > They are useful tools for planning, prioritisation and implementation
- > They shift focus a little to external factor and assist in developing effective partnerships and as such could help to elicit cooperation other donor initiatives
- > They may pave the way for an improvement of impact assessment and subsequent M&E, insofar as it provides an analytical framework for identifying impacts and attributing indicators to these

- > They support reporting of impacts that are not linked with direct (or first order) effects
- > They are closely linked with Local Framework Approach, which is familiar to NEFCO and its staff.

### **Next steps**

Possible next steps are the following: 1) execution of internal course on Theory of Change and RBM based on, for instance, the work of DFID on Theory of Change; 2) development of a Theory of Change visual map (see below) and maybe also RBM; and 3) implementation of outputs of the visual map into programme cycle management and also project cycle management, including dissemination of project results.

As a rule, the Theory of Change visual map consists of six steps, namely:

- 1 Clarify objective (or objectives) and baseline
- 2 Identify high-level strategies
- 3 Create 'so that' chains
- 4 Link strategies with outputs and objective (or objectives)
- 5 Test the logic and relevance
- 6 Articulate assumptions

It may be considered making the process of developing the Theory of Change visual map an open process in which stakeholders and others are invited to provide.

## **6.2 New target groups and investment areas**

### **Recommendation**

It is recommended to seriously consider expanding the target group of NEFCO and providing financing for new investment areas aimed at promoting EE.

This recommendation addresses lesson #1 - Target setting.

### **Justification**



New target groups and investment areas, involving the development of new expertise and a change in investment focus within NEFCO, may promote EE further in Ukraine.

Till date, NEFCO has focused on EE improvements in public buildings. EE improvements in residential buildings have been dealt with, but no direct investments have been made in this sector by NEFCO; instead on-lending through commercial banks have been facilitated. It may be considered expanding the target group so as to include industries (e.g. reuse of heat), district heating (e.g. biomass) and electricity (e.g. wind energy). Maybe also agriculture albeit agriculture in Ukraine experience severe economic difficulties these years.

Furthermore, it may be considered to open new investment areas in residential and public buildings. Possibly new areas may include:

- > Retrofitting of heating installations into double-string systems (vertical risers) in existing buildings
- > Instalment of thermostatic radiator valves and heat allocators used for distribution of cost based on an energy meter installed at apartment or staircase level (probably, staircase level) in existing residential buildings
- > Replacement of heat exchangers and automatic controls at substations in secondary district heating systems.
- > Grant financed pilot projects could pave the way for such new investment areas.

### **Next steps**

As a first step, NEFCO could develop a gross list of possible new target groups and investment areas, highlighting pros and cons of each (e.g. through a SWOT analysis), and present it to all interested parties for further discussion and testing.

It is key that a business case exists in the short to mid-term. This may require changes in institutional set-up (e.g. empowered housing associations) and/or tariff setting.

Please note that this recommendation is closely connected with the following regarding revolving funds insofar as they may support an expansion of target groups and investment areas, depending on the exact design of these.

## **6.3 Revolving funds**

### **Recommendation**

NEFCO may consider, together with its donor countries and relevant stakeholders in Ukraine, to assist in the establishment and further management and operation of revolving funds at municipal level aimed at providing soft loans to, for instance, SMEs and households for energy efficiency investments. Currently, such funds do not exist<sup>9</sup>.

In recent years the World Bank has advocated the creation of a nationwide Energy Efficiency Revolving Fund in Ukraine for seeking out and marketing EE loans as well as for various capacity building activities (World Bank, 2015). In 2018, the Ukrainian Energy Efficiency Fund has been set up by the Ukrainian Government in close cooperation with the EU, Germany, IFC and UNDP<sup>10</sup>. The fund will provide loans and grants to energy efficient renovations of apartment blocks and also technical assistance to raise awareness in Ukrainian cities, prepare projects at the local level and support the management of the Fund. It is envisaged that project proponents (or final beneficiaries) will be municipalities and housing associations. It is, however, not a revolving fund.

It is recommended to examine the possibility of establishing revolving funds for EE investments at the municipal level enjoying the firm commitment of the municipalities in question. As part of this examination NEFCO should reach out to, among others, the Ukrainian Energy Efficiency Fund, UMIP and EBRD.

