



Concept of Energy Efficiency Fund

DRAFT DOCUMENT FOR DISCUSSION

The Ministry of Regional Development, Construction,
Housing and Communal Services of Ukraine

The report was prepared in cooperation with the Government of Germany, the EU Delegation to Ukraine, the EU Support Group to Ukraine, Berlin Economics, Coordination Center for Interaction with the CMU at the President of Ukraine, the State Agency for Energy Efficiency and Energy Saving of Ukraine, experts of the World Bank Group in Ukraine

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1. Review

At the macroeconomic level one of the main problems of energy sector in Ukraine is the heating of residential sector, where about 60% of energy or USD 3 billion are lost annually. In 2015-2016 the difference is financed from the State budget by the accumulated foreign loans.

Ukraine has already taken the first step by introducing the "Warm Loans" Programme managed by the State Agency for Energy Efficiency and Energy Saving (hereinafter referred to as the SAEE). Therefore, further development of mechanisms to stimulate energy efficiency should be based on the experience and with active participation of SAEE.

The establishment of Energy Efficiency Fund (the EE Fund) to solve the problems related to energy (primarily gas) consumption by population is a common practice for Central and Eastern Europe (CEE).

The sustainable funding and efficient governance make it possible to reach over 1.0 billion m³ of annual gas savings within three to five years. According to the practice of CEE, the establishment of EE Fund, technical support of project implementation and scaling-up of activities should be performed with active participation of donors and international financial institutions (IFIs).

The EE Fund shall provide a sustainable long-term mechanism to finance energy efficiency projects. The main task is to ensure transparency and objectivity of decision-making, sustainable financing, result-oriented approach, ongoing reporting and monitoring. Therefore, the EE Fund attributes shall be the Steering Committee, Executive Committee, technical offices, international audit of EE Fund activities.

One of the prerequisites of the EE Fund establishment has to be the sustainable financing approved by the government. It is possible by reinvestment of savings from the implementation of projects and reductions HUS subsidy spendings to the EE Fund.

Another prerequisite for energy efficiency has to be the adoption of modern legislation framework (the EU Directives implementation).

Communication and public confidence are crucial. Therefore, the current government programme that has created the demand and has a positive reputation among population has to be gradually transformed.

In addition to the reduced energy consumption, the EE Fund will have other significant social and economic benefits:

- Improvement in trade balance and reduction of pressure on the national currency exchange rate
- The stimulus for economic growth – creating new market with the annual capacity up to 2.0 billion Euro
- Up to 100 thousand new jobs
- New tax revenues to the Budget of up to EUR 500 million annually
- Increase in the dwellings price, comfort and operating safety
- Environmental benefits



2. Current status and justification of the EE Fund establishment

Gas imports can be reduced by ~58% by increasing efficiency of house heating

Excessive energy consumption causes substantial costs and risks in the areas of energy security, government spending, trade balance, economic and social activities, and environmental protection, and therefore it has a great potential for improvement.

The suggested Energy Efficiency Fund (EE Fund) should be a catalyst for attracting investments in projects aimed at reducing energy consumption for buildings heating and creating the proper infrastructure.

2.1. Energy balance and efficiency of consumption

Natural gas makes up about 55% of energy imports

Ukraine heavily depends on energy imports that in the current geopolitical conditions causes high risks for energy independence. Natural gas takes the biggest share in imports of energy amounting to 19.5 billion m³ (or 15.7 million tons of oil equivalent).

Diagram 2.1. Total supply of primary energy in 2014 (105.7 million tons of oil equivalent)

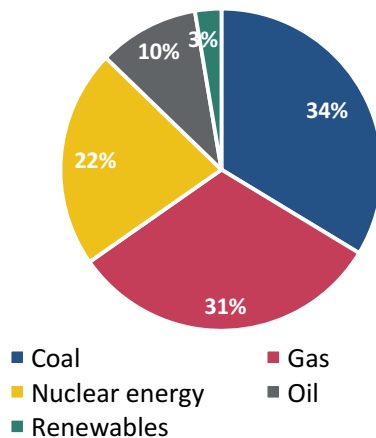
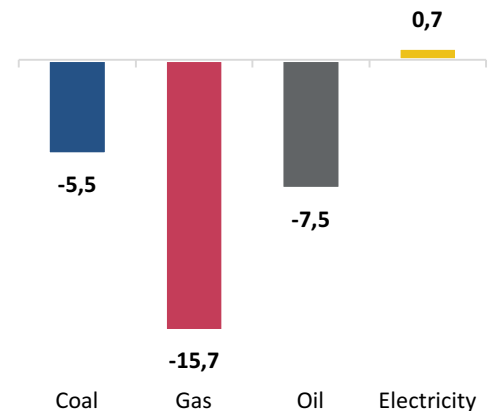


Diagram 2.2. Energy trade balance in 2014 (net import 28.0 million tons of oil equivalent)



Less dependency on gas imports is one of the key tasks of the national security of Ukraine

Source: data of State Statistics Service of Ukraine (excluding the AR of Crimea and "ATO" zone)

Diagram 2.3. Centralized heating fuel consumption in 2014 (12,2 million tons of oil equivalent)

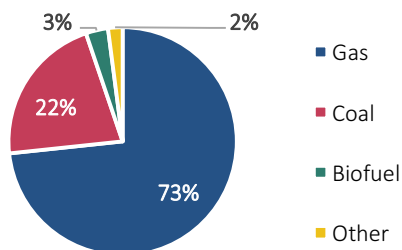


Diagram 2.4. Fuel consumption on production of electricity in 2014 (43,5 million tons of oil equivalent)

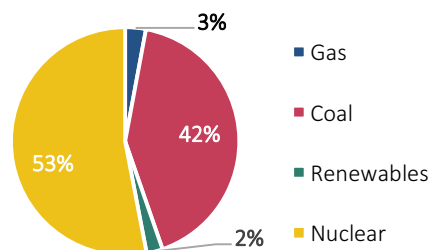
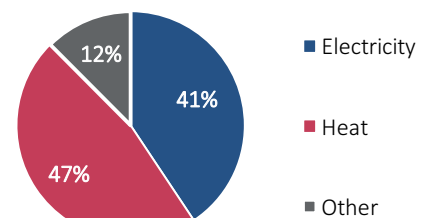


Diagram 2.5. Energy consumption by population incl. transformation and transportation losses in 2014 (32,9 million tons of oil equivalent)

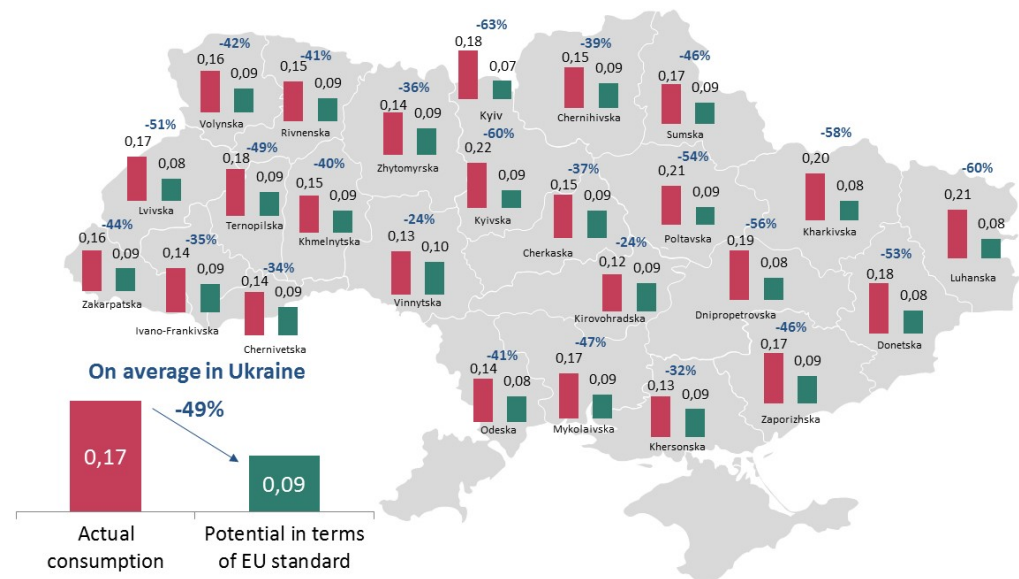


Source: data of State Statistics Service of Ukraine (excluding the AR of Crimea and "ATO" zone), Working Group analysis



Ukraine consumes 2.0x more of heat energy per m² than EU countries

Diagram 2.6. Map of energy efficiency in heat and hot water consumption in 2013, Gcal/ m²

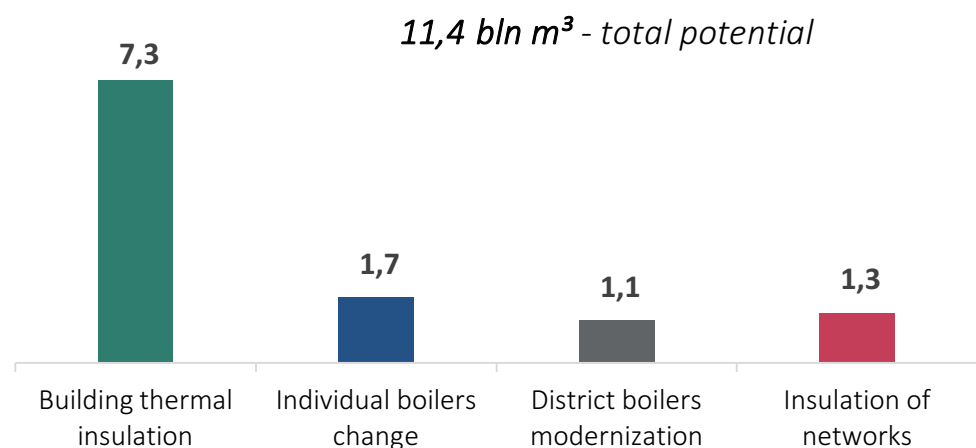


Source: data of "New Social and Economic Policy"

2.2. Heat production, supply and consumption

The sector of residential and public buildings heating has one of the largest potentials for improving energy efficiency in Ukraine. The annual consumption of natural gas for heating purposes is estimated at 18.6 billion m³ with the reduction potential (when reaching the current level of losses in the EU) of 11.4 billion m³ of gas (~58% of Ukrainian imports):

Diagram 2.7. Estimation of potential reduction in natural gas consumption by directions, billion m³.

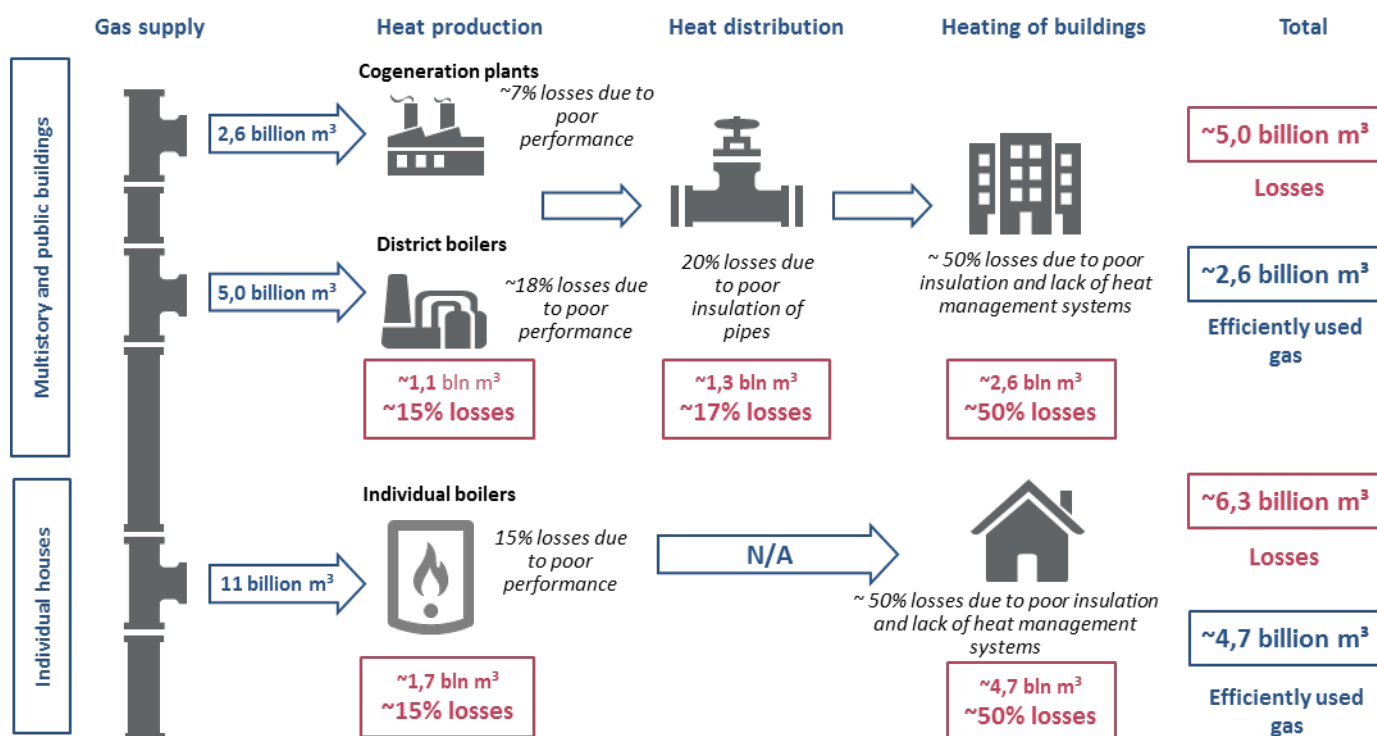


Source: Working Group assessments

The highest potential possessed by measures on the level of buildings (thermal rehabilitation and replacement of individual boilers)



Diagram 2.8 The assessment of annual energy losses at different stages of the chain of residential buildings heating (in comparison to the efficiency in EU countries).



*about 70% of heat is produced from natural gas (correspondingly, the total energy loss is 30% more than the given data).

Source: Working Group assessments

2.3. Economic evaluation of losses. Costs of inaction

~ USD 3 billion (or ~3% GDP) is excessively consumed annually without the stimulus for economy, of which ~USD 2.5 billion spent on gas imports

Excessive energy consumption to heat residential and public buildings has permanent negative consequences that re-occur every year.

Table 2.1. Economic evaluation of annual losses caused by excessive energy consumption for heating.



~ USD 3.0 billion (~3% GDP)

excessive consumption without a real economic stimulus



~ USD 2.5 billion

excessive expenditures on gas imports (pressure on trade balance)



> USD 1.0 billion

excessive expenditures of state budget on energy subsidies

Source: Working group assessments, at the rate of import gas price USD 225 per thousand m³








~57 billion dollars –
assessment of overall
investment needs on
energy efficiency of
heating

2.4. Assessment of overall investment needs

The solution of problems related to building heating requires the attraction of significant investments:

Table 2.2. Preliminary assessment of overall investment needs

	Sector	Investment needs	Gas consumption reduction potential
	Rehabilitation of multistory buildings	USD 17 billion	2,3 billion m ³
	Rehabilitation of individual houses	USD 28 billion	4,7 billion m ³
	Replacement of individual boilers by more efficient ones	USD 4 billion	1,7 billion m ³
	Rehabilitation of public buildings	USD 2 billion	0,3 billion m ³
	Modernization of heat production system and networks	USD 6 billion	2,4 billion m ³
Total		~ USD 57 billion	11,4 billion m³






Source: Working group assessments

In addition to the
reduction of gas
consumption the
investments will have
positive social and
economic effects

2.5. Potential investment effect

In addition to the decreased economic losses due to reduced energy consumption and enhanced energy security, the investments will have permanent social and economic benefits:

Table 2.3. Annual potential investment effect

	up to EUR 2.0 billion
	Annual investment needs of the new market for energy efficiency
	up to UAH 15 bln (EUR 500 mln Euro)
	Tax revenues annually
	up to 100 thousand
	New jobs
	up to 1,0 billion m³ (in initial years)
	Reduction of gas consumption and gas imports each following year (in the first years the investment impact is higher and reducing gradually)
	up to EUR 200 million
	Improving trade balance each following year
	up to UAH 6 bln (EUR 200 mln)
	Reduced needs for energy subsidies each following year

Source: Working Group assessments

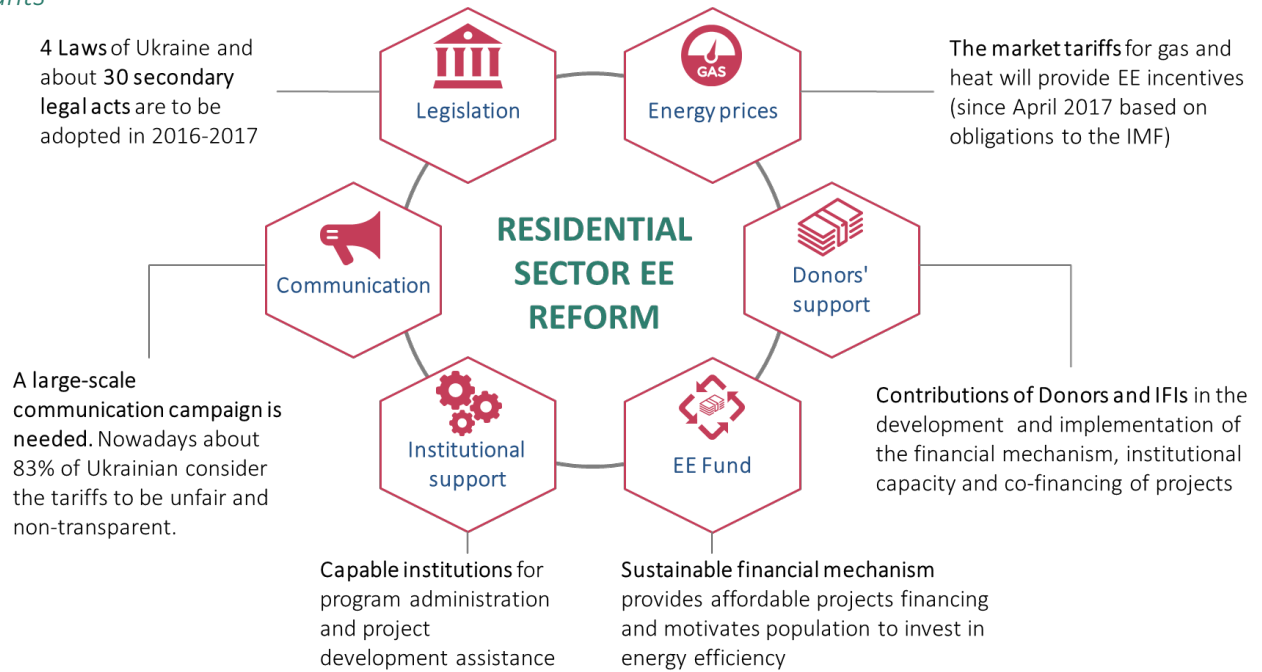


The EE Fund has to be a catalyst for attracting funds and coordination of the activities of all participants

2.6. The role of EE Fund and key factors of residential sector EE reform

The Energy Efficiency Fund (EE Fund) has to be a catalyst for attracting investments, but its effectiveness will largely depend on other factors:

Diagram 2.9. Key factors for a large-scale modernization of heating sector



Source: analysis of the Working Group



3. Concept of the EE Fund

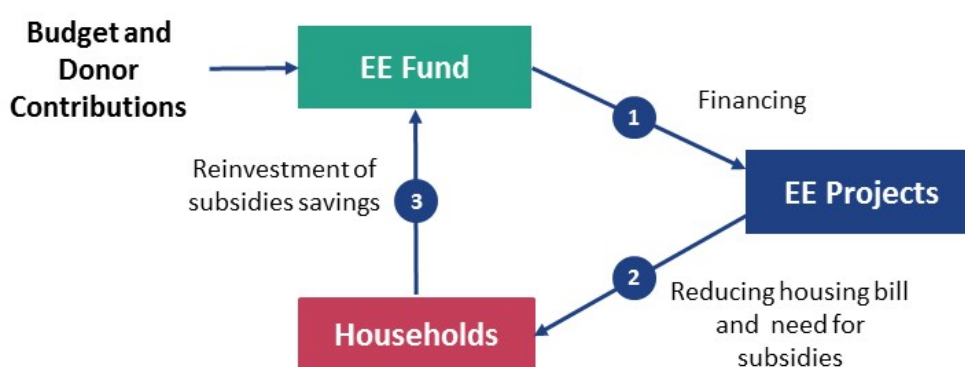
The main tasks of the EE Fund are the following:

- Consolidation of funding from various sources;
- Ensuring attractive conditions for project financing;
- Cost-effective allocation and control of funds;
- Creating conditions for attracting co-financing of projects.

3.1. Turning subsidies into investments

The key idea, which underlies the EE Fund concept, is to channel energy subsidies to financing energy efficiency measures:

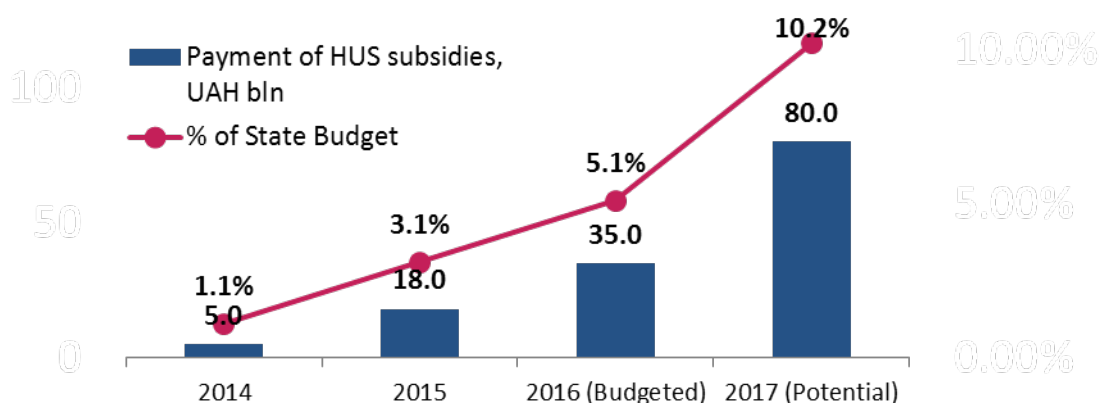
Diagram 3.1. Channeling the part of subsidies to EE measures



Source: analysis of the Working Group

Energy efficiency measures require significant capital investments. On the other hand, the Budget of Ukraine allocates huge fund on HUS subsidies; according to the IMF estimations the needs for HUS subsidies may reach UAH 80 billion in 2017 (or 10% of State Budget).