The review has clarified that it is possible within the existing legislative framework to establish revolving funds for EE investments at the municipal level with co-financing from the municipal budget and also that there is an interest in seriously exploring the possibility of establishing such funds. Pavlohrad

Among others, the Mayor of Pavlohrad Municipality, in a letter submitted to NEFCO in February 2019, has confirmed the interest of Pavlohrad Municipality in this. He emphasized that it is perceived as a tool to increase funding for EE investments in the municipality. He informed that it is the belief of the municipality that such a fund could be established as a so-called "social organization".

Against this background it is the firm belief of the Consultant that Pavlohrad Municipality is an ideal candidate to pilot a revolving fund for EE investments at municipal level in Ukraine.

In connection with the examination of the possibility of establishing revolving funds for EE investments at the municipal level it is strongly recommended to investigate the extent to which apartment blocks and households may be targeted, ensuring that existing financing mechanisms are complemented, not duplicated.

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<sup>9</sup> NEFCO has experience with revolving funds from Russia. This experience may serve as a source of inspiration, highlighting opportunities and challenges of establishing a revolving fund in a country in transition.

<sup>10</sup> Cf. [https://eeas.europa.eu/delegations/ukraine/43125/eu-and-ukraine-sign-%E2%82%AC50-million-agreement-support-energy-efficiency-fund\\_en](https://eeas.europa.eu/delegations/ukraine/43125/eu-and-ukraine-sign-%E2%82%AC50-million-agreement-support-energy-efficiency-fund_en).

This recommendation addresses lesson #1 -Target setting and #3 - Attention to capacity-building.

### **Justification**

Revolving funds may be an important vehicle to increase access to financing for EE investments for, not least, small borrowers, while at the same time lowering the risk to the lender. The ongoing decentralization process implying an increase in municipal budgets facilitates the possible establishment of revolving funds at the municipal level.

In brief, an energy revolving fund is a fund where a major part of the financial means disbursed comes back to the fund and is used for financing further energy investments, which - while reducing energy production/consumption in line with the national/regional energy strategy - are financially viable. As a rule, it does not offer grants. Instead, it provides soft loans, loan guarantees and/or equity investments<sup>11</sup>. Usually, it provides primarily of soft loans because they are much easier to implement and administer than loan guarantees and equity investments and less risky, as well.

Several countries have established such energy funds on a revolving basis. They are complementary to regular mechanisms for financing energy investments. The main rationale for this development stems from a series of market, policy and institutional failures that impede the emergence of financing mechanisms characteristic of market economies.

Energy revolving funds are established because they are believed to offer the following advantages:

- > in an environment where public budgets are volatile and investment expenditures often cut, a fund can provide sustained financing for energy programs
- > a well-managed fund can leverage resources from domestic sources and foreign donors
- > a fund can expedite and catalyse the national/regional energy strategy.

From the point of view of IFIs and donors energy revolving funds may offer the following advantages:

- > they constitute a mechanism for pooling small energy projects with an element of commercial capital involvement to overcome the minimum investment volume barrier of the international financial institutions
- > they may provide resources to co-finance energy projects

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<sup>11</sup> For inspiration on revolving funds, see:  
<https://www.greenbiz.com/blog/2013/06/07/are-green-revolving-funds-next-frontier-corporate-energy-efficiency>; <https://openknowledge.worldbank.org/handle/10986/20043>;  
and [https://issuu.com/world.bank.europe.central.asia/docs/gn\\_ee\\_revolving\\_funds\\_final](https://issuu.com/world.bank.europe.central.asia/docs/gn_ee_revolving_funds_final).

- > they accumulate expertise in identifying promising energy projects, some of which may fit the priorities of international financial institutions and foreign donors.

*Box 3. Revolving funds, Institutional set-up*

Three basic institutional set-up's for an energy revolving fund may be considered:

- > a new institution with all functions in-house
- > a semi-autonomous entity within a government body
- > a board with its own small secretariat.

These three basic options may be weighed against various criteria, including policy control of the fund versus reduced political interference, size and types of projects to be financed, administration and efficiency of the fund, availability of human resources, and credibility (and accountability) of the fund from tax payers', IFIs and donors' point of view.

Most energy revolving energy funds comprise an autonomous board with its own small management unit and close links to a bank. A contract is concluded with the bank following an open tender.