Diagram 3.2. Forecast of HUS subsidies payments under the current scheme



Source: IMF, analysis of the Working Group

There are two ways of how to channel subsidies into investments on EE projects, which are not mutually exclusive:

1. To enable households to channel subsidies (or their share) to the repayment of EE loans or monetize the subsidies (or their share). Then the funds are used to finance new projects;

The EE Fund has to attract funding from various sources and ensure effective use

Channeling the part of subsidies to EE measures is one of the key ideas of the EE Fund

Budget expenditures for housing subsidies may reach 10% of State Budget in 2017

Subsidies can be channeled to the EE Fund through loan repayments by households and/or directly through the State Budget



2. The EE Fund replenishment from the State Budget by reducing expenditures on HUS subsidies.

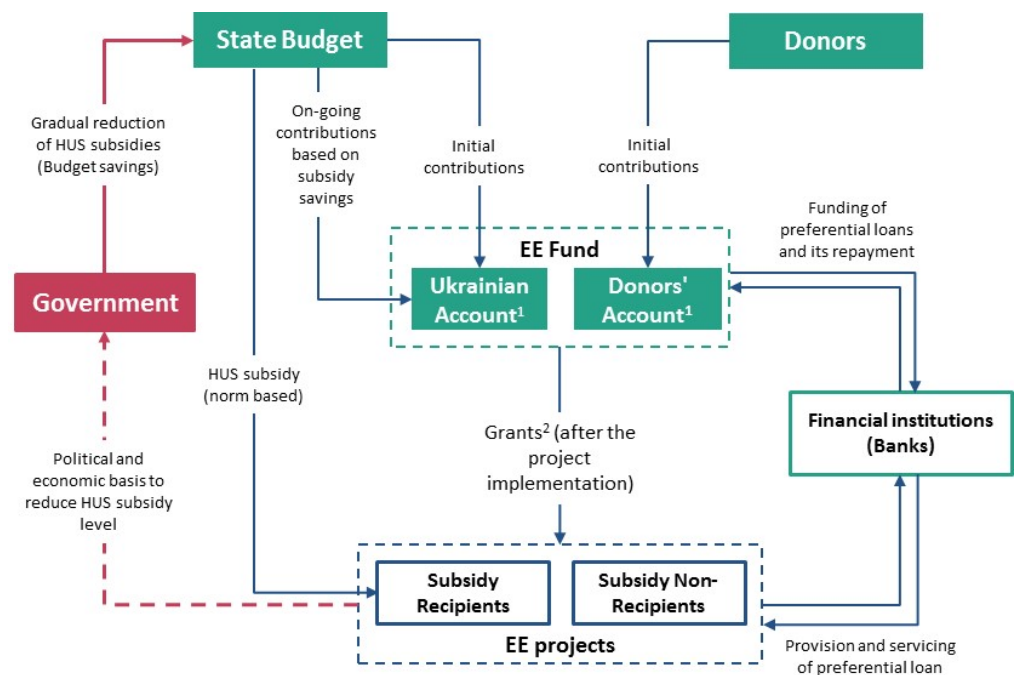
3.2. Model of the EE Fund financial performance

Key elements of the proposed model of the EE Fund financial performance:

- Donors provide the initial impulse for the EE Fund operation through grants (non-repayable) contributions within the first 3-5 years of its performance;
- The EE Fund is subsequently filled by on-going contributions from the State Budget and repayments (preferential loans);
- The EE Fund provides favorable conditions for financing through preferential loans and grants.

Donors have to provide the initial impulse for the EE Fund operation

Diagram 3.3. Proposed model of the EE Fund financial performance



¹The Ukrainian Account and/or Donors' Account may have a legal registration in the form of a separate legal entity (Fund)

²Grants may be paid through commercial banks or other financial institutions

Source: analysis of the Working Group

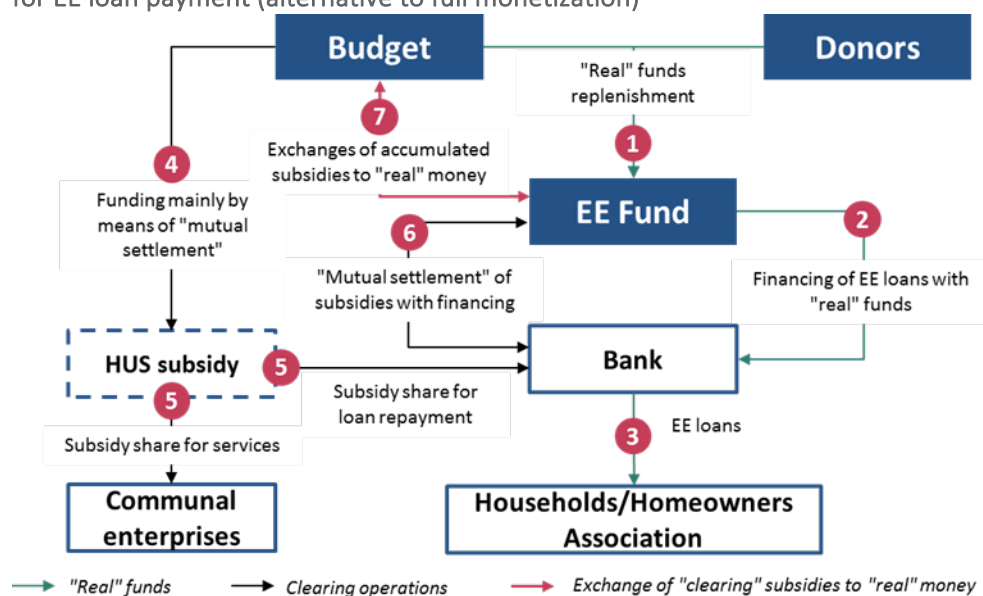
One of the obstacles for subsidy monetization and/or its use for EE loan repayment is the fact that under the current system the subsidies are paid/charged in non-monetary form, and are used by enterprises for settlement of other obligations (more detailed in Part 4).

Therefore, in order to implement the suggested financial model, it is required to shift to monetary form of subsidies (monetization) or include the EE Fund to the "settlement system":



*Scenario of channeling subsidies to EE loan repayment:
The Fund accumulates "clearing" subsidies and exchanges them to "real" funds with the Budget on an on-going basis*

Diagram 3.4. Suggestions concerning the scheme of channeling the share of subsidy for EE loan payment (alternative to full monetization)



Source: analysis of the Working Group

3.3. Key compromises on the EE Fund performance parameters

Determining key financial parameters of the EE Fund there are a few key compromises – decisions that will have both positive and negative impact on activities and results.

Table 3.1. Key compromises on the EE Fund performance parameters

Compromises	Arguments
<p>Selection of financial tools (products) of support</p> <p>Grants, preferential loans or their combination</p>	<ul style="list-style-type: none"> • Grants are cheaper to implement and can be "attached" to the project results (additional motivation for quality project implementation) • Preferential loans provide more control over the cost of funding and implementation of projects and ensure additional financial flow and sustainability for the EE Fund (reimbursement of loans) • Combination of grant and preferential loan can provide the advantages of both instruments, but it will make administration more complicated
<p>Financial support level</p> <p>More attractive financial conditions for projects or more financial leverage (multiplier in relation to the value of implemented projects)</p>	<ul style="list-style-type: none"> • The Fund will provide funding under better conditions compared to the market conditions • Higher level of financial support from the Fund, less projects it will be able to finance with a given budget, but greater demand and number of potential projects • Thus, the level of Fund's support should not depend only on the existing budget, but also the demand and market conditions of financing



Building renovation depth

Greater economic effect from one project or a large number of potential projects (Annex 1)

- A full overall renovation will have better economic performance than the renovation in a few stages
- Currently households are not ready to take a large financial commitment on full renovation
- Individual measures can have much better indicators of profitability (for example, installation of individual heating units)
- The best option can be a clear breakdown of renovation into stages and their prioritization taking into account both technological and economic aspects

Source: analysis of the Working Group

Decisions on these compromises are determined by the parameters of the Fund's programmes that depend on the market situation, available funds and demand, and shall be reviewed every year.

From a strategic point of view, it is important to provide a strong initial momentum for the programme popularization and make a focus on attractive terms for project financing in the early years and to reduce gradually the level of support thereafter. In addition, it will provide an additional incentive for the population to implement projects earlier and get more compensation.

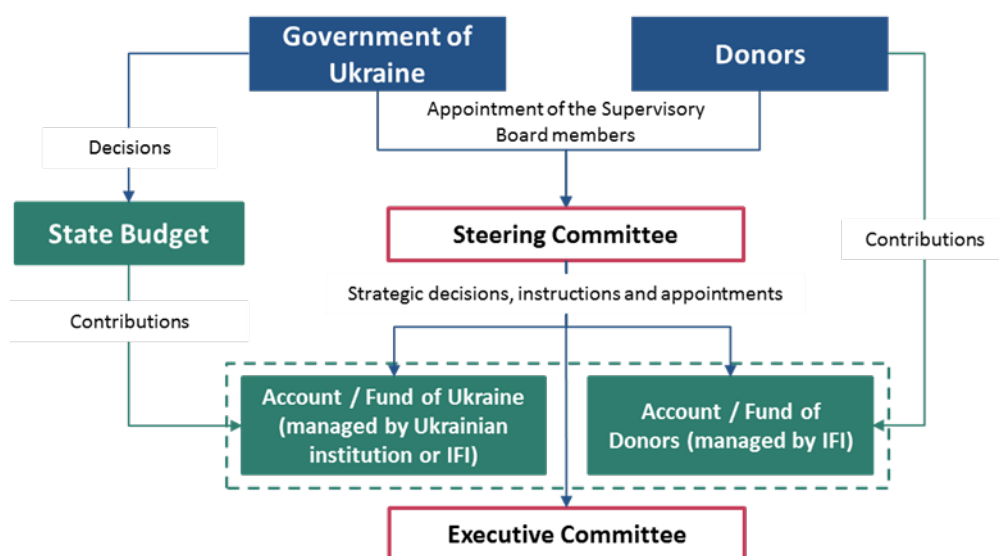
3.4. Management and operating model

The funds of donors and the Government of Ukraine will have different administrators, but the common structure of decision making

The mechanism of financial support of EE measures, based on the EE Fund, will have programme and project levels. On the programme level the basic (framework) decisions on parameters, conditions, action sequences, control and reporting tools, etc are made. On the project (or executive) level the decisions on specific projects are carried out.

A key element of the management system on the programme level is that formally the funds of donors and the Government of Ukraine will have different administrators, but the common structure of decision making.

Diagram 3.5. Organizational structure of the EE Fund on the programme level



Source: analysis of the Working Group

More detailed information on responsibilities of the parties and key open issues are presented in the table below.



Table 3.2. Responsibilities and key issues of stakeholders on the programme level

Composition/Status		Responsibility	Key open issues
The Government of Ukraine and State Budget	CMU (Minfin, Minregion, SAE, Ministry of Social Policy and other executive authorities)	<ul style="list-style-type: none"> Ensures the transfer of budget funds to the Ukrainian Account /Fund Determines and approves the mechanism of periodic replenishment of Ukrainian Account / Fund by reducing the level of subsidies Monitors the implementation of energy efficiency reform 	<ul style="list-style-type: none"> Determination of a full list and roles of the relevant central state authorities (in particular, concerning the Ukrainian Account) Determination of the mechanism of periodic replenishment of Ukrainian Account/Fund
	Verkhovna Rada	<ul style="list-style-type: none"> Eliminates the barriers to the EE Fund functioning Appoint their representatives to the Steering Committee 	<ul style="list-style-type: none"> Determination of the approach to subsidy monetization
Donors	Germany, EU, others	<ul style="list-style-type: none"> Guarantee and transfer grant funds to the Donor's Account /Fund Appoint their representatives to the Steering Committee 	<ul style="list-style-type: none"> Determination of the limits for funds use directions (for example, concerning preferential loans)
Steering Committee	The Board where the Government of Ukraine and Donors are represented	<ul style="list-style-type: none"> Sets strategic goals and objectives, monitors the status of energy efficiency reform Controls the use of funds and achievement of energy efficiency on the programme level Approves regulations and rules, instructions for operating activities of the EE Fund and project cycle (Operating manual) Approves eligibility criteria for projects 	<ul style="list-style-type: none"> Composition and format of decision making A clear determination and formalization of relationships with the administrators of Accounts/Funds
Account/ Fund of Ukraine and fund administrator	Shall be determined (IFI and/or Ukrainian institution)	<ul style="list-style-type: none"> Manages the Ukrainian account Reports to the Management Committee and appoints representatives (supervisor) Together with the Account/Fund administrator suggests Donors to the Executive Committee Manages the operating process of implementation, collects data about the payments and results on the programme level Selects and approves financial institutions Chooses a financial intermediary and signs a contract with the chosen intermediary together with the Donor's Account/Fund administrator 	<ul style="list-style-type: none"> Determination of the Ukrainian Account/Fund administrator. Options should be detailed (legal status, distribution of obligations, number of people, costs, etc.) A clear determination and formalization of relationships with the Executive Committee and financial institutions



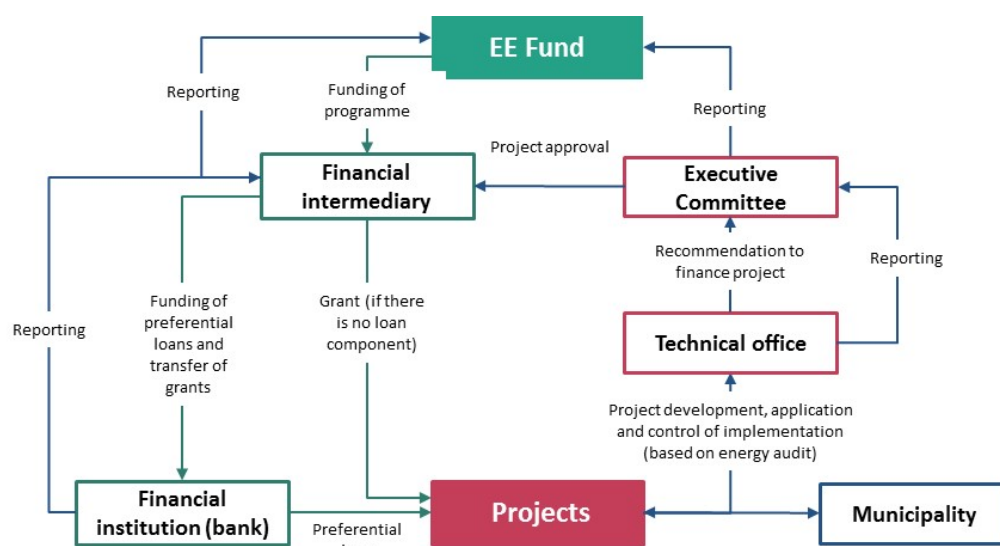
Account/Fund of Donors and fund administrator	IFI (shall be determined)	<ul style="list-style-type: none"> - Manages the Donors' Account - Reports to the Steering Committee and appoints representatives (supervisor) - Together with the Account/Fund administrator suggests representatives to the Executive Committee - Selects and approves financial institutions - Chooses a financial intermediary and signs a contract with the chosen intermediary together with the Ukrainian Account/Fund administrator 	<ul style="list-style-type: none"> - Determination of the Ukrainian Account/Fund administrator. Options should be detailed (legal status, distribution of obligations, number of people, costs, etc.) - Determination and formalization of relationships with the Executive Committee and financial institutions

Source: analysis of the Working Group

At the project level the key proposals are as follows:

- Application and approval of the project on the basis of energy audit;
- Creation of a capable Technical Office for providing technical assistance in the development, approval and control of projects;
- Involvement of municipalities;
- Issuing grants after the project implementation on the basis of the achieved level of energy savings. Grants can be provided before the end of the project for reimbursement of costs for project documentation and energy audit;
- A clear reporting system on energy, financial and economic parameters.

Diagram 3.6. Operating model on the project level



Source: analysis of the Working Group

More detailed information on responsibilities of the parties and key open issues are presented in the table below.

Projects shall be approved on the basis of energy audit

Technical assistance in project development

System for reporting on energy, financial and economic parameters



Table 3.3. Responsibilities of institutions and key open issues on project level

Composition/Status	Responsibility	Key open issues
Executive Committee	<p>Persons appointed by the Steering Committee (approved by the Fund/Account administrator)</p> <ul style="list-style-type: none"> - Makes decisions on the approval of project applications (submitted by Technical Office) - Approves the completed projects (submitted by Technical Office) - Informs the financial institutions/ financial intermediary and gives orders regarding funding (preferential loan and grant) - It is subordinated and reports to the Fund administrator 	<ul style="list-style-type: none"> - Determination of sources and budget for Committee funding - Determination of decision making format - A clear determination and formalization of relationships with other stakeholders
Technical Office and Municipalities	<p><u>Central office:</u></p> <ul style="list-style-type: none"> - Evaluates applications from technical and financial point of view and provides recommendations on funding - Evaluates completed projects (based on the accompanying documents). - Controls the implementation of projects, carries out sampling inspections - Provides technical support to applicants of projects in the preparation of project documentation - Provides training and assists regional employees, municipalities and potential applicants <p><u>Regional representatives (1-2 persons per region)</u></p> <ul style="list-style-type: none"> - Consult residents on their EE projects and procedures, assist in the preparation of documents for apartment construction projects - Support the relevant persons in municipalities responsible for information provision and support to potential applicants <p><u>Municipalities:</u></p> <ul style="list-style-type: none"> - Appoint contact persons to consult local people - Assist in preparation of applications for funding 	<ul style="list-style-type: none"> - Determination of the legal status and sources of financing: 1) Technical support of projects is funded by Donors (Ukraine may contribute by providing premises) 2) Ukrainian entity (not community service) partly funded by Donors 3) combination of two - Determination of composition and regional structure - Determination of relationships with municipalities and the role of municipalities in the preparation and implementation of projects



Financial intermediary	A commercial bank or other financial institution	<ul style="list-style-type: none"> - Receives tranches in installments from Accounts/Funds which later are transferred in accordance with the instructions of the Executive Committee. - Transfer grant after project completion - Provide the funding of preferential loan to financial institutions - Sign contracts with financial institutions based on instructions received from the Account/Fund administrator 	<ul style="list-style-type: none"> - To decide on the need in a financial intermediary (otherwise to delegate its function to financial institutions) - To determine a clear procedure of interaction and reporting with the Fund administrator
Financial institutions	Commercial banks, associations and other qualified players of financial market	<ul style="list-style-type: none"> - Sign contracts with projects (owners) on commercial loans (if any) and preferential loans (if any) after the receipt of relevant permit - Provide a financial report on project implementation to the financial intermediary and Technical Office - Offer their clients to participate in programme 	<ul style="list-style-type: none"> - Determine the mechanism of preferential loans - Determine the eligibility criteria of financial institutions
Projects	Investment projects aimed at EE improving in residential sector. The project owners (applicants, support beneficiaries) are responsible for implementation (co-owners of houses or their representatives)	<ul style="list-style-type: none"> - Prepare and submit project application form and accompanying documents to the Technical Office - Ensure the project implementation in accordance with the application - Report and provide accompanying documents - Sign loan agreement 	<ul style="list-style-type: none"> - Determination of contractual relationships with financial institutions regarding the implementation of projects and funding - Determination of eligibility criteria for projects and the volume of support

Source: analysis of the Working Group



3.5. Technical Office

The legal status, structure and funding sources of Technical Office shall be determined

At least on the first stage (first 3-5 years), the Technical Office is supposed to function with the help of Donors' assistance

Technical Office plays an important role and the efficiency of its operation influence the number of submitted projects (demand) and quality of these projects. It is assumed that it will have a central office and regional representatives. Key objectives of the Technical Office are the following:

- Technical support in preparation of projects and all other participants
- Review and approval of applications (energy audit, investment plans etc.)
- Monitoring and control of project implementation
- Awareness raising campaign, trainings, workshops, etc.
- Cooperation with municipalities on the regional level to promote the EE Fund programmes and project selection

There are several options how the Technical Office can be created:

1. State legal entity
2. Private legal entity under contractual obligations to state entity
3. Separate unit in state legal body (for example, SAEF)
4. Separate unit in financial intermediary (for example, bank)

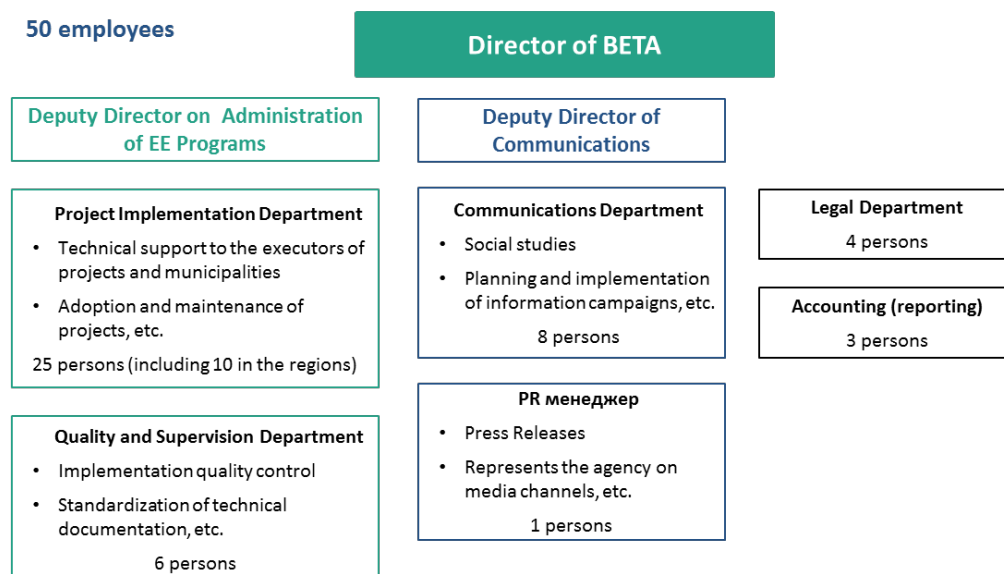
With the purpose of executing obligations in a proper manner and minimizing corruption component, the Technical Office should employ qualified technicians and managers who will have the appropriate salaries. Therefore, at least on the first stage (first 3-5 years), the Technical Office is supposed to function with the help of Donors' assistance.

Determination of organizational structure requires additional study and will, in particular, depend on the decisions on open issues described in Tables 3.2. and 3.3. The diagram below shows the organizational structure of BETA (Lithuanian Agency supporting the implementation of national energy efficiency programme), which has proven its effectiveness (see Part 9).

Diagram 3.7. Organizational structure of BETA (Lithuanian Agency supporting the implementation of EE Programmes)

Legal status - state non-profit institution

50 employees



Source: BETA

In Lithuania the Technical Office has 50 employees

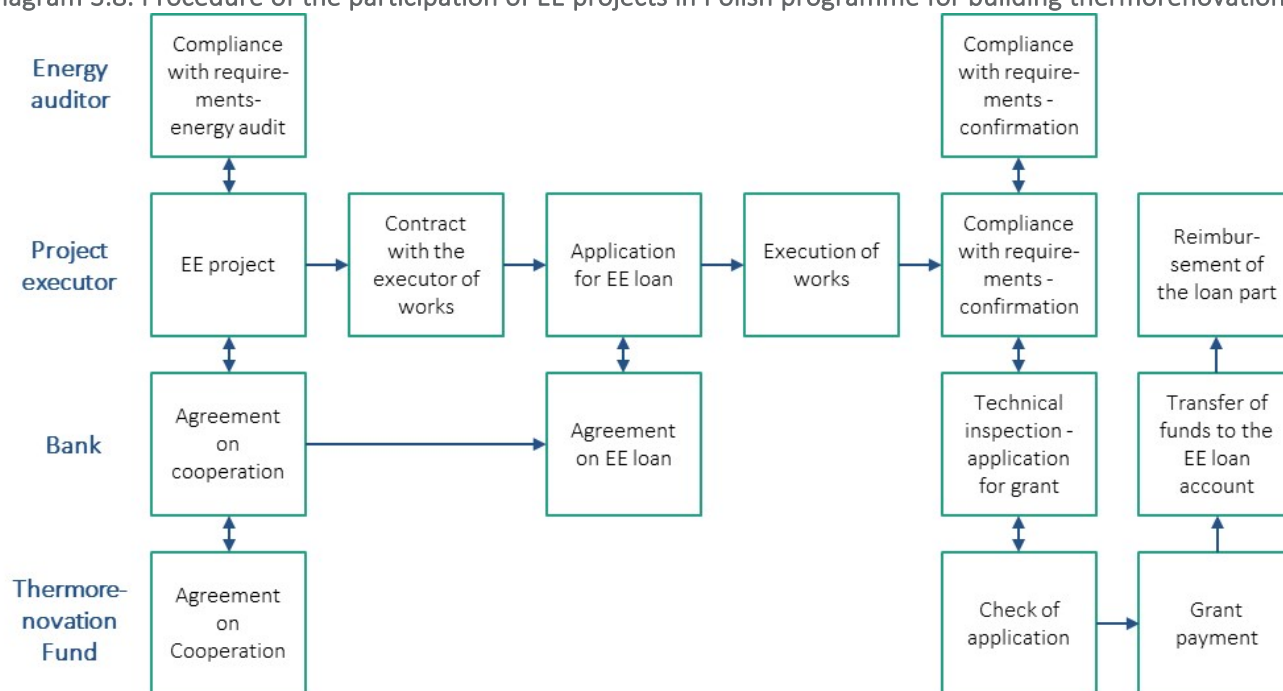


3.6. Programme operational rules (Operating manual)

At the programme level it is supposed to approve the provisions, operating rules and operating activities (Operating manual) with a clear description of actions. In addition, the Operating manual shall be the basis for developing materials with explanations for each stakeholder of the process (especially for project executors). The main role in the development of explanatory materials and consultations on their implementation should be carried out by the Technical Office.

The diagram below shows the procedure of project participation in the programme of the Polish Fund for building thermorenovation.

Diagram 3.8. Procedure of the participation of EE projects in Polish programme for building thermorenovation.



Source: presentation of the Polish Bank Association (Związek Banków Polskich), 2014

3.7. Key risks of the EE Fund establishment and operation

Government activity priorities

Energy efficiency should be one of the key elements on Ukraine's national agenda. The strategy of energy efficiency in housing and social sector should be clearly developed and reflected in strategic documents (Coalition Agreement, Action Plan of the Government, Strategy 2020).

Legislation development and adoption

One of the key elements of effective implementation of energy efficiency reforms in heating sector is a legal framework. In 2016-17 Ukraine has to adapt its legislation in accordance with the EU requirements, but considering the Ukrainian environment.

Support of donors (geopolitical and other factors)

Launching and effective functioning of the EE Fund in the Ukrainian environment are hardly possible without donors' direct technical and financial assistance (according to the experience of Eastern Europe). However, considering the current geopolitical

Energy efficiency shall be determined and formalized as one of the Government priorities

Donors' support is crucial for the EE Fund establishment



situation the focus may shift from Ukraine to other problems. Moreover, the financing of EE Fund may be affected by unstable international economic situation.

Communication with the people (populism)

One of the conditions is a clear understanding of the people that since 2017 the energy resources prices will be market-driven, and the EE measures are the only way to reduce bills. In Ukraine there are political forces that can use this theme for populist rhetoric and achieve their personal interests.

Implementation risks (effective cooperation of many stakeholders)

The EE Fund performance, first of all, depends on effective collaboration of many institutions, namely, the Homeowners Associations, local and central authorities, technical support, service providers, financial institutions, etc.

3.8. Five key lessons and findings drawn from international experience

This Part is an unofficial review of the part of the World Bank report "Energy Efficiency: Lessons Learned from Success Stories" (2013)

Price shocks at politically expedient times, as experienced in Poland and Lithuania, have proven to be effective

Successful countries have taken a comprehensive approach and high management standards to solve the EE problems

Monitoring and ongoing review are one of the keys to success

EE implementation in residential sector is more complicated and takes more time than in industrial sector

1. **Get the pricing right.** Successful countries increased energy prices rapidly: price shocks at politically relevant moments, as experienced in Poland and Lithuania, have proven to be effective. As incomes grow, energy prices shall include indirect costs associated with the environmental impacts of energy use.
2. **Good governance matters:**
 - a. **Get the enabling framework rights.** Successful countries start by developing an energy efficiency policy, followed by an Action Plan to guide the implementation of the energy efficiency policy. Then they set long- and medium-term energy efficiency targets, and ultimately pass laws, secondary legislation, and regulations to provide the incentives to enable implementation of the Action Plan.
 - b. **Establish institutional arrangements.** Successful countries establish the budget needed to attract high quality professional staff. They are responsible for advising on EE policies, monitoring and evaluating the Action Plan to ensure that targets are met, reporting on progress to the government, and advising on adjustments to the policy framework as needed.
 - c. **Develop coordination mechanisms.** Well-run energy efficiency programmes involve some Ministers, central and local authorities.
 - d. **Ensure attractive terms for project funding.** To overcome ineffective market relationship, it is important to balance market and soft financing.
3. **Sustained monitoring and evaluation are needed.** All successful countries actively review and update their energy efficiency programmes, adjusting for changing conditions and learning from others.
4. **Quick wins happen in the industrial sector, while residential reforms take longer to implement.**



- a. **For the industrial sector.** The role of the government is limited, but important. It must create a favorable environment by setting energy prices right, including costs associated with environment.
- b. **For households and commercial buildings.** Successful governments are actively engaged in this sector to: set the prices to reflect the cost of supply; facilitate Homeowners Associations; provide grants for investments in EE; disseminate information on energy efficiency options; and facilitate low cost energy audits, etc.

5. **It takes more than a market for energy efficiency to work.** It has been argued that energy efficiency should be driven by market forces in which the government ensures that the full cost of energy is reflected in the price and that the rest should be up to the market to respond. Successful countries have done more than rely on market principles. The incremental cost of making new buildings energy efficient is modest: about 5 percent of the cost of the building. However, the cost of retrofitting existing buildings is much higher and difficult to justify. Hence the government has an important role to play in the regulation of building construction. Similarly, the application of appliance standards has proven to be an effective component of successful energy efficiency programmes. Lastly, knowledge sharing programmes, as a public good, are an important component of the government's responsibilities.

*Successful countries
have done more than
rely on market
principles*



4. HUS subsidy system and its impact on the payments for gas

4.1. The implementation of IMF conditions requires some changes to the public subsidy system and changes to the system of gas purchase funding

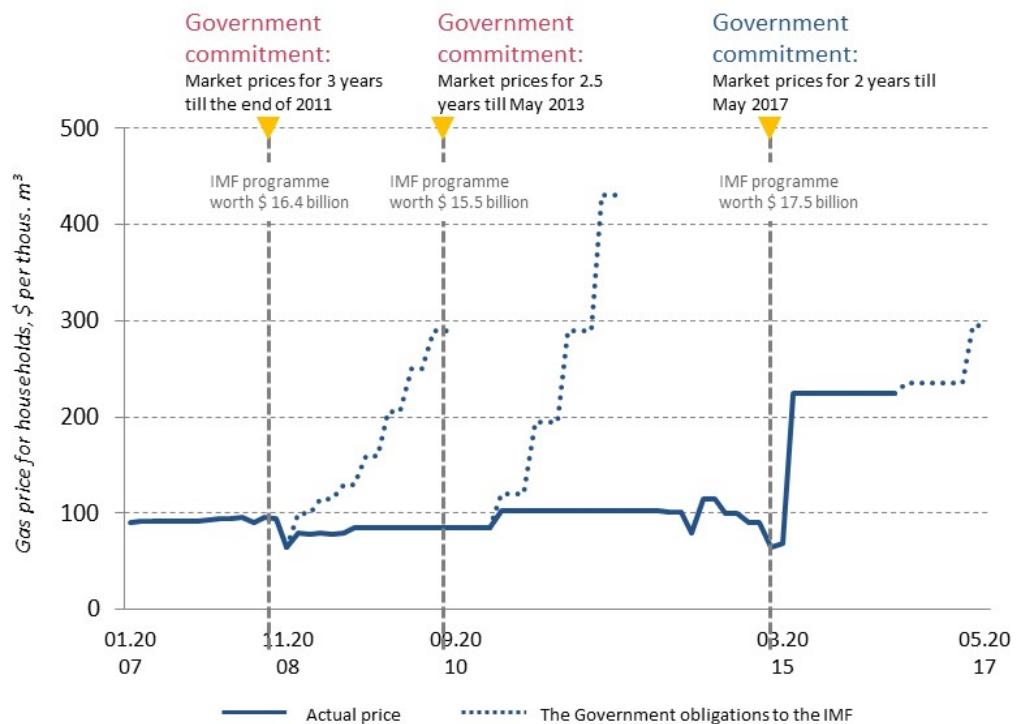
According to the signed memorandum with the IMF dated July 21, 2015, Ukraine is obliged to reform its housing subsidy system till May 31, 2016. Changes that are to take place:

- merger of subsidies and privileges systems (most of privilege recipients shall be transferred to subsidy scheme);
- changes in the formula for calculating subsidy payments in the manner to reduce overall expenditure.

Also according to the memorandum, the national JSC "Naftogaz" shall not be financially supported by the State. So, since 2017 any state support of "Naftogaz" is provided in the form of subsidies to the population. In 2014 "Naftogaz" was funded at the expense of domestic bonds that amounted to USD 6.1 billion. And compensation of gas consumption through subsidies was only 6%.

Since 2008 the government undertook commitments to increase gas prices, but, in fact, only in 2015 started to implement it under its liabilities to the IMF.

Diagram 4.1. The historic commitments of Ukraine to bring gas prices to an economically justified level



Source: Memorandum with the IMF, analysis of the Working Group

Under the Memorandum with IMF the system of gas purchase and subsidy assistance to the people was changed

Direct subsidization of the national JSC "Naftogaz" was replaced by scheme, which more complex in administration

There are two sources for settlements:

1. Consumers
2. HUS subsidies

*HUS subsidies
received by DHC and
Gas suppliers are
clearing settlements*

Enterprises can settle subsidies with gas or electricity purchases

The diagram illustrates the energy market structure in Belarus, showing the flow of real money (green arrows) and settlements (red arrows) between various entities. The entities are represented by boxes: Budget, Ukrgazvydobuvannya, NERC, Manufacturers of el-ty from gas, Naftogaz, SE Energorynok, Gas suppliers, Electricity suppliers, DHC, Spec. account (Oschadbank), Social Protection authorities (Minsoc), and Population.

Flows:

- Settlements (Red arrows):**
 - Budget to Ukrgazvydobuvannya (for taxes)
 - Ukrgazvydobuvannya to Budget (for taxes)
 - Ukrgazvydobuvannya to Naftogaz (for gas)
 - Manufacturers of el-ty from gas to Naftogaz (for gas)
 - SE Energorynok to Naftogaz (for electricity)
 - SE Energorynok to Electricity suppliers (for electricity)
 - Electricity suppliers to DHC (for electricity)
 - Naftogaz to Gas suppliers (for gas)
 - Gas suppliers to DHC (for gas)
 - Population to DHC (subsidy)
- Real Money (Green arrows):**
 - Population to Spec. account (Oschadbank) (for heating)
 - Spec. account (Oschadbank) to Gas suppliers
 - Spec. account (Oschadbank) to DHC
 - Spec. account (Oschadbank) to Naftogaz
 - Naftogaz to Manufacturers of el-ty from gas
 - Manufacturers of el-ty from gas to SE Energorynok
 - SE Energorynok to Electricity suppliers
 - Electricity suppliers to Budget

Other elements:

- NERC:** Sets shares of allocation each month for each DHC.
- Social Protection authorities (Minsoc):** Receives applications for subsidy from the Population.
- Legend:**
 - Red arrow with a circular arrow icon: settlement
 - Green arrow with a stack of coins icon: real money

**Settlement scheme for gas supplies to households is roughly the same – the Budget settles subsidies with gas suppliers (instead of DHC)*

Source: CMU Resolution #217, CMU Resolution #20, Decree of Minenergo and Minfin #493/688, Minregion, analysis of the Working Group

There are two sources of settlements for central heat and gas supplied for households:

- Payment by households transferred to special accounts of state owned Oshadbank, which thereafter are distributed between district heating companies (DHC), gas suppliers and Naftogaz (CMU Resolution #217)
- HUS subsidies, which are clearing settlements along the gas supply chain and State Budget (CMU Resolution #20 and Decree of Minenergo and Minfin #493/688)

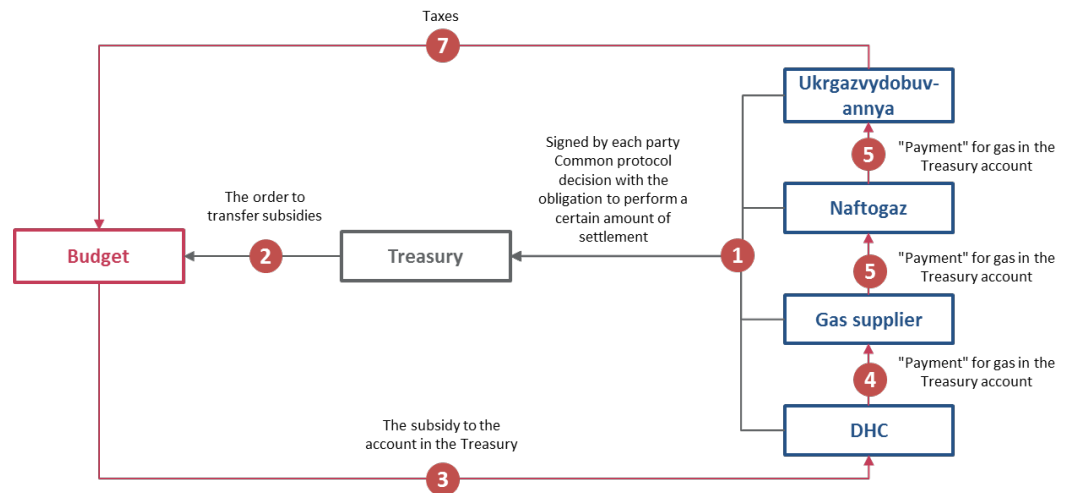
The key features of the settlement algorithm are the following:

- DHCs and gas suppliers can settle HUS subsidies with gas or electricity purchases;
- State Budget settles HUS subsidies expenditures with taxes of Naftogaz and Ukrgezvydobuvannya;
- All parties in the settlement chain must have special accounts opened in State Treasury, which are used for clearing;
- If any counterparty in the chain has no necessary obligations, the settlement can not be performed;
- Before the Treasury launches the clearing scheme, all counterparties must sign joint settlement memorandum of the defined form.



If any counterparty in the chain has no necessary obligations, the settlement can not be performed

Diagram 4.3. Settlement algorithm (example of DCH settlement for gas supplies)



Source: CMU Resolution #20, analysis of the Working Group

One of the consequences of such scheme is the accumulation of Budget debt for HUS subsidies.

In December 2015 48% (UAH 7.5 bln) of the total household costs for HUS was covered by subsidies.

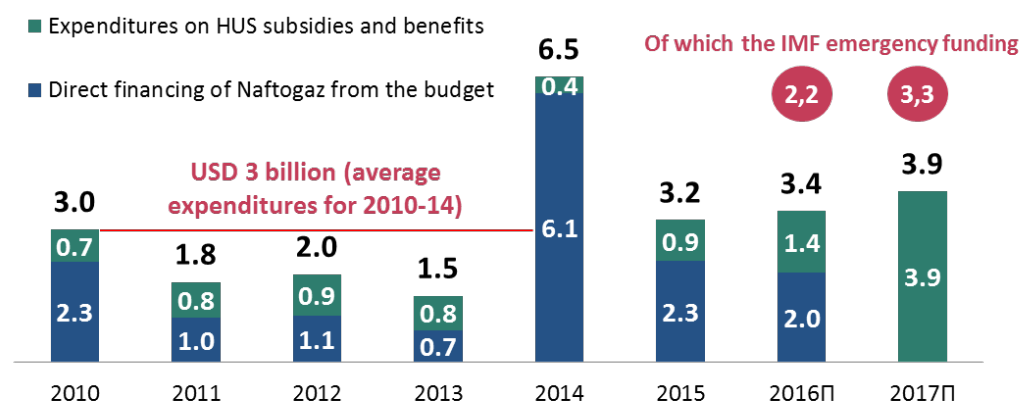
Diagram 4.4. Coverage of the total HUS bill by subsidies in December 2015



Source: data of the State Statistics Service of Ukraine

HUS subsidies for housing and utilities services create a great burden on the budget, which at least in the short term will be partially financed by IMF funds.

Diagram 4.5. The total budget expenditures to finance Naftogaz and social support in housing and utility services payments, USD billion



Source: actual data - IMF, Ministry of Social Policy; forecast - IMF (under the current subsidy system)

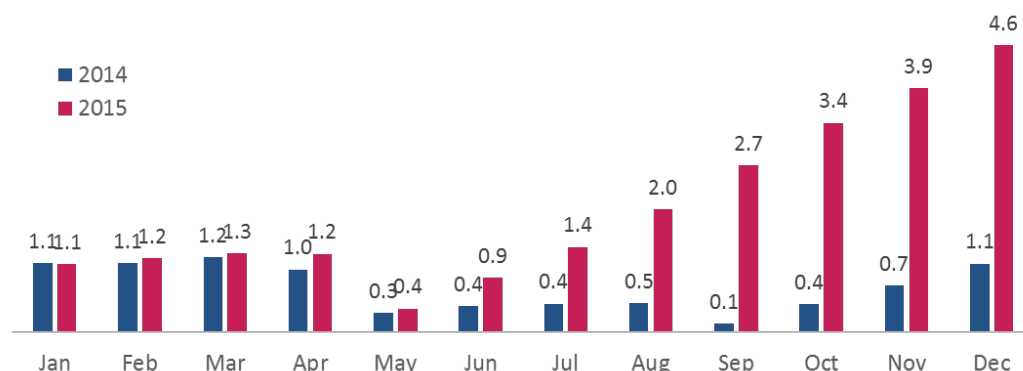


4.5 million households receive subsidies as of December 2015

4.2. Recipients of subsidies

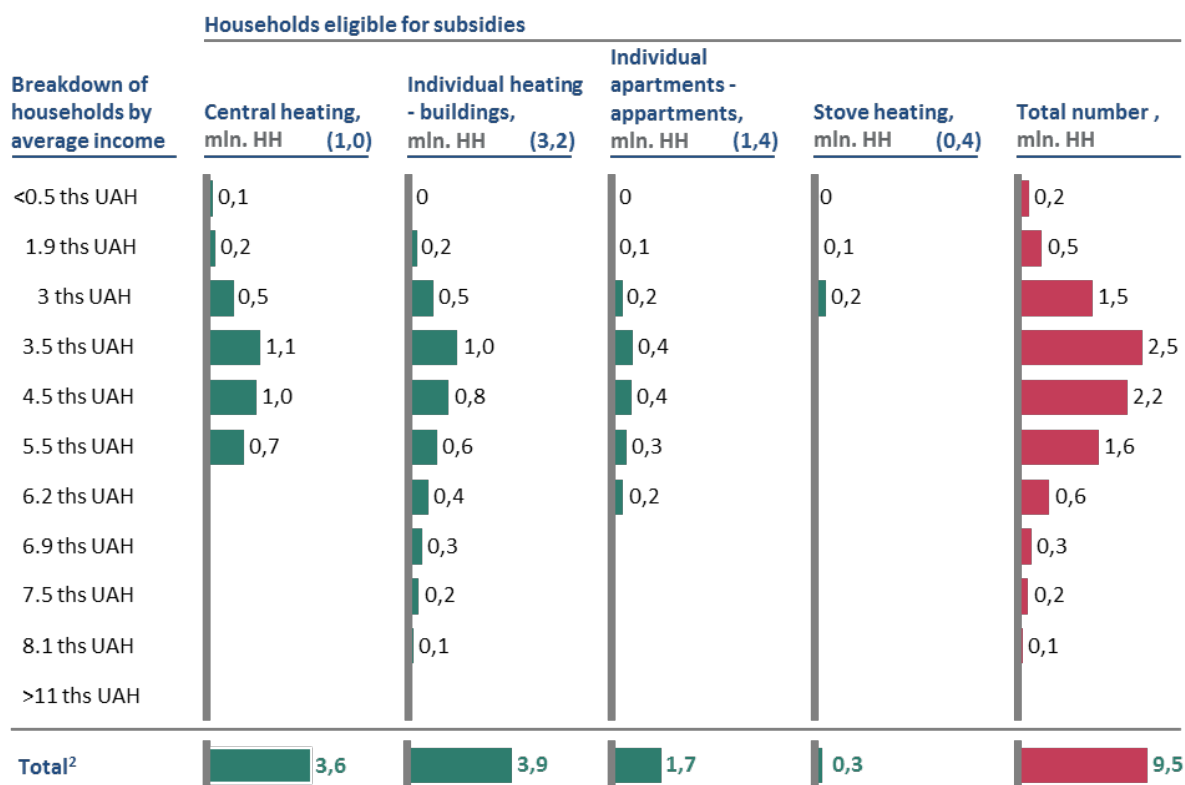
As of December 2015, 30% of all households receive subsidies. The number of households that have applied for subsidies during the year increased by 2.5 times against 2014 and it makes up 5.9 million (or 40%).