Regarding the exact responsibilities of the fund, two fundamentally different models may be considered:

- > the fund is fully responsible but delegates loan administration to the bank
- > the fund determines rules but delegates loan administration and credit risk to the bank.

In both models, soft loans will be made available for financing. However, there is a trade-off between the two models. Since banks are likely to be more conservative than a fund, the second model is likely to give less project loans and smaller losses to the fund than the first model. The choice between the two model requires political consideration of this trade-off. Usually, the first model is selected.

Establishment of a nationwide revolving fund will most probably face various challenges that are less predominant in a municipality in which NEFCO has many years of work experience and the municipal government is committed to the establishment of a revolving fund. Hence, it is recommended to focus at the municipal level, not the national level – at least, at this stage.

Whether nationwide or municipal, a revolving fund has to be established on the basis of certain well-acknowledged principles in order to ensure it may realize its full potential. They include:

- > It shall operate under the supervision of a government body with overall responsibility for the development and implementation of an energy efficiency strategy addressing the area and target groups in question
- > The government body shall on a regular basis evaluate the necessity to continue with the fund, taking into consideration the need to avoid duplication
- > Daily management and operation of the fund should be separated from the government body and its activities
- > Public transparency, including clear rules for financial control and accounting, is necessary to avoid suspicion of interference of other government bodies in the work of the fund, fraud and other illegal activities
- > Good project cycle management is required to reach cost-effective decisions.

### **Next steps**

Possible next steps are the following:

- 1 undertake assessment if RF can be established within the current legislative framework
- 2 development of options paper on a revolving fund in a selected municipality in Ukraine focusing on small energy efficiency investments identified and carried out by SMEs and households
- 3 execution of a conference with the participation of relevant stakeholders with the purpose of establishing guiding principles for the establishment of revolving funds
- 4 development of a document addressing fund management and operation, initial capital, loan terms, future revenue stream and others.
- 5 piloting and supporting the establishment (capitalization and/or TA to support governance aspects) of such funds with grant funding.

## **6.4 Payback period**

### **Recommendation**

It is recommended to consider changing existing loan terms and conditions of NEFCO's Facility for Energy Savings Credits (henceforth: the Facility) a little by adjusting the way the payback period is established so as to make financing from the municipality even more attractive to borrowers.

This recommendation addresses lesson #1 -Target setting.

### **Justification**

The Facility is, as already mentioned in Chapter 2, a loan programme offering small scale financing for energy saving measures in, especially, municipal owned buildings. The energy saving measures can be insulation of windows and doors, refurbishment of substations, introduction of thermostatic valves, etc. The objective of the Facility is to encourage promotion of introducing energy savings measures in municipal buildings and thereby reduce CO<sub>2</sub> emissions. Hence, the financing from the Facility shall support the introduction of the energy savings initiatives.

The Facility finance - in local currency (UAH) - up to 90 % of the investment costs. The maximum loan amount granted is equivalent of EUR 400,000 in UAH. The borrower of the loan is a municipality or a municipality-owned company, and the security for the loan is a municipal budget guarantee. The repayment of the loan is linked to the estimated savings of the investments, with a maximum repayment period of 5 years. The interest rate is 3% per annum and is fixed at this level throughout the duration of the loan. In addition, no commissions or fees are imposed as it is in standard financing programmes. These terms and conditions are indeed very favourable.

It is however seen - primarily in the smaller municipalities - that the repayment of the loan can be problematic, as annual savings on energy expenditures, which is used to repay the loan is estimated higher than what realistically can be expected as they are linked to the tariffs.

Hence, it should be considered to apply a discretionary adjustment factor to the estimated amount of annual savings, whereby the calculated payback period could be extended 1 or 2 years in case special conditions exist in a municipality (i.e. payback period could be 6-7 years). Otherwise, there is no reason to amend the existing terms and conditions vis-à-vis municipal organisations.

*Box 4. Typical loan package of an IFI, Key elements.*

The conditions and terms for an IFI loan depends upon the specific IFI, as well as the programme under which the financing is provided. Below follows an overview of the key elements in a typical loan package of an IFI. It serves as a source of inspiration for issues to address when assessing the loan conditions and terms of an IFI, no matter which. For some of the key elements the possibly impact on the lender and borrower, respectively, is highlighted.