Diagram 4.6. The number of households that receive subsidies in the relevant month, mln.



Source: data of the State Statistics Service of Ukraine, analysis of the Working Group

Diagram 4.7. Estimation of the number of households who are eligible for a subsidy based on income



(x,x) Average normalized account for HH, ths, UAH²

¹ In the heating season for the average household consisting of 2.58 person. Based on the norms of consumption and expected tariffs

² Including 0.7 million of benefit recipients who do not have the right to have a subsidy

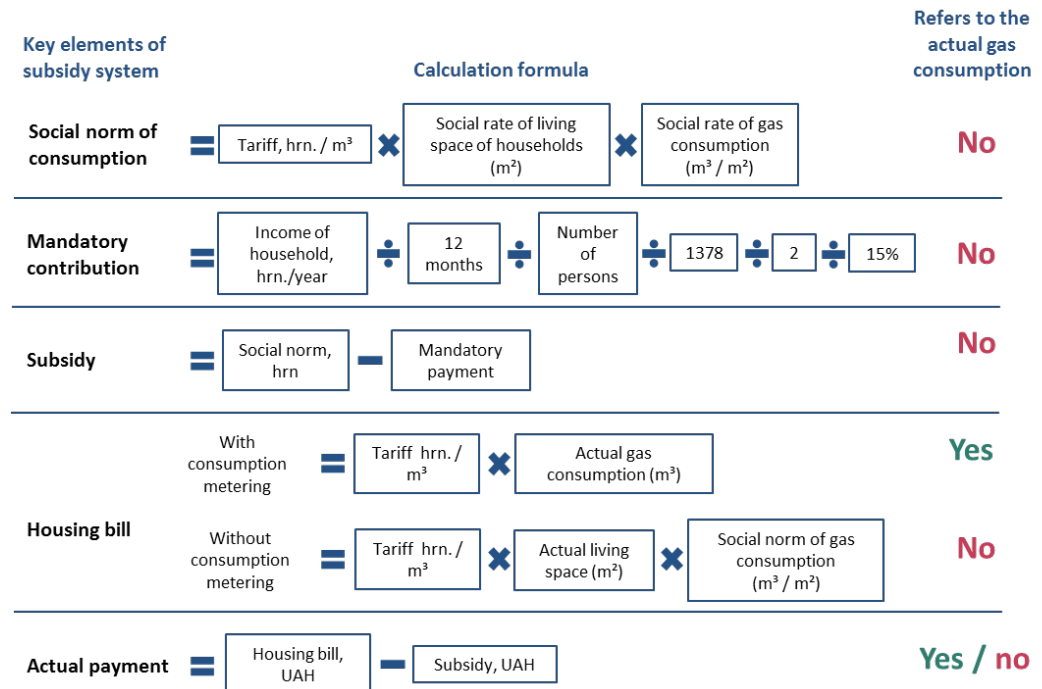
Source: data of the State Statistics Service of Ukraine, analysis of the Working Group



4.3. Algorithm of HUS subsidy calculation

The amount of subsidy depends on: income, family size, type of energy, tariffs, social standards and the size of living space.

Diagram 4.8. Algorithm of subsidy calculation

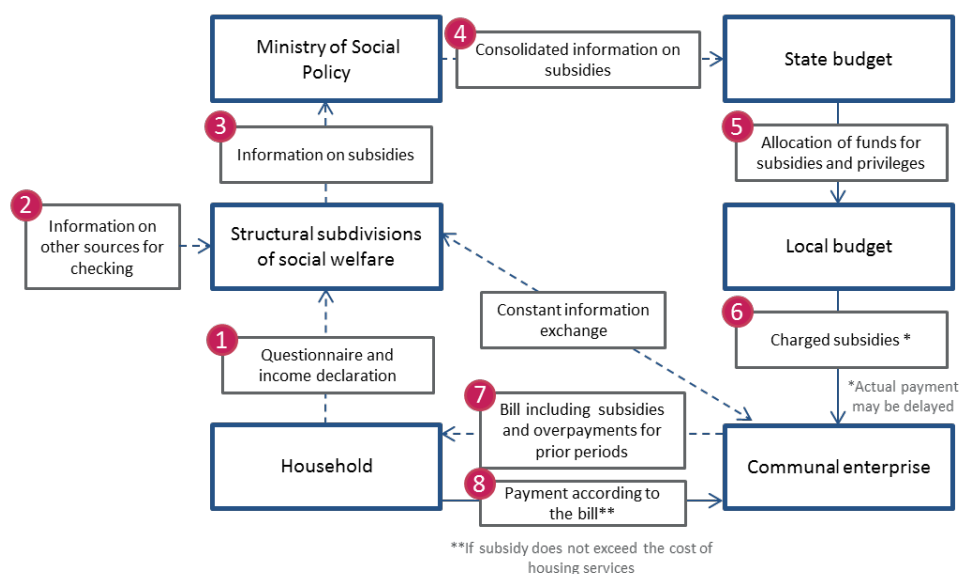


Source: Order of the Ministry of Social Policy of Ukraine "On approval of the Method of providing subsidies to the people", Resolution of the CMU No 40, analysis of the Working Group

The norms are set separately for each service. In the absence of metering tools the norms of local authorities are taken if they are below the state ones (the CMU Resolution #848). More detailed scheme of subsidy calculation is given in Annex 2.

The current subsidy system is not transparent, it is complex in terms of managing and forecasting

Diagram 4.9. Subsidy management scheme



Source: the CMU Resolutions, data of Minregion

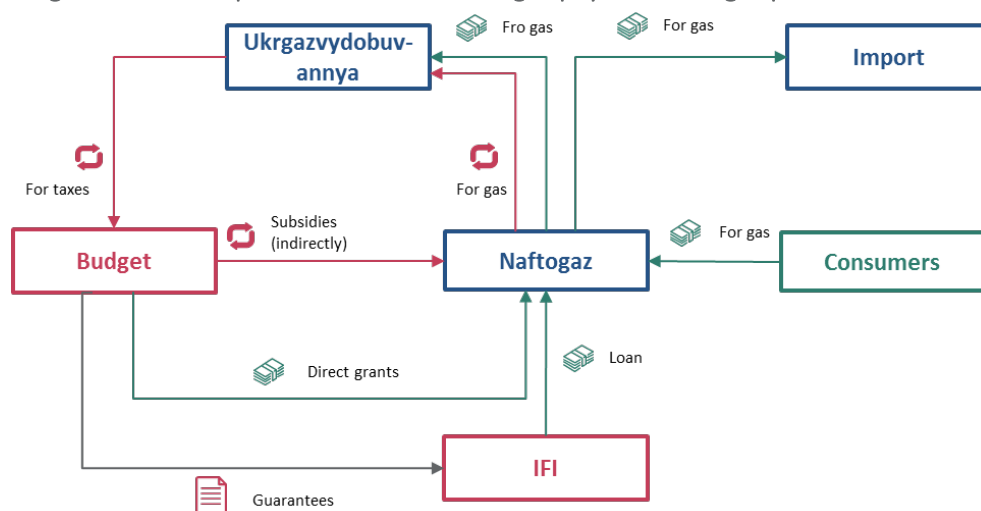


4.4. Assessment of the current system of subsidies

Methodology of subsidy calculation is in line with world practices, however administration and settlements system requires adjustments. There are a big number of parties involved in the current scheme and management (Ministry of Finance, Ministry of Social Policy, Ministry of Regional Development, National Energy and Utilities Regulatory Commission, Ministry of Energy, NJSC "Naftogaz", PJSC "Ukrgezvydobuvannya", regional gas companies, district heating providers, local authorities, etc.).

In fact, the Ukrainian subsidy system is a mechanism to offset mutual liabilities of State Budget, "Naftogaz", JSC "Ukrgezvydobuvannya", DCH, regional gas companies and other enterprises in gas supply chain. These settlements are used as a payment for Ukrainian gas, and can not be used to finance gas imports.

Diagram 4.10. Simplified scheme of Naftogaz payments for gas purchases



Source: analysis of the Working Group

A significant risk of the existing system is the accumulation of subsidy balances on the accounts of customers (if subsidy is greater than the bill). It is liabilities to customers that can not be returned without subsidies in the future or administrative measures implementation.

Excessive subsidies are not transferred to consumers and can not be used to finance energy efficiency measures (Annex 4).

If accrued subsidy exceeds the actual cost of housing services:

- Households do not pay for housing services at all;
- Difference between subsidy and the cost of housing services is accumulated on the account of district heating provider;
- The accumulated funds do not affect the amount of following subsidies and can not be returned;
- The accumulated funds are targeted and can be used only as a share of households payment for housing services in the following periods.

Moreover, a complicated subsidy administration result in constantly increasing debt of the Central budget to the providers of housing services.

The current methodology of housing subsidy calculation does not depend on actual consumption, which ensures incentives for EE measures if the savings could be used for other purposes.

Subsidies can not be used to finance gas imports

Unused subsidy balances remain as a surplus on the accounts of DHCs and gas suppliers

Impossibility of use of saved subsidy reduces the incentives for EE measures



Table 4.1. Assessment of the Ukrainian current subsidy system

Advantages	Disadvantages
<ul style="list-style-type: none"> ✓ Addressed to families with low income ✓ Social responsibility: the amount of subsidy is directly proportional to the amount of family income ✓ Effective incentives: fixed subsidies, i.e. the payable amount decreases with decreasing consumption (until subsidies exceed the bill for housing and utility services) <ul style="list-style-type: none"> • Consumption over the accepted social norm is not covered by subsidies • Mandatory fee is not paid fully if the subsidy amount is lower than the amount of social standard 	<ul style="list-style-type: none"> – High administrative costs to make the mechanism of social fairness (subsidy amount depends on the level of income). – Excessive fiscal burden: subsidies often cover the bill for housing services more than the bill amount itself, and excessive subsidies are accumulated on the accounts of district heating providers. – Limited incentives for energy efficiency measures when the subsidy amount exceeds the bill amount (Annex 5)

Source: analysis of the Working Group



Table 5.1. The breakdown of buildings by the years of construction in Ukraine and European countries as of 2008

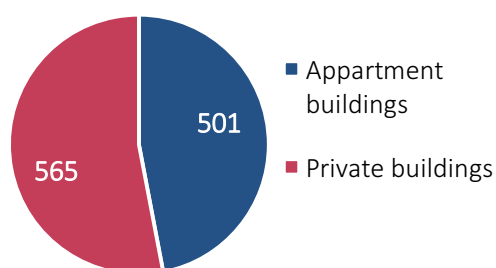
Period of construction	Ukraine	Germany	Czech Republic	Lithuania
Till 1919	5%	14%	11%	6%
1919 – 1945	13%	14%	14%	23%
1946 – 1970	51%	46%	25%	33%
1971 – 1980	16%	13%	22%	18%
After 1981	15%	13%	28%	20%

% refers to the number of buildings

Source: Report "Market Assessment "Residential Sector of Ukraine"

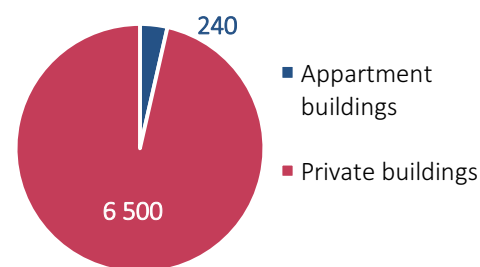
The housing stock shall be modernized in both apartment buildings and private buildings, as far as their share in the total housing stock is almost equal.

Diagram 5.3. The breakdown of housing stock by type, mln. m²



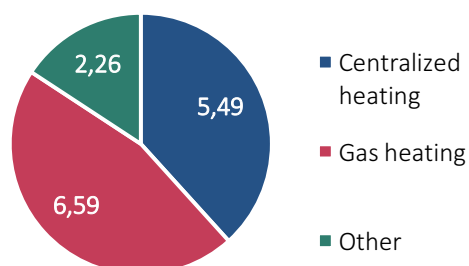
Source: Report "Market Assessment "Residential Sector of Ukraine"

Diagram 5.4. The breakdown of housing stock by type, ths buildings



Source: data of the State Statistics Service of Ukraine

Diagram 5.5. Number of households by different types of heating, million



Source: data of the Ministry of Regional Development

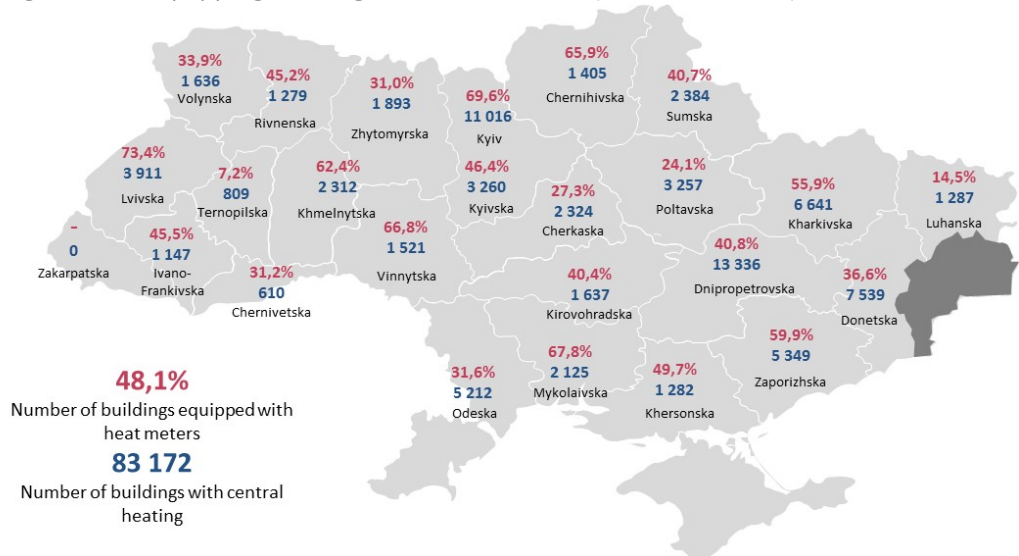
By the end of 2016 it is planned to reach 80% of the level of heat energy metering

One of the reasons of inefficient heat consumption is that a half of apartment buildings with central heating aren't equipped with heat meters.

The investments in meter installation (without thermoregulation) is estimated at USD 100 million. The Ministry of Regional Development, Construction, Housing and Communal Services plans to reach 80% of metering of buildings by the end of 2016.



Diagram 5.6. Equipping buildings with heat meters (December 2015)



Source: data of the Ministry of Regional Development, Construction, Housing and Communal Services

Three largest regions producing heat energy make up 45% of all market

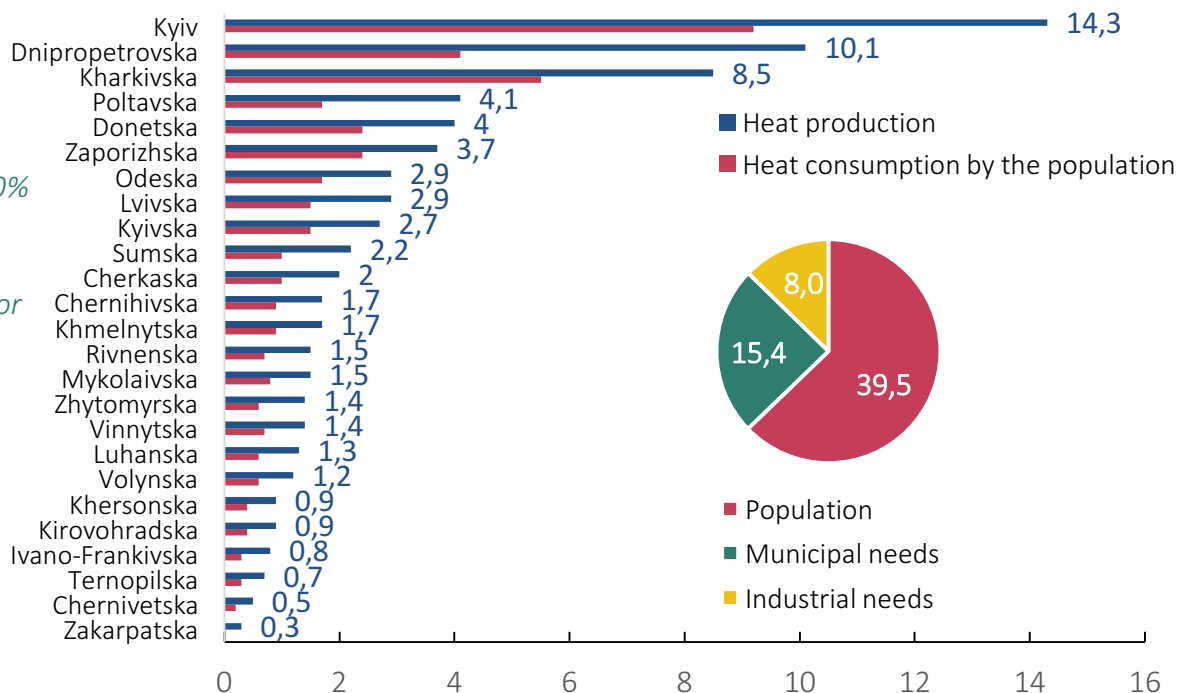
5.2. Centralized heat supply

Three largest regions producing heat energy make up about 45% of the total volume of produced heat.

Diagram 5.7. Analysis of heat energy production and consumption in 2014, mln Gcal

The population consumes about 60% of heat energy

Gas consumption for heating purpose is 18.6 billion m³ annually

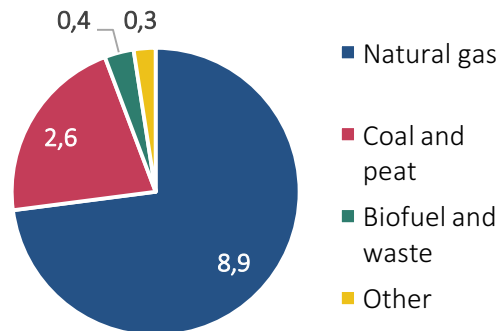


Source: data of the State Statistics Service of Ukraine

Centralized heat supply covers 40% of the population. The main fuel for heat production is natural gas, its share reaches over 70%. Heat energy is produced on the plants of two types: central heating plants (CHP) and thermoelectric plants (TEP).

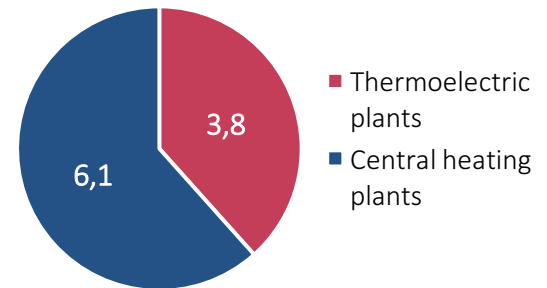


Diagram 5.8. Production of heat energy by types of fuel in 2014, mln tonnes of oil equivalent



Source: data of the State Statistics Service of Ukraine

Diagram 5.9. Breakdown of production at CHP and TEP, mln tonnes of oil equivalent

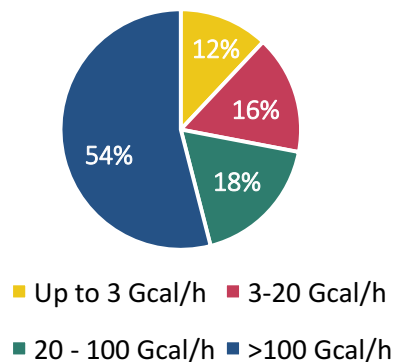


Source: data of the State Statistics Service of Ukraine

The biggest boiler houses, which produce heat energy for consumers in big cities, are of key importance on the heat energy market. Thus, reforming heating utility sector the boiler houses with the capacity over 100 Gcal/hour shall be of the first priority.