**Project financing structure**

An IFI finance typically 35% of the total project costs and requires significant equity contributions from the Project Sponsors (or borrowers), which are typically equal or higher than the IFI contribution. It may be provided as loans or capital investments. The total financing (a mix of loans and equity) as a rule amounts to 30-40 % of the total project costs. Only in exceptional cases this threshold can be surpassed. Possibly impact:

- > *Lender:* Risk is spread to the different providers of the project financing
- > *Borrower:* The larger the share of domestic equity financing, the less loan amount and less risk to all parties.

**Security**

An IFI requires the companies it finances to secure with project assets including mortgage on fixed assets (land, plant and other buildings), on movable assets, assignment of the company's hard currency and domestic currency earnings. Possibly impact:

- > *Lender:* Covers the risk.
- > *Borrower:* By providing security, borrowers are more restricted in future dispositions.

**Covenants**

Project finance requires covenants as part of the financing package. Such covenants could be achieving certain financial ratios (e.g. DSCR), limiting the indebtedness and other requirements. Possibly impact:

- > *Lender:* By imposing covenants, the lender is more secure in receiving the loan repayments or the provided equity.
- > *Borrower:* By imposing strict requirements, the borrower is less free in its future dispositions, but by fulfilling the covenants, the borrower is also provided comfort that the loans can be repaid.

**Hedging options**

IFI's can assist in managing financial risks associated with a project's assets and liabilities. These risks are foreign exchange risk, interest rate risk and also commodity price risks. Instruments to hedge the risk are currency swaps, interest rate swaps, commodity swaps, options etc. The price of covering risks are borne by the borrower. Major possibly impact:

- > *Lender:* By hedging the risks, the lender has more security in receiving the expected loan and interest repayment.
- > *Borrower:* The borrower pays a price for unforeseen events outside the control of the borrower.



**Loan financing**

Loans can typically be granted as a fixed or floating rate, as senior or subordinated debt as well as mezzanine or convertible debt, be denominated in major foreign and in some local currencies, short to long-term maturities (typically between 1 to 15 years), and with a specifically designed grace period. Possibly impact:

- > The *lender* and *borrower* have the option to design the financing structure matching the cash flow from the project. Fixed interest rates provide for more comfort in terms of unforeseen circumstances, but has a price. Likewise, it is important to design the grace period sufficiently long in order to secure the cash flow from the project. Typically, the grace periods are shorter than required, due to optimistic planning. Similarly, it is in the interest of the borrower, that the loan can be provided in local currency, as it eliminates the exchange rate risk, but the price is a higher interest rate.

**Fees and charges**

On top of the base interest rate is added a margin to reflect the country risk and the project specific risk. In addition to the margin, the following fees are typically added: an appraisal fee, front-end commission and structuring fee and a commitment fee, payable on the committed but undisbursed loan amount. In addition, project sponsors are requested to reimburse for out-of-pocket expenses for technical consultants, legal advice and travel expenses.

**Co-financing**

The typical situation is that an IFI will try to mobilise domestic and foreign capital because co-financing increases the financing resources. Co-financing is provided by commercial banks and official co-financiers (government agencies, bilateral financing institutions, export credit agencies and other IFIs).

**Next steps**

Possible next steps are the following: 1) development of an options paper on a new mechanism to establish the payback period; 2) preparation and execution of a workshop with participation of selected municipalities who have obtained loans from NEFCO to assess existing loan terms and conditions and, especially, to comment on options paper developed (such a workshop could also address the issue on how to ensure that loan terms and conditions allow for and facilitate innovative financing mechanisms, cf. Section 4.5 below); 3) decision of NEFCO on possibly changes in loans terms and conditions; and 4) dissemination workshop with the purpose of informing about new loan terms and conditions (if changes are made).

## 6.5 Innovative financing mechanisms

### Recommendation

It is recommended to consider allowing private contractors (ESCOs) to become eligible for receiving loans from the Facility, thereby promoting private sector involvement in the implementation of energy saving measures in housing, whether municipal or privately owned<sup>12</sup>.

Furthermore, it is recommended to introduce performance contracting on a broader scale (e.g. in connection with ESCOs acting as special purpose vehicles for performance contracting).

This recommendation addresses lessons #1 -Target setting, #3 - Attention to capacity-building and #4 - Improved reporting.

### Justification

#### ESCOs

If ESCOs are to be pre-qualified to receive a loan from the Facility within a certain area, it may be that an ESCO, after tender and possibly negotiations, conclude a loan agreement with the Facility and a contract with, for instance, a housing association to implement energy saving measures. If so, access to financing of EE investments in housing and among contractors will increase.

No doubt, there is a huge market for energy savings in the private housing markets but also at private enterprises. However, these markets cannot be addressed with the current Facility set-up, where only energy savings in public buildings can be addressed. At present, the Facility cannot extend a loan to a private contractor who potentially could be involved in energy saving activities (an ESCO).

Hence, there is a need to amend existing loan terms and conditions of the Facility within two areas (Borrower and Security). Apart from the amendments to the borrowing entity, the Facility needs security from the ESCO. In this case the municipal budget guarantee is not appropriate and the following may be inserted in the terms and conditions. From the ESCO, the Facility will require securities with project assets including mortgage on fixed assets (land, plant and other buildings), on movable assets, assignment of the company's hard currency and domestic currency earnings.

Some ESCO arrangements already exist in Ukraine today. Furthermore, they are high on the political agenda. It favours the further establishment of ESCO.

The National Energy Efficiency Plan till 2020 (Resolution No. 1228-r) which was approved in November 2015 by the Cabinet of Ministers pay much attention to ESCOs, and energy performance contracting is a financing mechanism that has

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<sup>12</sup> In this connection it is important paying due attention to ongoing relevant research in this field, e.g. OECD, 2015.

received increasing media attention in Ukraine. Its main advantage is in minimizing principal agent problems by appropriate risk allocation. In this way, the ESCO takes on the responsibility for service delivery to agreed standards and receives payment from the customer for the energy saved. Although the principle is simple, establishment and financially sound operation of ESCO has met with a series of obstacles, access to financing due to an unstable environment for the banking sector being a main one. However, with appropriate frameworks and support programmes combined with training and capacity building to build trust and understanding among local financing institutions to better calculate risks and diversify lending portfolios suited for ESCOs, it is regarded a viable mechanism to scale up investments for energy efficiency in the residential and service sectors including public buildings, industry and transport (OECD, 2015).

It should be mentioned that it is key to ensure transparency and accountability in connection with ESCOs and ESCO arrangements so as to avoid rent seeking behaviour and corruption.

### ***Performance contracting***

The prevailing terms and conditions of the Facility do not allow for innovative financing mechanisms, as they are standard terms and conditions for traditional loans. However, if they could be amended, the Facility could allow for new and innovative financing mechanisms. This will not imply additional projects to be financed but will provide Project Sponsors with instruments to improve the energy savings initiatives and reduce the CO<sub>2</sub> emissions further at a low cost.

As of today, when a project has been approved and the Project Sponsor has received a loan from the Facility, the municipality has no incentive, except from the savings in the energy costs, to improve even further on energy savings.

Hence, the Facility can for a limited amount of money secure higher CO<sub>2</sub> reductions.

The innovative financing mechanism will be made through performance contracting and targeted EE improvements in municipalities. There are two methods which can be introduced:

- > Method 1: Interest rate reduction
- > Method 2: Subsidy for further CO<sub>2</sub> reductions.
- > In the following these two methods are described.

#### ***Method 1: Interest rate reduction***

The basic idea behind this method is that the municipality or Project Sponsor will face reduced interest payment requirements if it achieves higher CO<sub>2</sub> savings than agreed upon in the loan agreement (i.e. the baseline). The link between the extra CO<sub>2</sub> reduction and the interest rate could be as outlined in the table

below. Hence, the more they improve the energy savings the less they have to pay to the Facility.

| <b>CO<sub>2</sub> reduction compared to baseline</b> | <b>Reduction in the interest rate</b>      |
|--|--|
| 10% extra reduction                                  | 0.25%-point reduction in the interest rate |
| 17,5% extra reduction                                | 0.50%-point reduction in the interest rate |
| 25% extra reduction                                  | 0.75%-point reduction in the interest rate |
| 30% extra reduction                                  | 1.0%-point reduction in the interest rate  |
| 35% extra reduction                                  | 1.25%-point reduction in the interest rate |

If we assume a project, which has been provided a loan of 400,000 EUR (in local equivalent) with an interest rate of 3%, the borrower has promised a CO<sub>2</sub> reduction of 214 tonnes per year, and the payback period is 5 years, this method will produce the following results in terms of CO<sub>2</sub> reduction, the savings for the Project Sponsor which is equivalent to extra costs for the Facility.