>50% of heat energy is produced by 161 boiler houses (0.5% of all boiler houses)

Diagram 5.10. Breakdown of heat production by boiler houses with different capacities in 2014 (total 62.6 mln Gcal)



Source: data of the State Statistics Service of Ukraine

Table 5.2. Number of boiler houses with different capacities

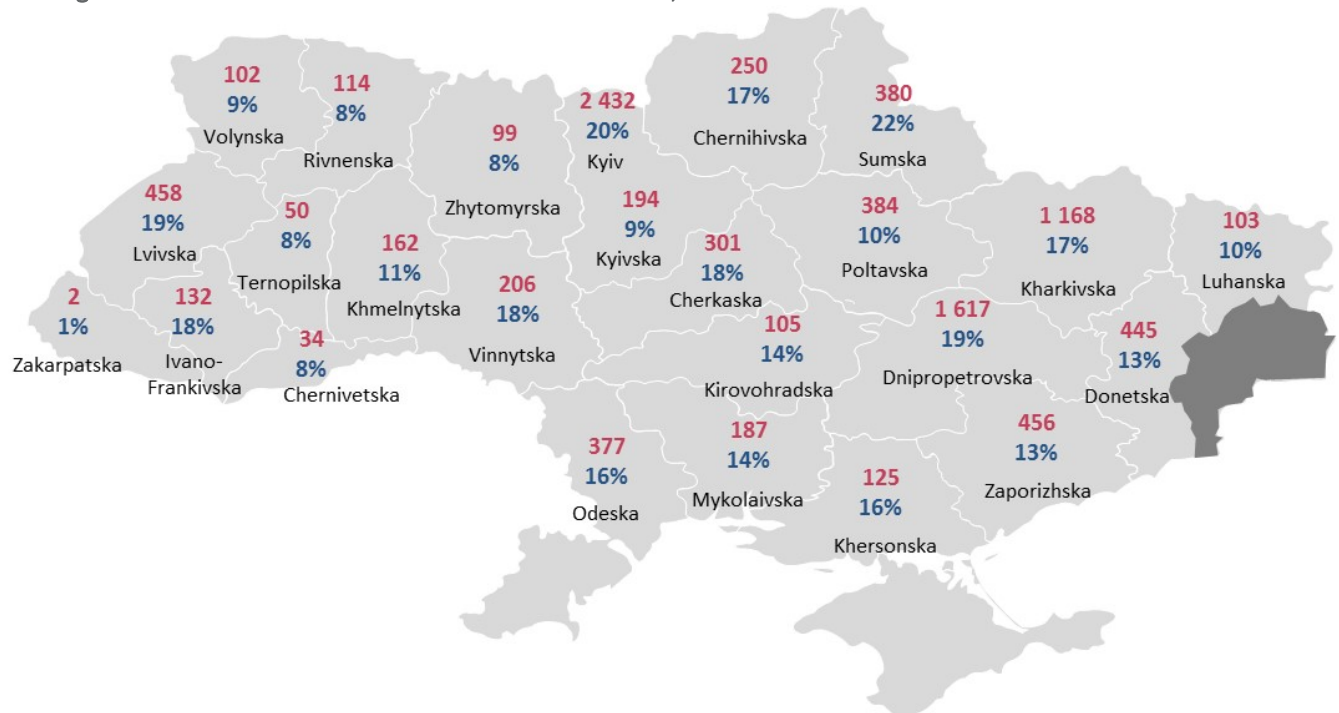
Capacity	Number (%)
<3 Gcal/h	27 772 (89,6%)
3-20 Gcal/h	2616 (8,4%)
20-100 Gcal/h	443 (1,4%)
>100 Gcal/h	161 (0,5%)
Total	30 992 (100%)

Source: data of the State Statistics Service of Ukraine

The total network length is about 21 thousand km, and losses in the networks make up 16%. Total investment in the network replacement is over USD 1 billion, the effect of which could reach annual gas savings of more than 500 million m³.



Diagram 5.11. Assessment of heat losses in networks, 2014



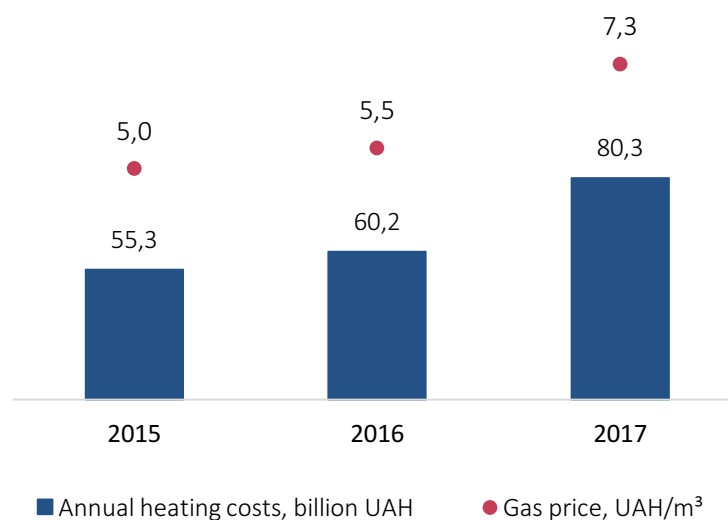
Source: data of the State Statistics Service of Ukraine

5.3. Individual heating

In 2014 the population consumed 15 billion m³ of gas. Of these, for individual heating ~ 11 billion m³ (assessment of the Working Group). Considering the current average tariff for gas in the amount of UAH 5.035 per m³, the total expenditures of population for individual heating of buildings within the year raised up to UAH 55 billion.

In case the gas price changes in 2016 and 2017, annual expenditures of population for individual heating in 2017 will increase by 45% against 2015.

Diagram 5.12. Analysis of annual expenditures of population for individual heating



Source: analysis of the Working Group

In 2017 the expenditures of individual heating will increase by 45% against 2015



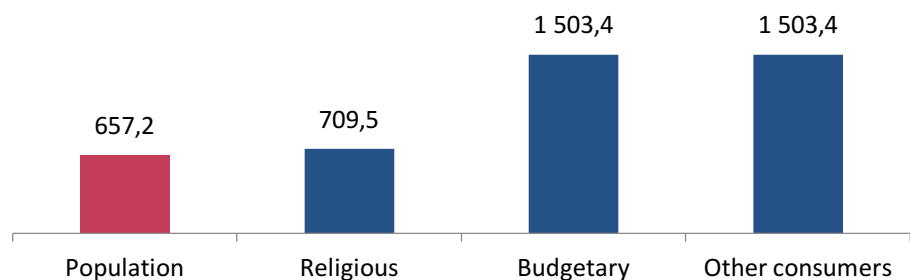
5.4. Tariffs for centralized heat supply

Tariffs for centralized heating depend on and are sensitive to changes in prices for gas, since the fuel price constitutes nearly 3/4 of the tariff, and for district heating providers exactly natural gas is the main fuel.

Tariff is segmented by consumers, namely, population, budgetary institutions, religious institutions and other consumers (for example: private educational institutions).

Tariff for population is less than for budgetary institutions by 128% and for religious – by 7%.

Diagram 5.13. Disbalance of tariffs for different consumers on the example of "Kyivenergo" in 2015, UAH.



Source: data of Kyivenergo

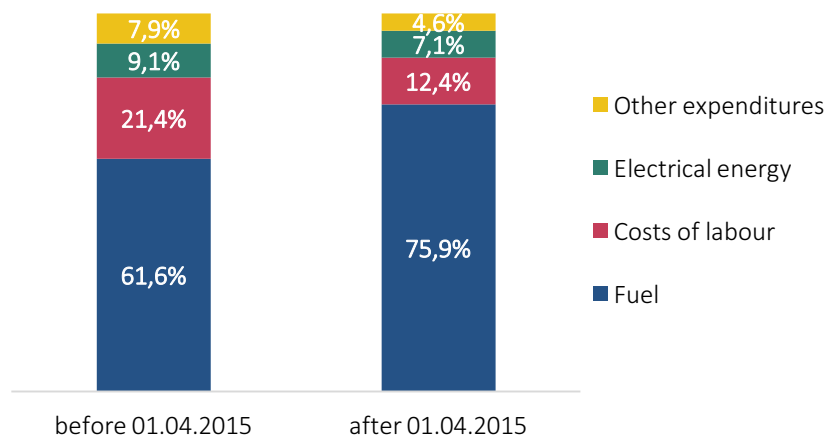
Tariff for centralized heating includes:

- tariff for heat energy
- costs for communal service (costs for bank services, costs for contact center maintenance)

The review of tariffs did not impact on the formation at enterprises of resources for investment

The structure looks as it after the tariff review by the National Energy and Utilities Regulatory Commission on 01.04.2015. The tariff review was caused by increased prices for energy and it did not impact on the formation of material resources at district heating providers for investment.

Diagram 5.14. The structure of the average weighted cost of thermal energy for the needs of the population before and after 01.04.2015

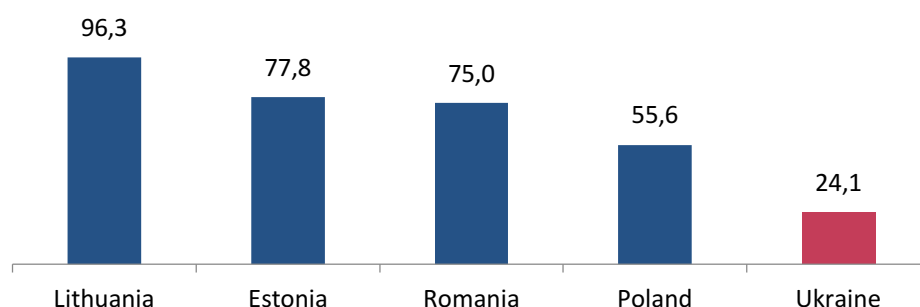


Source: data of the National Energy and Utilities Regulatory Commission

As in the case of gas, the tariff for centralized heating is one of the lowest in Europe.



Diagram 5.15. Comparison of tariffs for centralized heating, Euro/Gcal



Source: the IMF Report #15/218 (August 2015)

5.5. Licensing and tariff-making in the area of centralized heating

The activities of district heating providers subject to licensing according to the procedure set forth in the Resolution of the Cabinet of Ministers of Ukraine No 278. Despite the fact that the number of licensees of the National Energy and Utilities Regulatory Commission is considerably less, they produce about 95% of all heat energy. Thus, the reform in this sector is impossible without the intervention of a national regulator.

~95% of heat energy is produced by the licensee of NEUR

Table 5.3. Licensing scheme for district heating providers

National Energy and Utilities Regulatory Commission

licenses district heating providers with

- > 1 activity area
- > 18 thousand Gcal/year

179

Licensees

~95%

of all heat energy

Local authority

licenses district heating providers with

- only 1 activity area
- < 18 thousand Gcal/year

828

Licensees

~5%

of all heat energy

Source: the CMU Resolution # 278

Tariffs are calculated by the licensee for the planning period (service provider) according to the Procedure for the formation of heat energy tariff, its production, transportation and supply, centralized heating services and hot water supply approved by the Cabinet of Ministers of Ukraine on the 1 June 2011 №869.

Conditions of tariff change (it is calculated on the basis of annual production plans):

- change in the volume of service provision by more than 15%
- change in the structure of heating stock by more than 15%
- change of investment program if it leads to the change of tariff by more than 2%

Frequency of tariff review is not legally envisaged



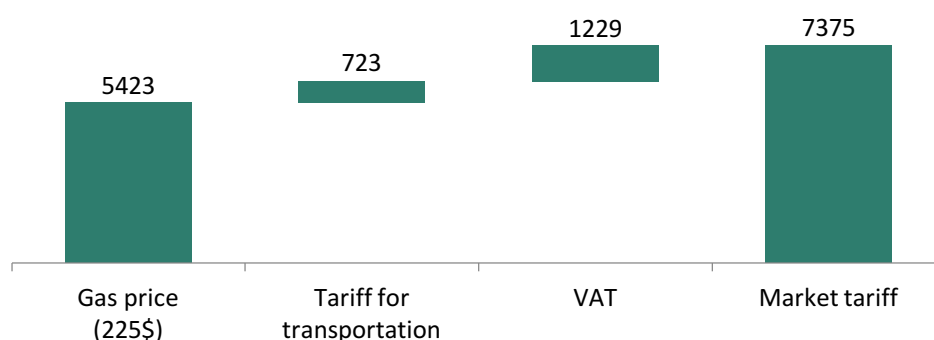
- change in rates of taxes, fees, minimum wage, rent and depreciation, change in prices and tariffs for fuel and energy resources if it cumulatively leads to the change of tariffs by more than 2% from the set level

5.6. Household gas tariffs

The National Energy and Utilities Regulatory Commission is responsible for setting gas tariffs. The marginal consumer prices for natural gas defined by the CMU Resolution No 758 are valid till March 31, 2016. The marginal consumer prices for natural gas in the period from April 1, 2016 till March 31, 2017 shall be set by the CMU decision.

Tariff for gas for the population needs is 7.188 UAH/m³. The main change in the structure of administration system is the setting of single tariff, regardless the volume of gas consumption. But from October 1 till April 30, 2016 the CMU set a preferential tariff of 3.6 UAH/ m³ upon the consumption volume of up to 1200 m³ during this period, which is paid by 60% of consumers. Thus, the average weighted tariff makes up 5.035 UAH/m³.

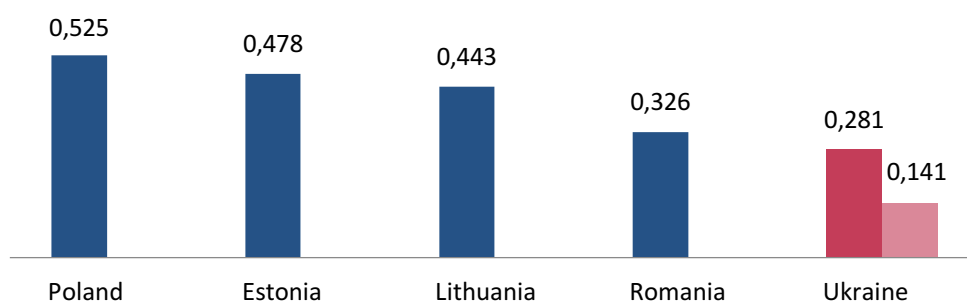
Diagram 5.17. Calculation of market tariff for gas, UAH/ ths. m³



Source: analysis of the Working Group

Despite the increase of tariffs for gas, the price for households remains one of the lowest in Europe.

Diagram 5.18. Comparison of tariffs for gas in 2015, Euro/m³



* In Ukraine a two-rate tariff is used for gas calculation

Source: data of Eurostat



6. Review of the legislative framework for the EE Fund functioning

The effective functioning of the EE Fund requires an aligned legal framework in the field of energy efficiency. The current legislation does not comply with these requirements, but it is being improved for the better.

In 2015 Ukraine adopted the following Laws:

Law of Ukraine "On specifics of ownership in apartment building" (#2866-14, it comes into force on 01.07.15):

- ✓ Creating effective owners of apartment buildings

Law of Ukraine "On implementation of new investment opportunities, guaranteeing rights and legitimate interests of business entities for conducting of large-scale energy sector modernization" (No 327-19, dated 09.04.15) and the Law of Ukraine "On changing the Budget Code in terms of implementation of new investment opportunities, guaranteeing rights and legitimate interests of business entities for conducting of large-scale energy sector modernization" (No 328-19, dated 09.04.15):

- ✓ Determined legal and economic principles of energy services provision
- ✓ Defined rules of conclusion and execution of the agreement on energy services provision
- ✓ Payments under the agreement on energy services provision are made due to the amount of reduced costs expenditures of the customer

The most important Laws to be adopted in 2016 - 2017 in the field of energy efficiency are presented in the table below.

Table 6.1. The key Laws to be adopted in 2016 - 2017



Legislation on efficient energy consumption

- **Law of Ukraine "On energy efficiency of buildings" (Directive 2010/31/EU):**
 - ✓ Minimum requirements for energy efficiency of buildings
 - ✓ State management in the sphere of energy efficiency of buildings
 - ✓ Implementation of the passport of energy efficiency of buildings
- **Law of Ukraine "On the commercial metering of thermal energy, water and drainage system in the area of communal services"**
 - ✓ Contains the condition regarding the provision of services only if meters are installed
 - ✓ Sources of funding of works related to meters installation
 - ✓ Rules of installation
 - ✓ Liabilities of consumers and executors

In 2015 Ukraine adopted the Law "On Homeowners Associations" and two Laws on ESCO

The most important Laws that are to be adopted for the EE Fund functioning are:

- *the Law of Ukraine "On EE buildings"*
- *the Law of Ukraine "On commercial metering"*



Legislation on efficient energy production

- Law of Ukraine "On implementation of incentive based regulation"
- Law of Ukraine "On regulation of the heating territories"



Framework legislation

- Law of Ukraine "On EE" (Directive 2012/27/EU)
- Methodology for monitoring the EE indicators

Source: analysis of the Working Group

The full list of normative and legal acts to be adopted for improving the legislation and creating the conditions for EE Fund operation is given in Annex 6.

The EE Fund largely covers the market of housing and utilities services. That is why the legislative base that regulates direct and non-direct activities of the EE Fund contain the legal acts on the market of heat, gas, housing and utilities services, investment activities, setting and regulating tariffs, household subsidies, etc. (The list of current legal base is given in Annex 7).

6.1. Apartment-building administration

One of the important steps to align the Ukrainian legislation in the field of energy efficiency of buildings with the European standards was the Law Ukraine "On specifics of ownership in apartment building" adopted in 2015. This Law determines the relations associated with the implementation of the rights and performance of duties of co-owners of apartment building in terms of its maintenance and administration (also in energy efficiency area).

Models of building administration

1) Directly by co-owners

In practice this form of administration will be used not very often, mainly for buildings with a small number of co-owners. This is due to the fact that all the administration functions will be carried out by the co-owners on their own, i.e. to gather at general meetings, make decisions, elect a person responsible for decision implementation, etc.

2) Creating Homeowners Associations (association of the co-owners of apartment buildings)

Homeowners Associations shall be established and function according to the Law of Ukraine "On associations of co-owners of apartment buildings". The Homeowners Associations are created in the form of non-profit association legal entity. Having created the Homeowners Associations all the decisions concerning the administration of common property shall be taken by the co-owners at general meetings of the Homeowners Associations. The Homeowners Associations can perform the administration functions either independently (through their representative bodies) or involve third-party organizations on the contractual basis.

3) Involvement of apartment building manager

In order to carry out their functions as the co-owners of apartment building (actually to implement joint decisions on the administration and maintenance of common property) the co-owners conclude an agreement with apartment building manager. The decision on the selection of apartment building manager is taken at general meetings.

*Since 01.07.2016
there will be three
models of apartment-
building
administration*



If the co-owners fail to create Homeowners Association or choose a manager till 01.07.2016, the local authorities will have to appoint the manager for such building.

Making decisions on the administration of apartment building

The highest body of building administration (depending on administration model) is a meeting of co-owners. Decisions are considered to be made if they are supported by owners of apartments and commercial premises whose total area is more than 75%. Exceptions are decisions on the selection of model administration and appointment or withdrawal of the manager that is taken as 50% of the area.

If at the meeting of co-owners a decision did not get the required votes "for" or "against", it is carried out a written survey of co-owners who did not vote at the meeting. The written survey of co-owners is held within 15 calendar days since the date of the meeting of co-owners.

The decisions made at the meeting of co-owners are mandatory for all co-owners, including those who owned the apartment or non-residential premises after the decision making.

Upon the co-owners' decision all or part of apartment building administration functions can be transferred to the apartment building manager or all the functions - to the Homeowners Association.

The executive body of Homeowners Association is the Board headed by the Chairman. Powers of the Chairman, Board members are defined in the Charter of Homeowners Association and must comply with the Law of Ukraine "On Homeowners Associations".

The manager powers are defined in the contract on the provision of apartment building administration services. Terms of this contract must meet the conditions of the model contract approved by the Cabinet of Ministers of Ukraine.

Interaction of consumers with the providers of housing and utilities services

All the issues on interaction of consumers with service providers (both apartment building administration services and other utility services) in the context of three forms of apartment building administration should be reflected in new edition of the Law of Ukraine "On Housing and Utility Services".

Another Law of Ukraine "On Commercial Metering" will regulate the relations concerning the procedure for housing services accounting.

The highest body of building administration (depending on model administration) is a meeting of co-owners

Decisions made at the meetings are mandatory for all co-owners

Laws of Ukraine "On Housing and Utilities Services" and "On Commercial Accounting" shall clearly define the relations between consumers and housing services providers



The issue on housing tariffs is the theme of populist rhetoric of many political forces

7. Communication strategy

Effective communication with the public, authorities and international community is one of the main preconditions for the implementation and scaling of energy efficiency programmes.

In Ukraine the issue becomes even more acute, as far as many politicians speculate on the theme of housing tariffs and openly use it for their populist rhetoric. It hinders the reform of housing sector and implementation of energy efficiency.

Therefore, in parallel with the EE Fund establishment, it is necessary to develop and carry out a wide awareness raising campaign for the population. A separate communication approach should be developed for the representatives of central and local authorities and international community.

7.1. The results of sociological research

On June 24-26, 2015 the National Ecological Centre of Ukraine, Friedrich Ebert Foundation in Ukraine and Kyiv International Institute of Sociology conducted a sociological study "Attitudes of Ukrainians toward energy saving" in 100 settlements of Ukraine. The survey covered 1220 people 18 years of age and older, who constantly reside in the territory of Ukraine.

Table 7.1. Results of the survey on public attitudes toward energy efficiency



82% of Ukrainians

state that their relatives, friends and neighbours can not fully pay for housing and utility services



83% of Ukrainians

consider the mechanism of tariff-making to be non-transparent and incomprehensible



84% of Ukrainians

believe that the tariffs were increased because of corruption at the most senior levels of government



79% of Ukrainians

consider that the population consumes only a small share of all energy resources



87% of Ukrainians

believe that "first of all it is necessary to implement energy saving at enterprises, rather than forcing people to save"



86% of Ukrainians

believe that "the central and local authorities should undertake the responsibility to develop and implement the household energy efficiency programmes"

Ukrainians do not understand the structure of tariffs and the reasons for their increase

People do not want to implement the EE measures and believe that business and government shall undertake the responsibility for excessive consumption




Source: results of the study "Attitudes of Ukrainians toward energy saving"



7.2. Proposals on communication directions and channels

We distinguish three key directions of communications, each of which has to use their channels:

Table 7.2. Suggested directions and key messages

 Population	 Authorities	 International community
<ul style="list-style-type: none"> • Reasons for increase and tariff structure • "Saving energy" = "saving money" • How to implement the EE measures • How to finance the EE measures 	<ul style="list-style-type: none"> • Severity of energy saving problem • A specific action plan how to solve the problem • The need for urgent actions • The need for efforts coordination 	<ul style="list-style-type: none"> • The need to support Ukraine • Specific measures how to do it – participation in the EE Fund, technical and communication support etc. • The need for efforts coordination

Source: analysis of the Working Group

The awareness raising campaign requires coordination and use of various channels:

- Direct channels (contacts in buildings, banks, at meetings, forums, seminars, conferences, etc.)
- Indirect channels (Internet, TV, print media, print ads, outdoor advertising, etc.)



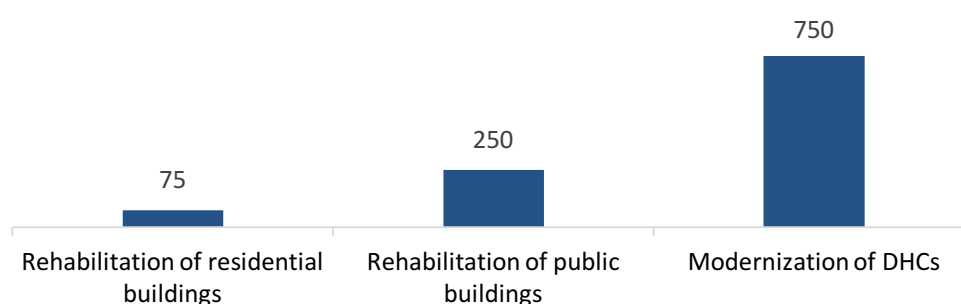
8. Review of energy efficiency programmes in Ukraine

A few national, donor and IMF programmes on funding the energy efficiency measures are being implemented or developed in Ukraine. The key institutions that manage these programmes are the following:

- SAE and National Energy and Utilities Regulatory Commission from the side of state
- EBRD, IBRD, EIB, KfW, NEFKO, E5P, SIDA from the side of IMF and donors

Despite the fact that the greatest investment need is in the residential sector, the most programmes are focused on upgrading of district heating providers.

Diagram 8.1. Assessment of investment potential of existing programmes (as of 01.01.2016), million USD



Source: assessment of the Working Group

In practice from the existing USD 1 billion for the projects aimed at modernization of district heating companies (DHC) or rehabilitation of public buildings in the active phase there is not more than 30% of this amount (see Part 8.2).

The list of investment programmes is given in Annex 8. The list of technical assistance programmes is given in Annex 9.

8.1. Programmes in residential sector

The only active programme aimed at reducing heat consumption in residential buildings is the Warm Loans Programme of SAE that partially compensates the principle amount of a loan for EE equipment and materials provided by state banks (Ukreksimbank, Oschadbank and Ukrgasbank).

Table 8.1. Terms of support under the Warm Loans Programme

% of principle amount reimbursement	Loan is used for
20%	purchasing solid fuel boilers
30%	purchasing EE materials and equipment for individuals
40%	purchasing EE materials and equipment for Homeowners Associations
70%	purchasing EE materials and equipment for households that receive housing subsidies

Source: the CMU Resolution #1056

Most programmes are focused on modernization of district heating companies or rehabilitation of public buildings

The potential of all current investment programmes is used by ~30%

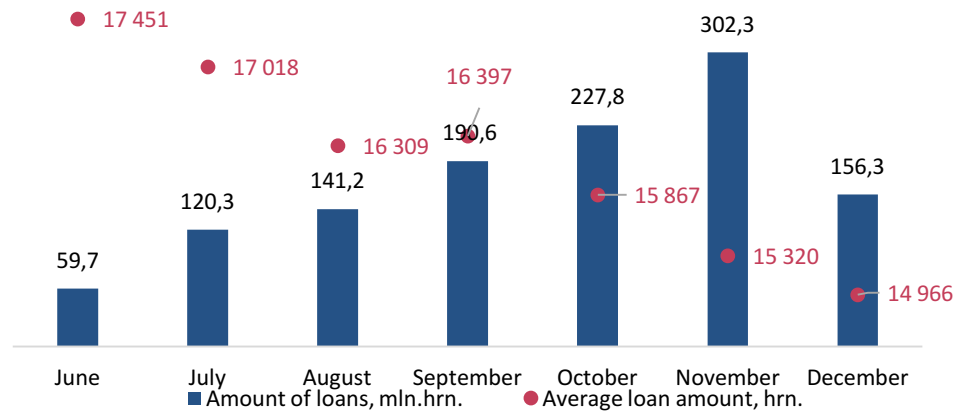
Under the Warm Loans Programme the state compensates the loan principle amount for EE equipment and materials



In 2015 USD 50 mln of loans were granted under SAEF programme

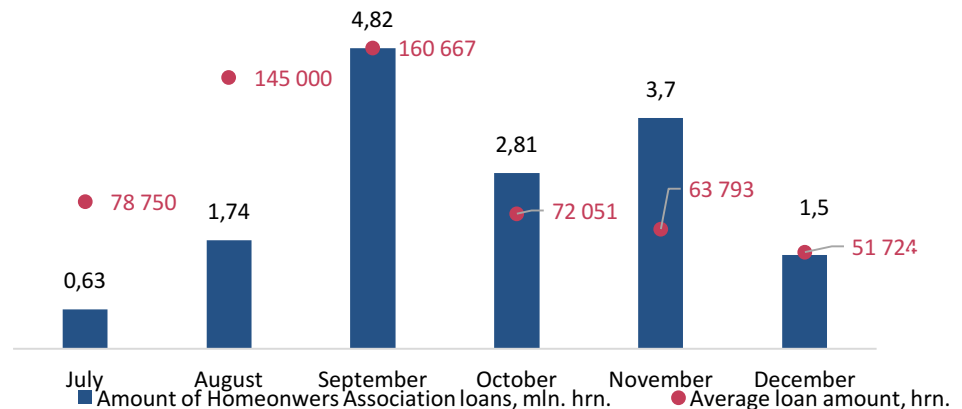
In 2015 it was granted UAH 1.300 mln loans (~ USD 50 mln). The average loan is UAH 20 thousand, the average loan of Homeowners Associations is UAH 110 thousand (loans for Homeowners Associations make up 1.3 % of the total loans of the programme).

Diagram 8.2. Dynamics of loans provided under the SAEF programme in 2015



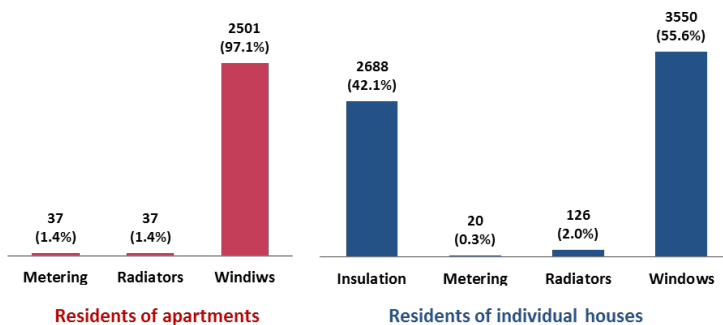
Source: SAEF data

Diagram 8.3. Dynamics of loans granted to Homeowners Associations under SAEF programme in 2015, mln.UAH



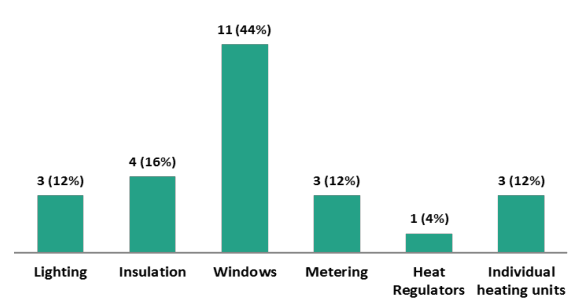
Source: SAEF data

Diagram 8.4. Structure of financed EE activities for individual households



Source: SAEF data as of 12.10.2015

Diagram 8.5. Structure of financed EE activities for Homeowners Associations

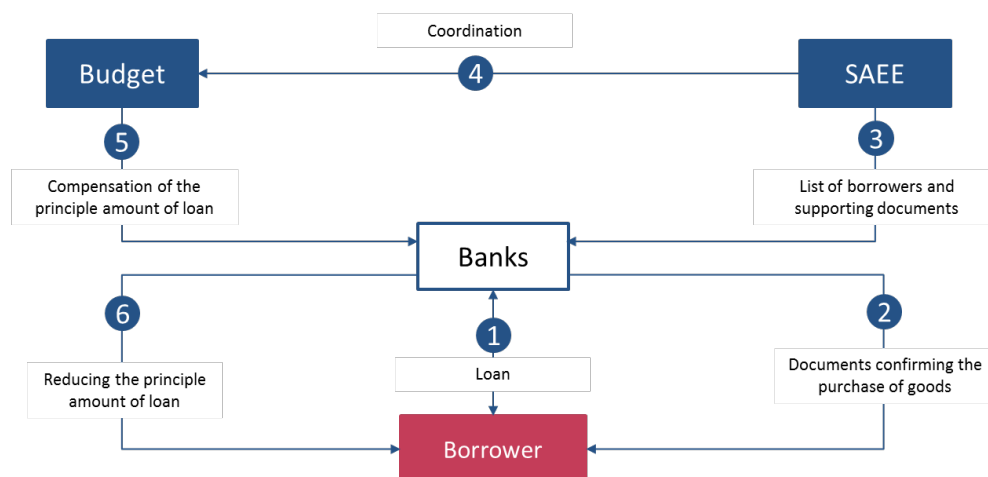


Source: SAEF data as of 12.10.2015



The programme is focused on certain energy efficiency measures, so it is relatively simple in terms of administration but does not make it possible to assess and plan the results in terms of energy saving and it limits the implementation of complex projects in apartment buildings.

Diagram 8.6. Operational model of SAEF programme



Source: SAEF data, analysis of the Working Group

For the next year it is planned to increase funding from the budget (for 2016 it is allocated about USD 800 mln) that will allow to attract about UAH 2.5 billion loans (USD 100 mln). The National Energy and Utilities Regulatory Commission (NEURC) implements the programme on installation of heat meters in buildings to ensure 100% of heat metering in Ukraine. According the NEURC in the residential sector it is necessary to install another 50 thousand metering devices for a total amount of UAH 2.4 billion (USD 100 million). Meters are installed by utilities companies at the expense of investment component in the tariff.

For the time being another three additional initiatives for financing energy efficiency in residential sector are being developed:

- Establishment of the National Energy Efficiency Fund with the assistance of the EU and Germany;
- Implementation of ESCO model by Naftogaz to replace gas boilers with more efficient ones (for this purpose it is expected to get the loan from China Development Bank for the amount of USD 1.5 billion);
- EBRD financing of energy efficiency projects in the residential sector through commercial banks (UREEF). The programme budget is EUR 100 million.

8.2. Programmes for upgrading district heating providers and renovation of public buildings

The total amount allocated for upgrading district heating providers and renovation of public buildings in the framework of current programmes is USD 1 billion that is about 12.5% of total investment need in this sector. These programmes are managed by IFI and donors (EBRD, IBRD, EIB, KfW, NEFKO, E5P, SIDA) and are usually structured in one of two ways:

1. Financing programmes against the state guarantees and with the involvement of central executive authorities (Ministry of Finance, Ministry of Regional Development, CMU, etc.). Examples of such programmes are

SAEF programme is relatively simple in terms of administration, but it is not effective in terms of the implementation of complex projects in apartment buildings

Three initiatives on EE in residential sector are being developed:

- ✓ EE Fund
- ✓ "ESCO model" on gas boilers replacement (Naftogaz)
- ✓ EBRD loans (UREEF)

Programmes for modernization of DHC and renovation of public buildings are financed against the state or municipal guarantees

Potential funding of existing programmes makes up USD 1 billion

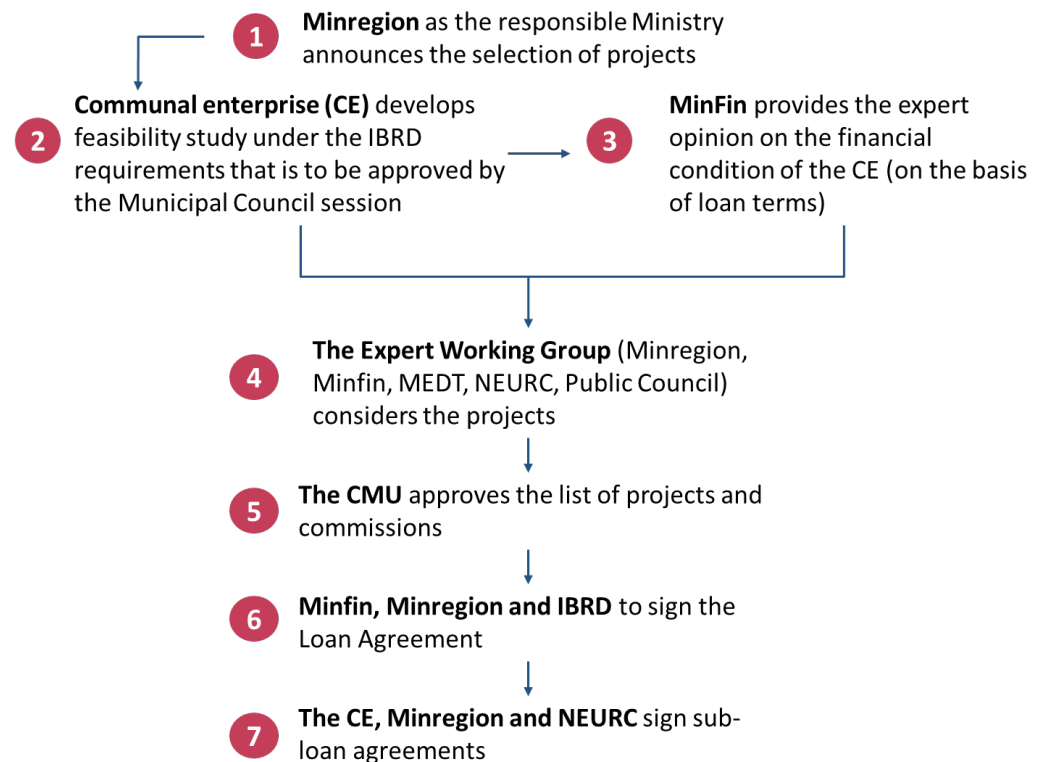


"Improving energy efficiency in the sector of centralized heat supply" (IBRD) and "Municipal Infrastructure Development Programme" (EIB).

2. Financing the projects against municipal guarantees without the involvement of central executive authorities. For example, EBRD projects on financing the upgrading of district heating providers.

Financing against the state guarantees requires complicated and long-term procedures determined by both Ukrainian legislation and IFI rules:

Diagram 8.7. The process of project selection (using the example of IBRD financing programme)



Housing project selection process lasts over 1 year

Tendering process and preparation for the payment to contractors may take up to one and a half year

Source: data of the Ministry of Regional Development, Construction, Housing and Communal Services

Moreover, the tendering process and preparation for the payment to contractors may take up to one and a half year.

The implementation of full potential of existing programmes on upgrading the district heating providers and renovation of public buildings is hindered by obstacles described in Annex 10.



The similarity to the CEE:

- ✓ Features of housing stock
- ✓ Climatic conditions
- ✓ Harmonization of Ukrainian legislation with the EU Directives

9. Review of energy efficiency programmes in the residential sector in Central and Eastern Europe

Many countries in Central and Eastern Europe (CEE) have similar challenges related to technologically outdated and energy inefficient housing stock. Most of these countries have 10-15 years of experience in the implementation of energy efficiency programmes. Therefore, given the similar climatic conditions and the integration of Ukraine into European community (including the harmonization of legislation with EU Directives on energy efficiency), studying the relevant experience has to be one of the important factors for the development and implementation of similar programmes in Ukraine.

Table 9.1. Comparison of EE support programmes in residential buildings

	Lithuania	Estonia	Poland	Bulgaria
Population, mln	2,9	1,3	38,5	7,2
Market % rate	~8%	5-9%	5-20%	9-11%
Financial instruments	<ul style="list-style-type: none"> • Grants up to 35% • 3% "soft loans" up to 20 years • 100% servicing debts of subsidy recipients 	<ul style="list-style-type: none"> • Grants up to 35% • 4% "soft loans" up to 20 years 	<ul style="list-style-type: none"> • Grants up to 35% 	<ul style="list-style-type: none"> • Grants up to 30% for complex projects • Grants up to 20% for projects in apartments
Programme and administration complexity	Complex programme with separate admin body (BETA) and active involvement of municipalities	Medium complex programme in running national financial institution (KredEx)	Medium complex programme in running national financial institution (BGK)	Relatively simple EBRD programme through commercial banks
Project type	Building renovation on the basis of energy audit			Most projects on the level of apartments
Financed projects, mln. Euro	450	100	2 400	73
Analyzed period	2013-15	2009-14	1999-2012	2006-2013
Financed projects for a year for 1 mln people, mln Euro	51,7	12,9	4,5	1,3
Number of apartment buildings to be renovated	~30 000	n/a	~400 000	n/a
Number of financed apartment buildings	~2 069	n/a	32,756	n/a
Average share of financed apartment buildings for a year	2,2%	n/a	0,6%	n/a

Source: analysis of the Working Group



Institutional support and involvement of specialized agencies and municipalities increase the demand for the programme

Support of donors and IFI in CEE plays a key role:

- ✓ *Co-financing of projects*
- ✓ *Provision of technical assistance*
- ✓ *Participation in programme administration*

The Thermorenovation Fund in Poland has been functioning since 1999 and it is financed from the Budget

Projects are selected on the basis of energy audit and increased energy consumption

Support is provided in the form of grant for loan reimbursement

An important factor in attracting public to participate in the programmes is the amount of financial support (attractive conditions) and the complexity of programme in terms of institutional infrastructure and involvement of responsible institutions (for example, specialized agencies or development banks, municipalities). So, in terms of funded projects the Lithuanian programme shows the best results, but it needs more coordination, administrative efforts and costs for its servicing.

Most programmes in Central and Eastern Europe are implemented through the EU structural funds and / European IFI (EBRD, EIB). Thus:

- The programme in Lithuania is co-funded by the European Regional Development Fund (ERDF), which provided 127 million Euro for the first phase and additionally allocated 150 million Euro for the programme prolongation from 2010 till 2015, and it is implemented with the assistance of EIB;
- In Estonia the ERDF provided 18 million Euro as a direct payment and the European Development Bank granted another 29 million Euro as a loan against the state guarantees;
- In Bulgaria the programme is funded (credit lines) and administered by the EBRD;
- In Poland the Thermorenovation Fund has been financed from the state budget since 1999. But in 2015-2020 the ERDF and Cohesion Fund will co-finance the EE programmes in Poland with a total budget of about 3.0 billion Euro, of which 1.3 billion will be spent for residential buildings (for more details see Part 9.1.);
- In addition, donors provide additional technical support in the development and implementation of projects.

9.1. The EE programmes for residential sector in Poland

Thermorenovation Fund

The Thermorenovation Fund was created in 1999 on the basis of the National Development Bank (BGK) that is financed from the State Budget.

The Fund key features:

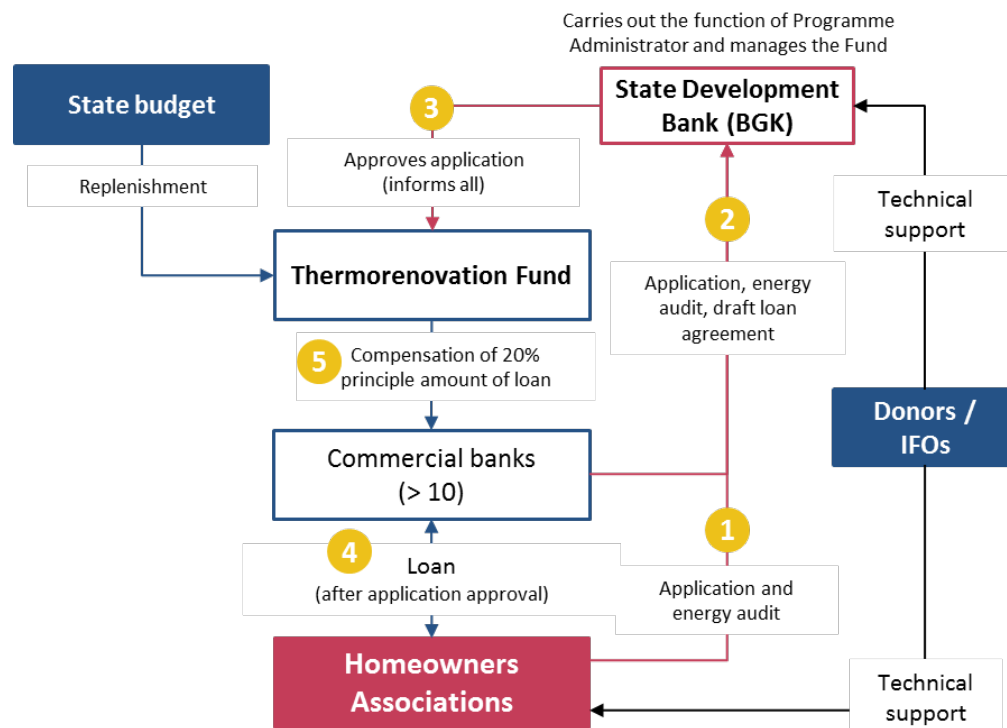
- BGK is an administrator, it checks and approves the applications on the basis of energy audit;
- Grant is provided if a building consumes less energy by a certain percentage (depending on the original characteristics of the building);
- Fund provides grants up to 20% of the project cost, the loan is provided by banks on market terms;
- Loan is granted only after the application approval;
- Compensation (grant) is not given without credit;
- Donors and IFI (for instance, the World Bank) provide technical support to BGK and project implementation.