|   | 2.75% | 2.5%  | 2.25% | 2.0%   | 1.75%  |
|---|-------|-------|-------|--------|--------|
| Percent additional savings in CO <sub>2</sub> emissions         | 10%   | 18%   | 25%   | 30%    | 35%    |
| Cost per CO <sub>2</sub> (EUR/tons)                             | 29    | 33    | 34    | 38     | 41     |
| NPV of CO <sub>2</sub> savings (tons)                           | 101   | 177   | 252   | 303    | 353    |
| NPV of savings to the Project Sponsor or cost to Facility (EUR) | 2.886 | 5.772 | 8.658 | 11.544 | 14.430 |
| Cost to Facility compared to loan amount                        | 0.72% | 1.44% | 2.16% | 2.89%  | 3.61%  |

*Method 2: Subsidy for further CO<sub>2</sub> emissions*

The cost of CO<sub>2</sub> avoided reflects the cost of reducing CO<sub>2</sub> emissions to the atmosphere. The cost of CO<sub>2</sub> avoided is expressed as a EUR/tons of CO<sub>2</sub> not emitted.

An alternative way to make the financing innovative would be to stipulate that for every tons further reduction in CO<sub>2</sub>, it will reduce the annual repayment of the debt, as the Project Sponsor receives a subsidy for the effort to reduce the CO<sub>2</sub> emissions even further

Assume that the market price for CO<sub>2</sub> emission is 20 EUR per tons, and the Project Sponsor manage to reduce the emissions to 235 tons per year (or extra 21 tons per year). Then, the Project Sponsor's reduced payment is 20x21=420 EUR per year. The price for CO<sub>2</sub> reduction can be increased with increased annual additional savings, to give the Project Sponsor an incentive to reduce the CO<sub>2</sub> emissions even further. This is indicated in the table below. Hence, the relationship between the price of CO<sub>2</sub> and the annual additional savings in percent is as outlined in the table overleaf.

|   |     |       |     |     |     |
|---|-----|-------|-----|-----|-----|
| Price of CO <sub>2</sub> (tons)         | 20  | 25    | 30  | 35  | 40  |
| Annual additional savings in percentage | 10% | 17,5% | 25% | 30% | 35% |

This method produces the following results, in terms of CO<sub>2</sub> reductions and consequence for the Project Sponsor and the Facility.

|   |       |       |       |        |        |
|---|-------|-------|-------|--------|--------|
| Percent additional CO <sub>2</sub> reductions               | 10.0% | 17.5% | 25.0% | 30.0%  | 35.0%  |
| NPV of CO <sub>2</sub> savings (tons)                       | 101   | 177   | 252   | 303    | 353    |
| NPV of savings to Project Sponsor or cost to Facility (EUR) | 2,019 | 4,416 | 7,571 | 10,599 | 14,132 |
| Cost per CO <sub>2</sub> (tons)                             | 20    | 25    | 30    | 35     | 40     |

Please note the following:

- > Both methods provide incentives to the Project Sponsor to increase its performance to further improve the energy savings and thus the CO<sub>2</sub> emissions
- > Both methods open up for providing some remuneration to the Project Sponsor if it achieves a higher CO<sub>2</sub> savings than envisaged in the baseline
- > None of the methods introduces new projects to the facility, but opens up for higher CO<sub>2</sub> reductions on existing projects than envisaged in the original loan agreement (baseline)
- > that above figures only provide some illustrative examples.

### Next steps

Possible next steps are the following: 1) development of an options paper on possibly ways forward with regard to ESCOs and performance contracting; 2) preparation and execution of workshop aimed at assessing this options paper and deciding which amendments to make to the loan terms of conditions of the Facility; 3) decision of NEFCO on possibly changes in loans terms and conditions; and 4) dissemination workshop with the purpose of informing about new loan terms and conditions (if changes are made).

## 6.6 Continued focus on small and medium municipalities

### Recommendation

NEFCO should continue focusing on small and medium municipalities in its crediting. Likewise, NEFCO should continue providing loans below MEUR 5.

In other words, NEFCO should continue exploiting the niche it has in Ukraine vis-a-vis other IFIs and donors active in the country.