The diagram below shows a simplified model of Thermorenovation Fund operation:



More than 10 commercial banks that provide loans on market terms participate in the programme

Diagram 9.1. Simplified model of Thermorenovation Fund operation in Poland



Source: data of BGK, Polish Bank Association, NAPE and the World Bank, analysis of the Working Group

The results of Thermorenovation Fund operation during 1999-2014:

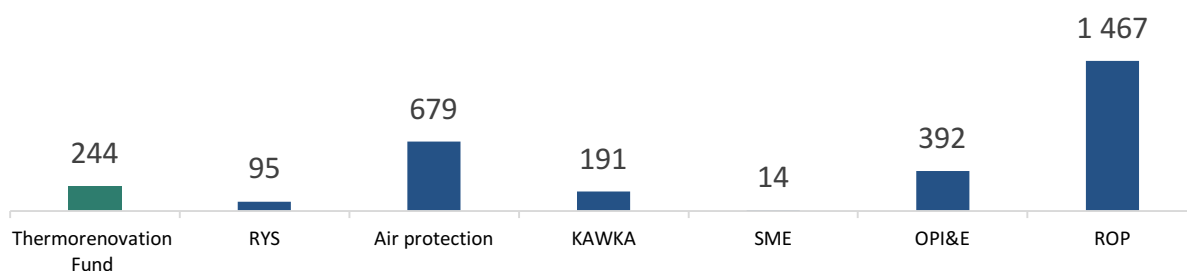
- Programme budget (amount of issued grants) is 450 mln Euro;
- The cost of completed projects is 2.650 mln Euro;
- The number of projects is 35.044, of which 32.756 - renovation of apartment buildings

EE programmes for the period till 2020

Today seven programmes on EE buildings are implemented or supposed to start in Poland. The budget of these programmes for 2016-2020 is estimated at 3.1 billion Euro that is 6 times more than it was spent by the Thermorenovation Fund in 1999-2014.

The vast majority of these programmes are new and have started / will start operating in 2014 - 2016. Six of seven programmes are co-financed from the European Structural Funds (ERDF and Cohesion Fund), their total budget for 2016-2020 is 2.9 billion Euro.

Diagram 9.2. Assessment of the budgets of programmes for 2016-2020, mln Euro



Source: BPiE data

For 15 years the Thermorenovation Fund provided grants worth 450 mln Euro

For 2016-2020 the total budget of EE programmes will be increased by several times due to new programmes with EU co-financing and it will make up 3.1 billion Euro



~95% of funds will be spent for renovation of apartment buildings and public buildings

Most programmes are focused on overall renovation

The EE programme in Lithuania is the most difficult in terms of development and administration, it provides one of the greatest levels of support among the CEE countries

It yields the results in terms of attracting demand and programme scaling – 7% of potential projects had been financed for 3 years.

Table 9.2. Breakdown of the budgets of programmes for 2015-2020 by directions

	Residential		Non-residential	
	Private	Apartments buildings	Private	Public
Fund Thermorenovation	4,9	228,9	-	9,7
RYS	95,2	-	-	-
Air protection	14,8	125,5	59,0	538,7
KAWKA	-	133,3	-	57,2
SME	-	-	14,3	-
OPI&E	-	225,6	-	165,9
ROP	-	481,1	-	985,8
Total	114,9	1 194,4	73,3	1 757,3

Source: BPIE data

Most of these programmes (4 of 7 and ~70% of total budget) are focused on overall renovation on the basis of energy audit. With the exception of 3 programmes:

- Air protection – focus on environment protection;
- KAWKA – focus on environment protection and implementation of alternative energy sources;
- SME – focus on commercial real estate

More information about the programmes is presented in Annex 11.

9.2. The EE programme in the residential sector of Lithuania

The EE programme of residential stock in Lithuania is the most difficult in terms of development and administration, it provides one of the greatest levels of support among the CEE countries. It requires additional financial resources, but yields the result in terms of attracting demand and programme scaling:

- In 2013-15 it was approved to finance 2.069 projects of overall renovation of apartment buildings in the amount of more than 450 mln Euro;
- It makes up almost 7% of the total number ~30.000 apartment buildings to be renovated;
- Moreover, at the end of 2015 more than 1.500 projects with approved investment plans.
- For the period 2016-2020 it is planned to accelerate the implementation and finance ~20 000 apartment buildings.

The programme supports projects in the following way:

- Grant up to 35% of the project cost;
- Preferential loan for 20 years with a fixed rate of 3% per annum;
- 100% servicing of EE loan by the state for households that receive energy subsidies;



Specialized Agency
BETA plays a key role
in the programme
administration

About 80% of the
projects are
implemented with
the assistance of
municipalities

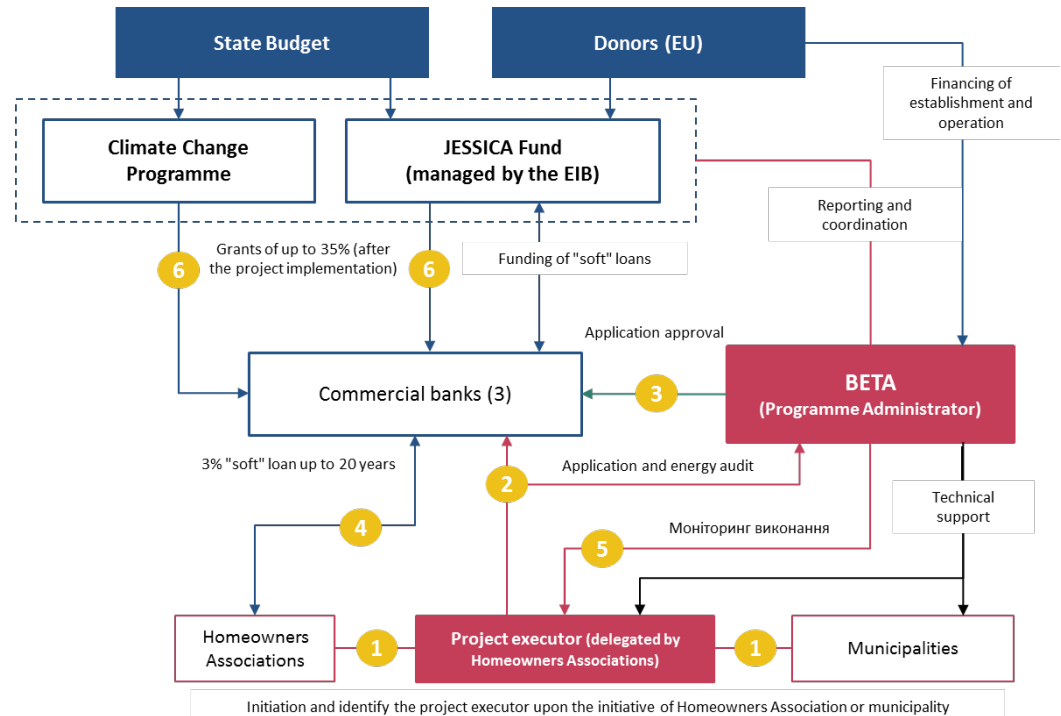
127 of 227 mln Euro
of JESSICA Fund
was given by the
ERDF

Money of JESSICA
Fund exhausted in
2015

The EU invests 150
mln Euro in JESSICA-
2 Fund

- Compensation of up to 100% of the costs for energy audit and development of project documentation.

Diagram 9.3. Simplified model of EE programme in Lithuania



Source: Report of the World Bank "The Residential Energy Efficiency Programme in Lithuania" (2014), BETA, analysis of the Working Group

The programme key features:

- The programme is administered by the specialized technical agency BETA;
- Active participation of municipalities (over 80% of the projects are involved with the assistance of municipalities);
- JESSICA Fund is managed by the EIB and it makes up to 227 mln Euro, of which 100 mln Euro - from the state budget and 127 mln Euro - a contribution of the European Regional Development Fund (ERDF);
- The programme is also co-financed from other sources (for example, from the state programme on climate change).

Additional proof of the programme success is the signing in May 2015 of the memorandum between the Government of Lithuania and EIB agreement establishing the JESSICA-2 Fund (actually it will continue the activities of the JESSICA Fund that run out of money), in which the EU structural funds invest 150 million Euro.

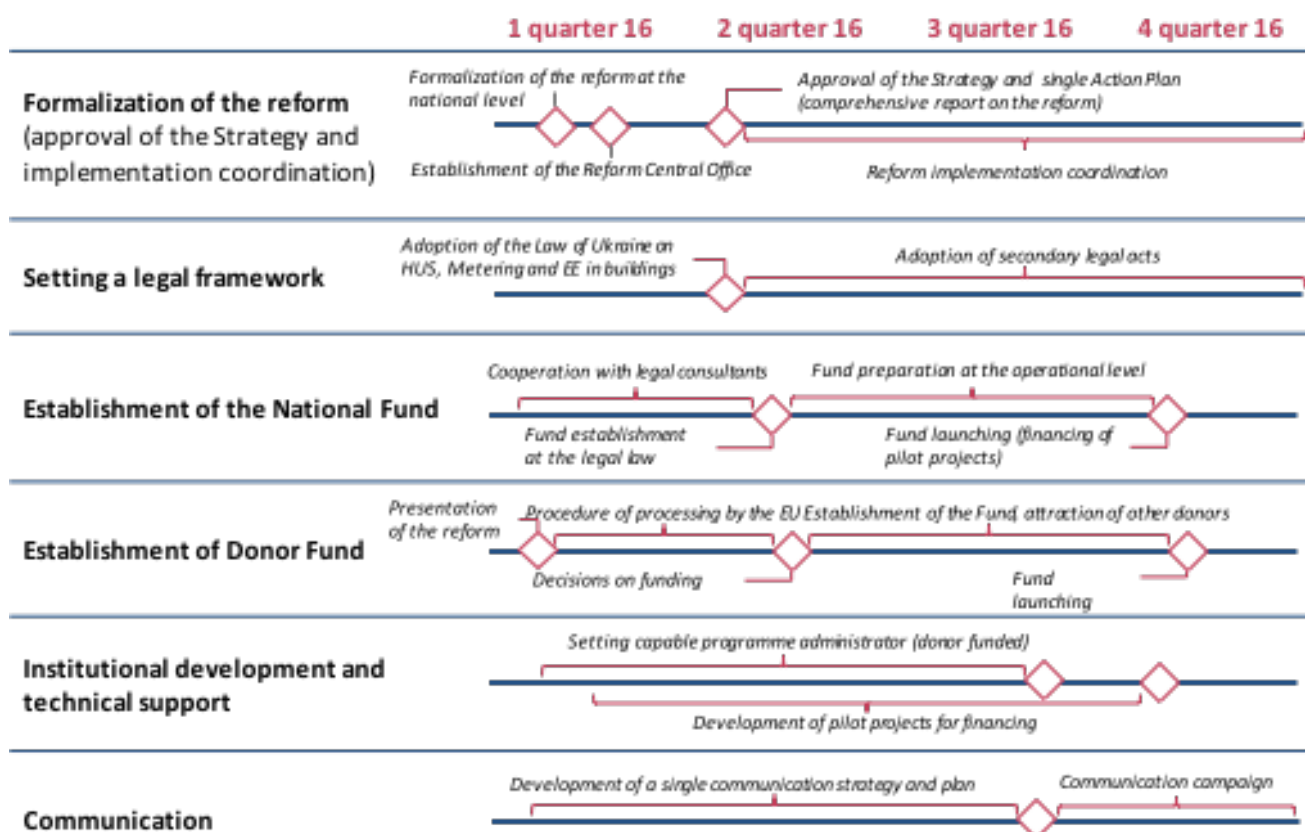


10. Plan on the EE Fund establishment

10.1. Suggestions to the action plan

In order to create it in a due time, it is important to approve the action plan for 2016.

Diagram 10.1. Suggestion to the road map for 2016



Source: analysis of the Working Group

The existing draft Resolution of the CMU on the action plan concerning the creation of EE Fund is given in Annex 12.



10.2. Technical assistance in the EE Fund establishment

Today two donors (the government of Germany and the EU) provide technical assistance in the development and establishment of the EE Fund:

Table 10.1. Reference on expert support of Germany and the EU in the EE Fund establishment

Germany - upon the request of BMUB	EU – tenders of the EU Delegation to Ukraine
<ol style="list-style-type: none"> 1. Consulting contract with Berlin Economics (based on open tender). For the period from 01/2016 to 12/2016: <ul style="list-style-type: none"> • Support in macroeconomic analysis for the EE Fund. 2. Consulting contract. The estimated term of contract signing with the winner is the end of February 2016. <ul style="list-style-type: none"> • Legal services for the EE Fund development and launch 3. Consulting contract. Work from 06/2016 till 12/2016 <ul style="list-style-type: none"> • Consulting services on the creation of a complete reform "Transformation of subsidies into investments" including the EE Fund 	<ol style="list-style-type: none"> 1. Consulting contract. The estimated term of contract signing with the winner is the end of February 2016. <ul style="list-style-type: none"> • Support in the EE Fund development and establishment 2. Consulting contract. Tender preparation. <ul style="list-style-type: none"> • Development of communication campaign on the EE Fund

Source: analysis of the Working Group



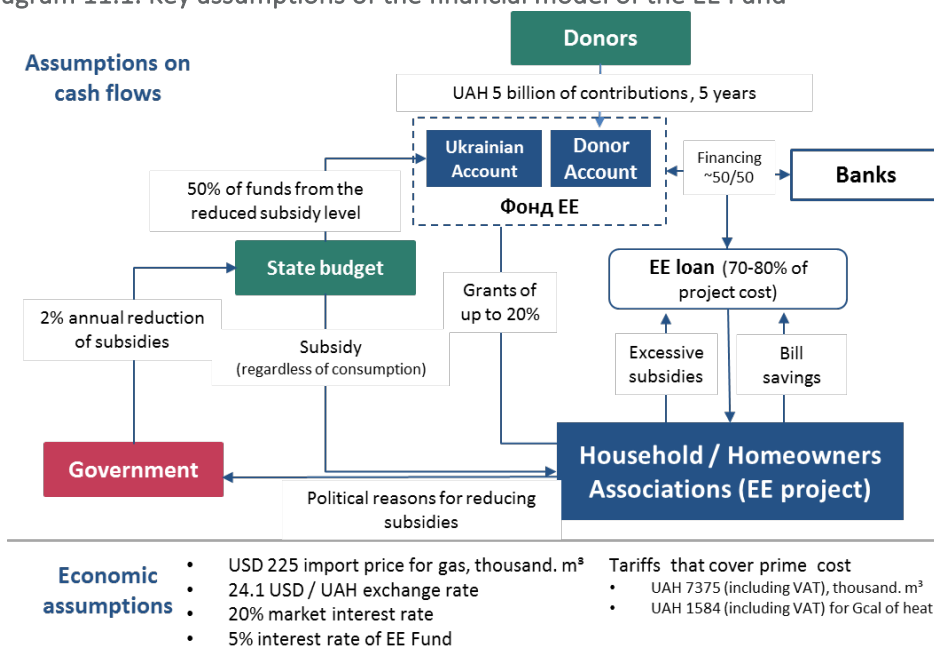
11. Economic forecast of the EE Fund operation

11.1. Key assumptions of the financial model

The financial model is based on the following structure of the EE Fund financing:

- Donors provide irrevocable contributions to the EE Fund in the amount of UAH 5 billion in the first 5 years.
- State budget allocates UAH 1 billion in the first year.
- Starting from the second year the Government reduces the level of subsidies to the population by 2% each year. 50% of this money goes to the EE Fund.
- The EE Fund provides both grants and preferential loans. Thus, the payment of preferential loans is one of the sources of the EE Fund financing.




Diagram 11.1. Key assumptions of the financial model of the EE Fund



Source: analysis of the Working Group

The financing model envisages the financing of three project types:




Table 11.1. Key features of projects

Projects	Project cost	Increase in energy consumption by UAH 100 mln of investments, ths m ³ equiv. gas	Simple payback time, years
 Installation of individual heating units in apartment building	UAH 500 ths	5 019	1.5
 Thermal rehabilitation of apartment building	UAH 5 mln	1 422	8.4
 Thermal rehabilitation of detached house	UAH 80 ths	1 546	8.8

Source: financial model of the EE Fund



Table 11.2. Structure of project financing

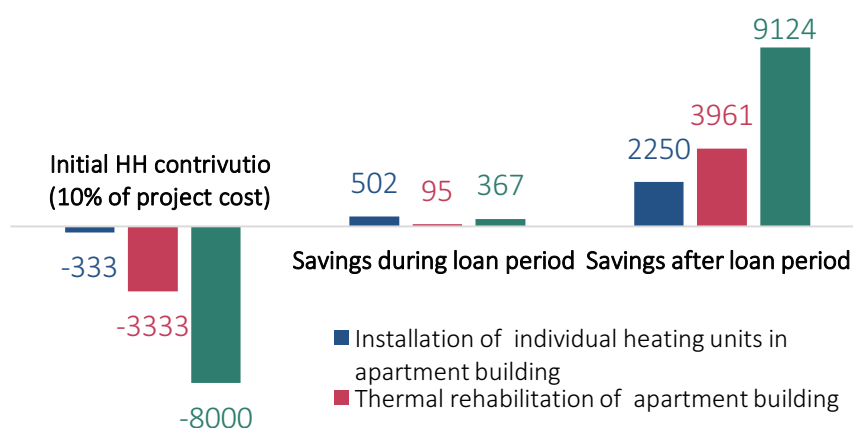
Projects	Loan term (years)	Bank credit	EE Fund loan	Grant	Own contribution
 Installation of individual heating units in apartment building	2	60%	30%	0%	10%
 Thermal rehabilitation of apartment building	12	35%	35%	20%	10%
 Thermal rehabilitation of detached house	14	35%	35%	20%	10%

Source: financial model of the EE Fund

The diagram below shows the analysis of cash flow at the household level by these three projects:

Diagram 11.2. Analysis of household savings, USD per year

Households save money during the EE loan servicing



Source: financial model of the EE Fund

11.2. Forecast of the EE Fund operation within the first 5 years

Within the first 5 years the EE Fund has to receive incomes in the total amount of UAH 16.5 billion, of which:

- UAH 5.0 billion – contributions of Donors
- UAH 6.7 billion – contributions of the State Budget
- UAH 5.6 billion – return on investments



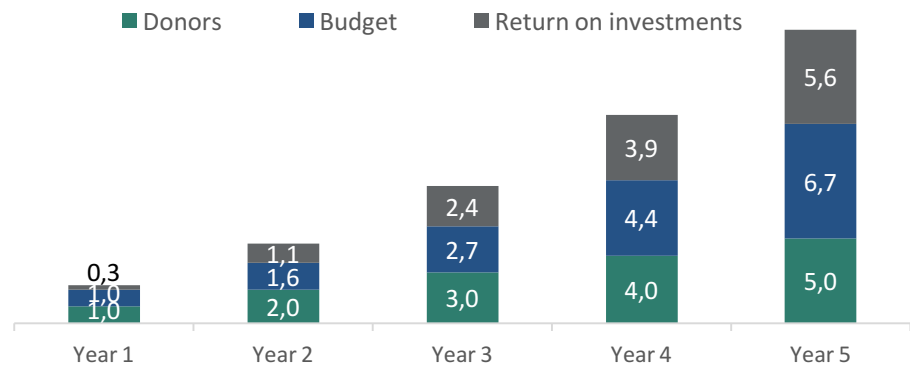
During the first 5 years UAH 5.6 billion will be returned to the EE Fund and reinvested

Contributions from the State Budget shall be UAH 6.7 billion

For the first 5 years the investments by the EE Fund will make up UAH 14.3 billion that will allow to:

- ✓ implement projects in the amount of UAH 31.7 billion (USD 1.3 billion)
- ✓ reduce housing bills by UAH 10.8 billion a year
- ✓ reduce gas consumption and imports by 0.7 billion m³ a year

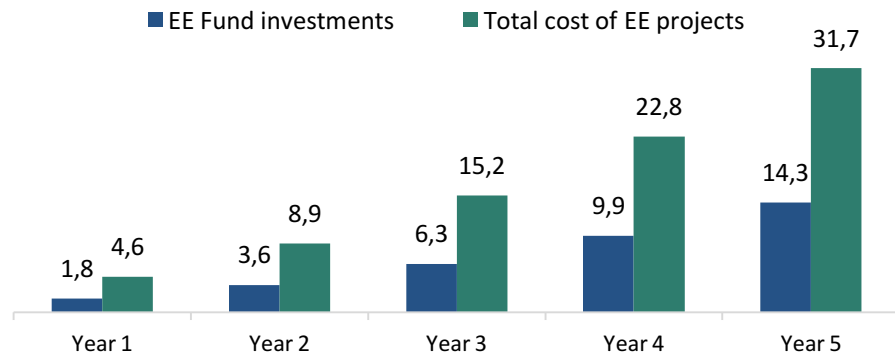
Diagram 11.3. Sources of the EE Fund replenishment (cumulatively), billion UAH



Source: financial model of the EE Fund

It will allow to implement projects for a total amount of UAH 31.7 billion, of which UAH 14.3 billion will be financed by the EE Fund. The difference is financed with the help of bank loans on market terms and at the expense of households' contributions.

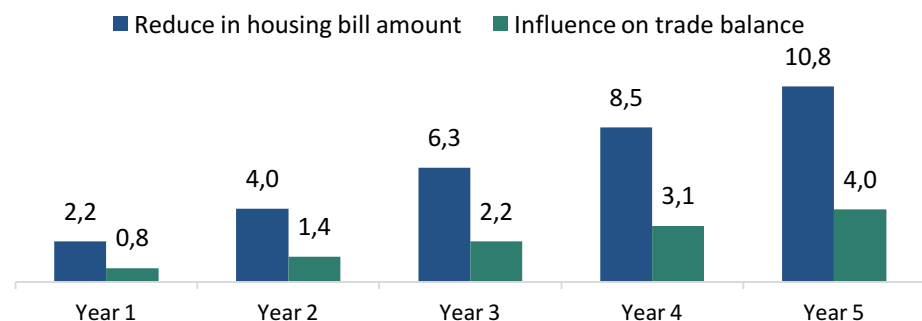
Diagram 11.4. Project financing by the EE Fund (cumulatively), billion UAH



Source: financial model of the EE Fund

As a result the total annual amount of housing bill will be reduced by UAH 10.8 billion, and a positive annual impact and trade balance will be UAH 4.0 billion (annual consumption decreased by 0.7 billion m³).

Diagram 11.5. Achieved annual influence on the housing bills and trade balance, billion UAH



Source: financial model of the EE Fund



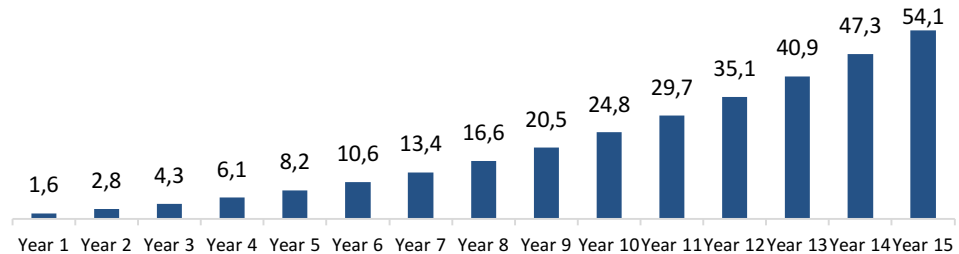
11.3. Forecast of the Fund operation on a long-term horizon

The EE Fund will expand its activities with the help of re-investment:

- part of saved subsidies;
- investments returned to the projects (preferential loans).