This recommendation addresses lesson #2 – Continue with grant-based development aid, but with increased focus on capacity-building.

### Justification

Small and medium municipalities deserve much attention if the overarching objective of the activities is to contribute to energy savings and reductions in CO<sub>2</sub> emissions. They comprise many households and industries in spite of ongoing urbanization and centralisation.

A window of opportunities exists for NEFCO in this regard. First, small and medium municipalities experience increased revenues and, hence, increased decision-making power due to decentralisation carried out. Second, NEFCO is well-anchored in these, to a much larger degree than any other IFI active in Ukraine.

It addresses, at least, two OECD/DAC criteria, namely relevance and effectiveness.

### **Next steps**

Possible next steps are the following: 1) reach out to Association of Ukrainian Cities to identify areas for improvement in further cooperation between NEFCO and small and medium municipalities; 2) development of options paper to be discussed at workshop with representatives of Association of Municipalities, selected ministries, selected municipalities and IFIs and donors; and 3) preparation of strategy paper.

## **6.7 Eastern and southern Ukraine**

### **Recommendation**

NEFCO continues focusing the NIU on the eastern and southern Ukraine.

This recommendation addresses lesson #2 – Continue with grant-based development aid, but with increased focus on capacity-building.

### **Justification**

NEFCO is already present in eastern and southern Ukraine and has established solid work relations with municipalities and others there. In the current situation with continued tensions in the two parts of the country, it seems important building upon this. Furthermore, the development of eastern and southern Ukraine is of utmost importance to the further development in the whole of Ukraine.

Finally, it is worth mentioning that NEFCO appears to have succeeded in developing and completing more projects under NIU than under the ordinary NEFCO ESC program since start of the NIU-programme in December 2014.<sup>13</sup>

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<sup>13</sup> This is inferred and needs to be confirmed.

It addresses, to a high degree, the OECD/DAC criterion regarding relevance – and, although to a lesser degree, the criteria regarding effectiveness and sustainability.

### **Next steps**

A possible next step is to change existing evaluation procedures so as to favour projects in eastern and southern Ukraine (e.g. by giving them a higher score). Furthermore, it may be considered to launch some blended finance targeted at small and medium municipalities in the eastern and southern Ukraine.

## **6.8 Monitoring after project completion**

### **Recommendation**

As new NIU projects increasingly are financed with ESC-loans, monitoring requirements should be harmonized accordingly and combined with capacity building initiatives to help the municipality achieve its full EE potential.

This recommendation addresses lessons #3 - Attention to capacity-building, #4 - Improved reporting and #5 - Formalized follow-up of completed investment projects.

### **Justification**

Monitoring is considered a key sustainability driver for energy efficiency. This relates to maintaining momentum for change, as a mechanism to ensure accountability and as a tool to measure and adjust performance.

Hence, NEFCO should consider harmonizing monitoring requirements for loan and grant financed projects ensuring that the same criteria are used for evaluation of both. Energy saved in tons of CO<sub>2</sub> per unit of grant invested could be considered a relevant indicator to measure cost-effectiveness as well as a yardstick where grants should be combined with ESC-loans or other sources of financing.

Costs and responsibility for monitoring could be internalized in the loan and grant agreements. The Project Sponsor should be allowed to undertake procurement of monitoring consultant based on agreed selection criteria and/or lists of shortlisted companies. At the same time, NEFCO should conduct independent audits at random for quality control and verification.

Monitoring and evaluation should be developed beyond verification of energy savings as a tool for capacity building of project owners as well as local banks. NEFCO seems capable of promoting and coordinating such a dialogue between the various stakeholders due to its well-established work relations with stakeholders at all levels, including the municipal level.

### **Next steps**

Possible next steps are: 1) outline of structure and content of a project monitoring document; 2) workshop with selected key stakeholders, including Project Sponsors, on this outline; and 3) development and dissemination of the document.

## 6.9 Synergies

### **Recommendation**

It is recommended to improve existing synergies with other IFIs and donors active in Ukraine, not least those focusing on capacity and institution building (especially, SIDA and GIZ).

Furthermore, it is recommended to develop cooperation with relevant municipal projects in Ukraine, including the project "Participatory Democracy and Evidence-Based Decision Making at the Local Level in Ukraine" being carried out by the KS, the municipal sector's interest and employers' organization in Norway, in cooperation with the Norwegian Institute for Urban and Regional Research and the Association of Ukrainian Cities, as well as the UMIP launched by the EIB in cooperation with the Ukrainian Government.

This recommendation addresses lessons #3 - Attention to capacity-building, #4 - Improved reporting and #5 - Formalized follow-up of completed investment projects.

### **Justification**

Synergies help to strengthen and enhance the existing leverage of NEFCO. Hence, it is important to ensure that there are not underutilized synergies.

There are many synergies already. Development partner meetings are held on an ad hoc basis, SIDA and GIZ provide TA to municipalities whom NEFCO has provided soft loans, and there is an ongoing exchange, formal and informal, of ideas, lessons learned and new strategies.

Nevertheless, it may very well be that more could be done in this field – not least, because it is our firm belief that NEFCO has something to offer other IFIs and donors in terms of experience, networking and, not least, intelligence, and NEFCO may benefit from developing or strengthening synergies (e.g. with EIB and EBRD).

In particular, it seems as if donor coordination in the field of EE may be further strengthened. NEFCO could play an important role here, not least because it is small, well-respected IFI with whom all IFIs and donors have a good relationship.

### **Next steps**



A possible next step is to invite IFIs and donors for a meeting with one item on the agenda: How to improve synergies between you and NEFCO?

## 6.10 Dissemination

### **Recommendation**

It is recommended to pay much more attention to dissemination of NEFCO activities, including programmes, projects and annual reports, through the website, social media, workshops and seminars, as well as publications.

This recommendation addresses lessons #3 - Attention to capacity-building and #4 - Improved reporting.

### **Justification**

There are a lot of valuable stories to be told. However, as of today only a minor share of these are actually told to the outside world (i.e. anyone interested in the further development of Ukraine).

In this regard, it's important to keep in mind that while the primary target group consists of stakeholders in Ukraine, there is also a secondary target group consisting of the general public in the Nordic countries.

### **Next steps**

Possible next steps are the following: 1) hiring of a communication expert; 2) introduction of a newsletter; and 3) reach out to stakeholders in Ukraine to clarify their needs for information.

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Furthermore, NEFCO has kindly provided the Consultant with various documents of its own (reports, notes and mails). An overview of these may be obtained upon request.

## Annex II: Persons met and interviewed

This annex provide an overview of persons met and interviewed as part of the current review.

Table II-1 Persons met

|                        | <b>Name</b>                 | <b>Position</b>                        | <b>Email</b>   |
|------------------------|-----------------------------|--|--|
| Kamenske Municipality  | Yuriy Anatoliyovych Lysyak  | Deputy Mayor                           | miskrada@dndz.gov.ua   |
| Pavlohrad Municipality | Anatoly Oleksiyovych Veshyn | Mayor                                  | pavlooff@gmail.com   |
| EBRD                   | Anders Lund                 | E5P Fund Manager                       | LundA@ebrd.com   |
| EIB                    | Anastasiya Kharlan          | Business Analyst                       | a.kharlan@eib.org  |
| GIZ                    | Ima Khrenova-Shymkina       | Deputy Project Director                | <a href="mailto:ima.khrenova-shymkina@giz.de">ima.khrenova-shymkina@giz.de</a> |
| NEFCO                  | Magnus Rystedt              | Managing Director                      | <a href="mailto:magnus.rystedt@nefco.fi">magnus.rystedt@nefco.fi</a>           |
|                        | Amund Beitnes               | Senior Investment Manager              | <a href="mailto:amund.beitnes@nefco.fi">amund.beitnes@nefco.fi</a>             |
|                        | Julia Shevchuk              | Chief Investment Advisor               | <a href="mailto:J.Shevchuk@nefco.org.ua">J.Shevchuk@nefco.org.ua</a>           |
|                        | Andriy Katashov             | Technical Advisor                      | <a href="mailto:a.katashov@nefco.org.ua">a.katashov@nefco.org.ua</a>           |
| SIDA                   | Denis Prusakov              | Programme Officer                      | <a href="mailto:denis.prusakov@gov.se">denis.prusakov@gov.se</a>               |
| USAID                  | Andriy Nesterenko           | Senior Programme Management Specialist | <a href="mailto:anesterenko@usaid.gov">anesterenko@usaid.gov</a>               |

## Annex III: Summary of first 25 NIU projects

## Annex IV: Terms of Reference