In 15 years the EE Fund assets will make up UAH 54.1 billion (USD 2.2 billion)

Diagram 11.6. EE Fund assets at the end of year, billion UAH



Source: financial model of the EE Fund

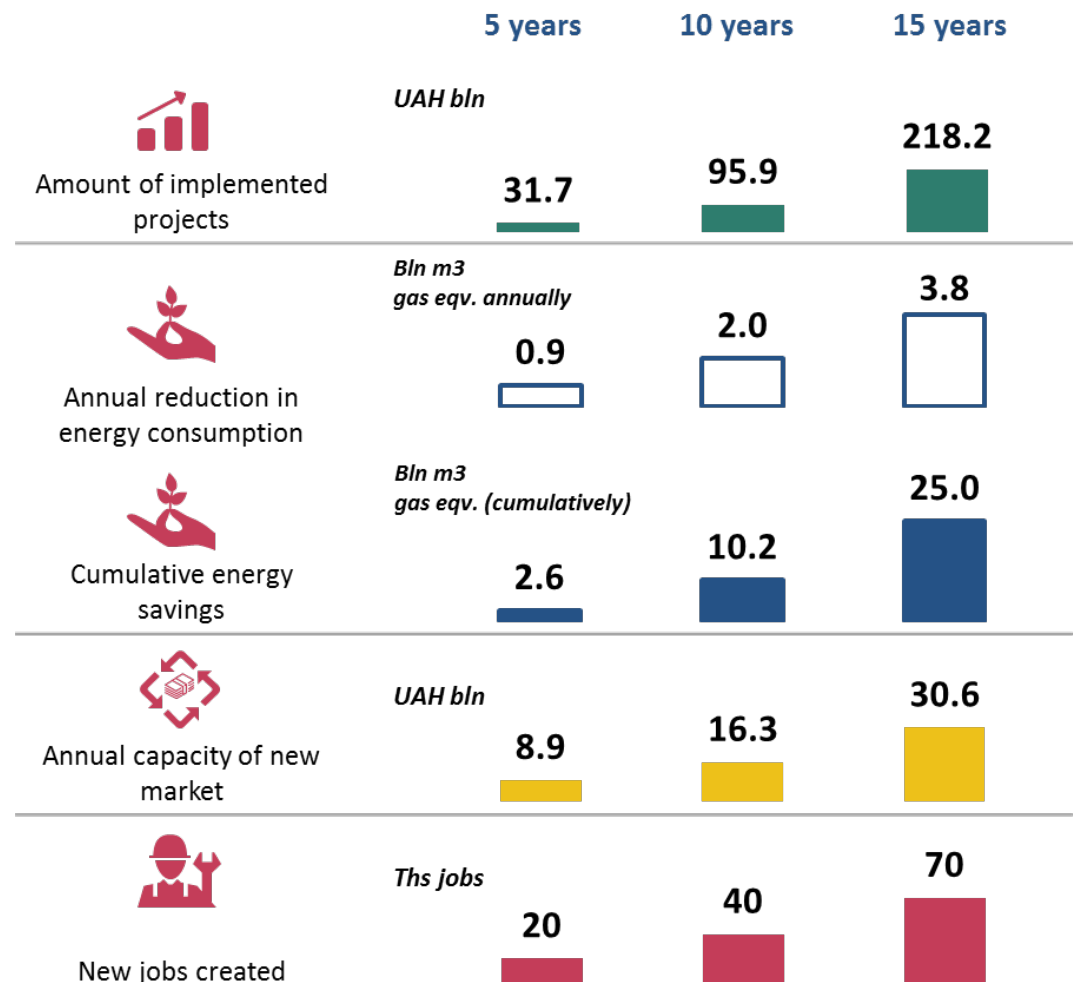
The forecasted impact of the EE Fund operation is presented on the diagram below.

Diagram 11.7. Forecast for operating results of the EE Fund

One-off investments ensure a steady decrease in energy consumption and gas imports

A strong social effect due to:

- ✓ Reduced housing bills
- ✓ New jobs
- ✓ Improved comfort and safety
- ✓ Increased price of real estate



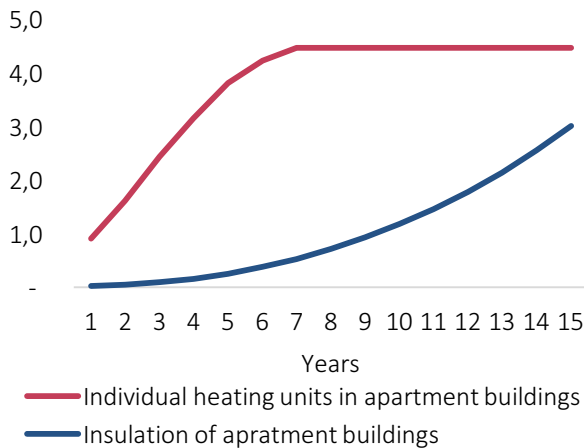
* increase in gas consumption makes up ~70% of energy consumption (~30% of heat is produced from other sources, namely, coal, wood, etc.)

Source: financial model of the EE Fund



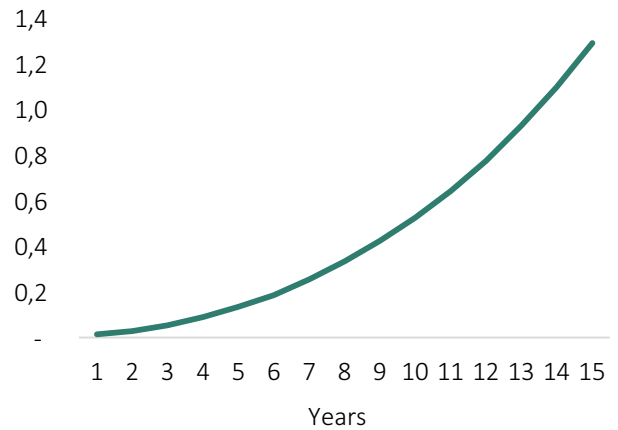
The dynamics of household involvement by the EE Fund projects is presented in the diagrams below (the total number of households in Ukraine is about 15 million, of which 8.5 million live in apartment buildings and about 6.5 million - in detached houses).

Diagram 11.8. Number of households involved in the apartment building projects, mln.



Source: financial model of the EE Fund

Diagram 11.9. Number of households involved in the projects on renovation of detached houses, ths.



Source: financial model of the EE Fund

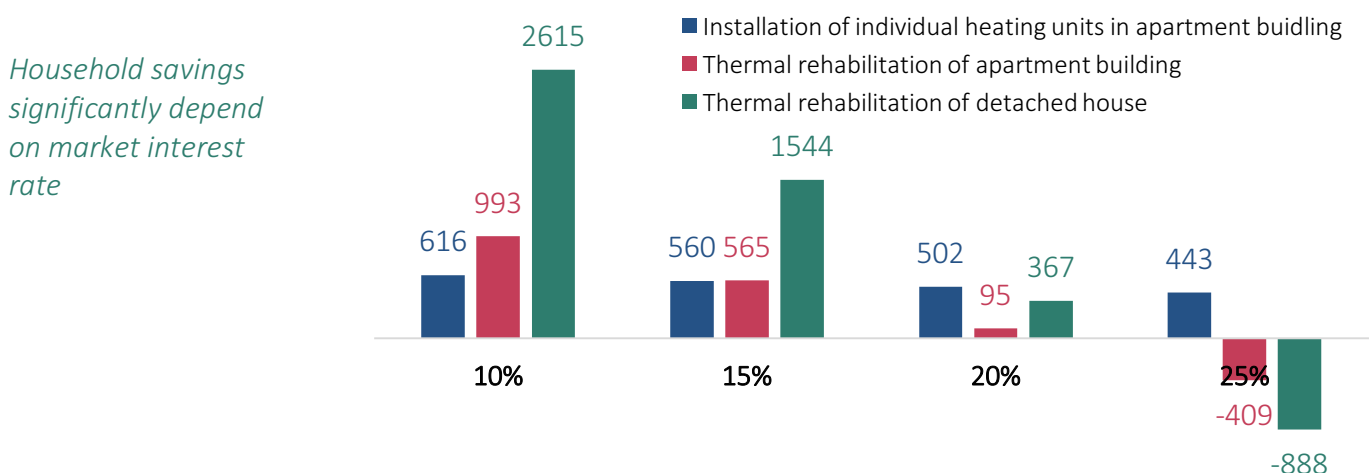
11.4. Analysis of financial model sensitivity

The impact of market interest rate on household savings

One of the main objectives of EE Fund is to provide attractive financing conditions, but, on the other hand, the EE Fund is interested in attracting co-financing of projects (the assumptions on the share of financing by bank loans on an arm's length basis is presented in Table 11.10.).

The diagram below shows the savings of households during the loan servicing depending on market interest rate.

Diagram 11.10. Analysis of household savings during the loan servicing depending on market interest rate, UAH per year



Source: financial model of the EE Fund

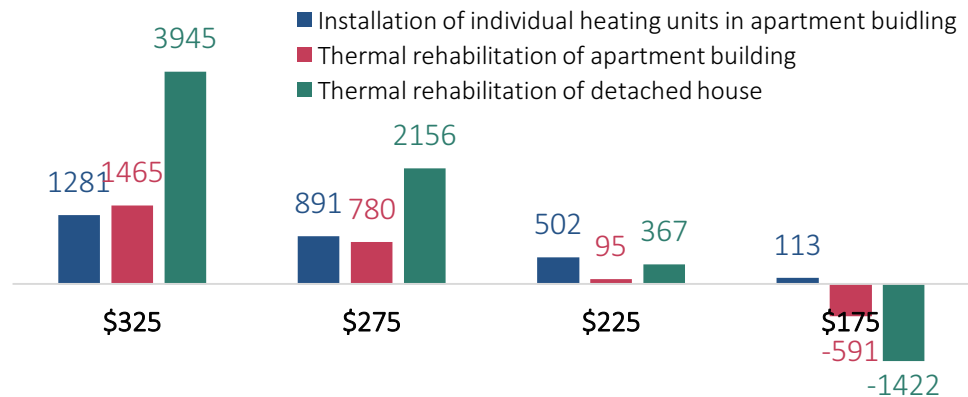


The impact of import price for gas on household savings

The main factor, which will influence the level of tariffs, is the import price for gas (according to the liabilities against IMF). The diagram below shows the household savings during the loan servicing depending on the import price for gas.

Diagram 11.11. Analysis of household savings during the loan servicing depending on import price for gas, UAH per year

Household savings depend heavily on import price for gas



Source: financial model of the EE Fund

The impact of Fund replenishment from the State Budget in the amount of implemented projects

The principle of EE Fund replenishment from the Budget has a significant impact on results in the medium-to-long-term (10-15 years)

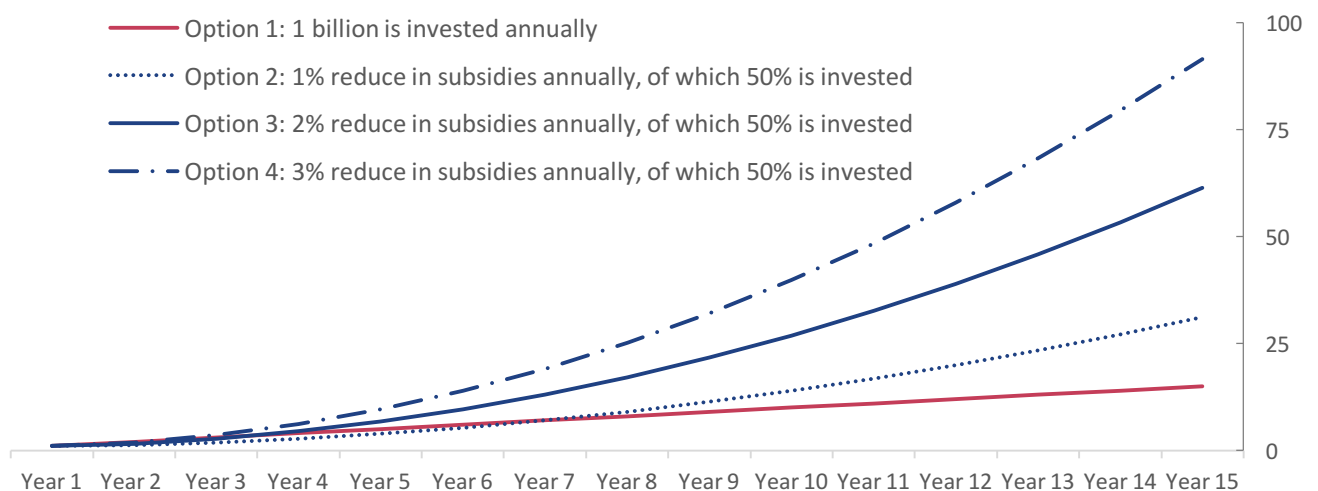
The EE Fund key issue is the level and principle of its replenishment from the State Budget. The principle underlying the model's main scenario is the decrease in subsidies by a fixed interest each year and reinvestment of 50% savings in the EE Fund.

Baseline costs for heating subsidies (that is calculated) in terms of the current system and economically reasonable tariffs is estimated at UAH 57.5 billion.

The diagram below shows the cumulative amounts of the EE Fund replenishment from the Budget under various scenarios:

- Option 1 – a fixed amount of replenishment UAH 1 billion
- Options 2-4 – reducing subsidies by a fixed interest (1-3%). The model's main scenario is based on option 3.

Diagram 11.12. The total amount of the EE Fund replenishment from the State Budget (cumulatively), billion UAH

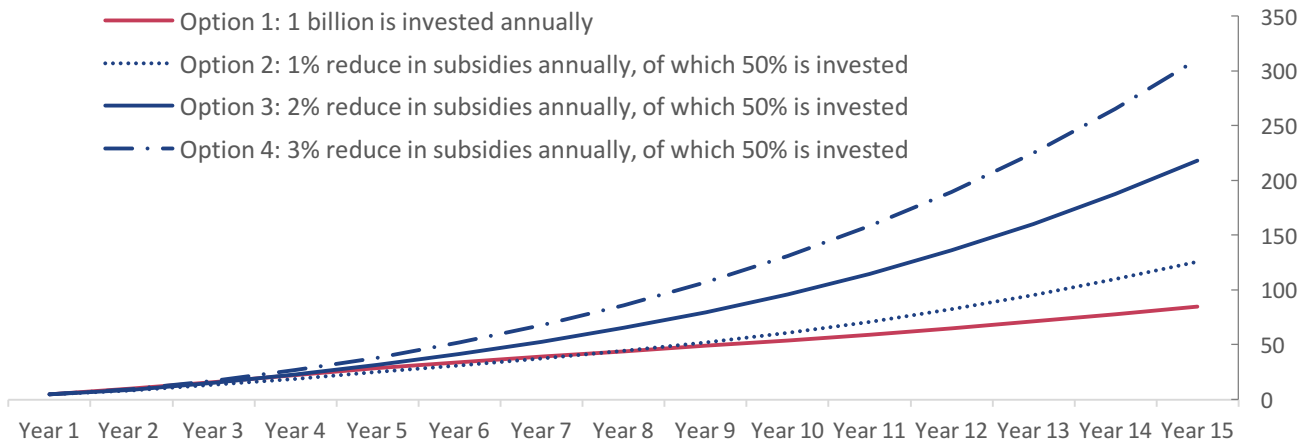




Source: financial model of the EE Fund

The diagram below shows the sensitivity of replenishment from the Budget to the amount of implemented projects:

Diagram 11.13. The total cost of projects depending on replenishment from the State Budget, billion UAH



Source: financial model of the EE Fund



12. Glossary

Acronyms/abbreviations	Definition
"Warm loans"	State programme of partial reimbursement for the cost of loans for energy efficiency
BETA	Energy Efficiency Agency of Lithuania
BGK	National Economy Bank - State Development Bank of Poland
BPIE	Buildings Performance Institute Europe
GEF	The Global Environment Facility
GIZ	Deutsche gesellschaft für internationale zusammenarbeit
KAWKA	Poland's Programme to increase its energy efficiency and renewable energy sources for reducing air pollution
KfW	National Development Bank of Germany
KredEx	National Development Bank of Estonia
NEEAP	National Energy Efficiency Action Plan
OP&IE	Polish Operational Programme for Infrastructure & Environment
ROP	Polish Regional Operational Programme
RYŚ	Polish programme on thermo-modernization of detached houses
SMEs	Polish programme on energy-efficiency investments
UREEF	Ukrainian Revolving Energy Efficiency Fund
GDP	Gross Domestic Product
HWS	Hot water supply
Gcal	Gigacalorie
SAEE	State Agency for Energy Efficiency and Energy Saving of Ukraine
HH	Household(s)
State Statistics	State Statistics Service of Ukraine
Donor's Account/Fund	National financial platform that accumulates the Donors' funds and invests in energy efficiency projects
EE	Energy efficiency
EE loan	Loan for energy efficiency project
EE project	Project on residential energy efficiency improvements
Energy audit	Systematic procedure performed by an independent Energy Auditor with the purpose of obtaining accurate information on the level of heat consumption in buildings and identifying the impact and cost of energy efficiency measures and reporting results in the approved form
ESC	Energy service contract



EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
HUS	Housing and utilities services
LU	Law of Ukraine
IHU	Individual heating unit
CMU	Cabinet of Ministers of Ukraine
IMF	International Monetary Fund
Memorandum	Diplomatic document outlining factual, documentary or legal side of any issue. Usually it is attached to a note or delivered by hand to the representative of another country
MEDT	Ministry of Economic Development and Trade of Ukraine
Minenergy	Ministry of Energy and Coal Industry of Ukraine
Minregion	Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine
MSP	Ministry of Social Policy of Ukraine
MFU	Ministry of Finance of Ukraine
IFI	International Financial Organization(s)
NEURC	National Energy and Utilities Regulatory Commission
ISSNU	Institute for Strategic Studies "New Ukraine"
NLA	Normative and legal act(s)
SB	Sovereign bonds
LA	Local authorities
HA	Homeowners Association(s)
Working Group	Working Group composition is given in Annex 20
CHP	Central heating plant
TEP	Thermoelectric plant
DHP	District heating provider
Ukrainian Account/Fund	National financial platform that accumulates the funds from the State Budget and other sources and invests in energy efficiency projects.
JESSICA Fund	Joint European Support for Sustainable Investment in City Areas
EE Fund	Energy Efficiency Fund, i.e. Ukrainian Account /Fund and Donors' Account/ Fund together

13. Sources

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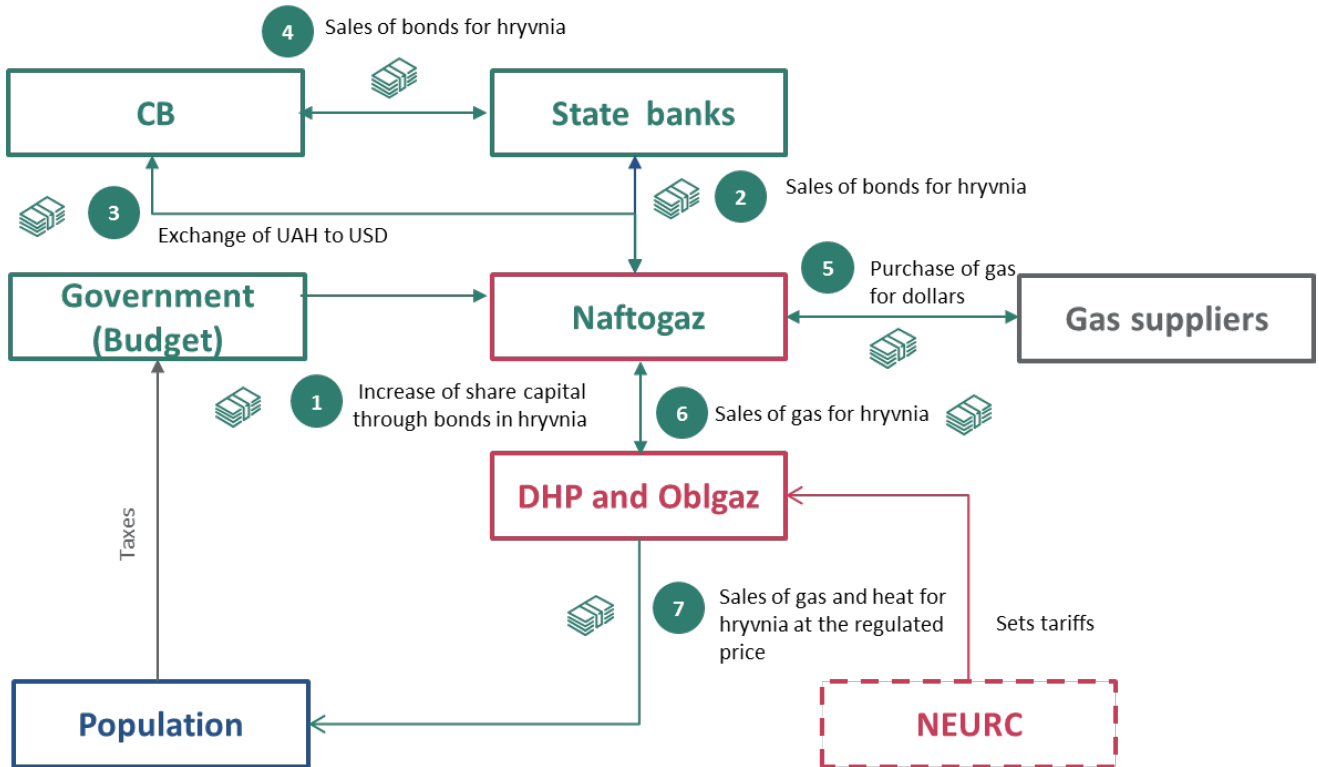


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14. Annexes

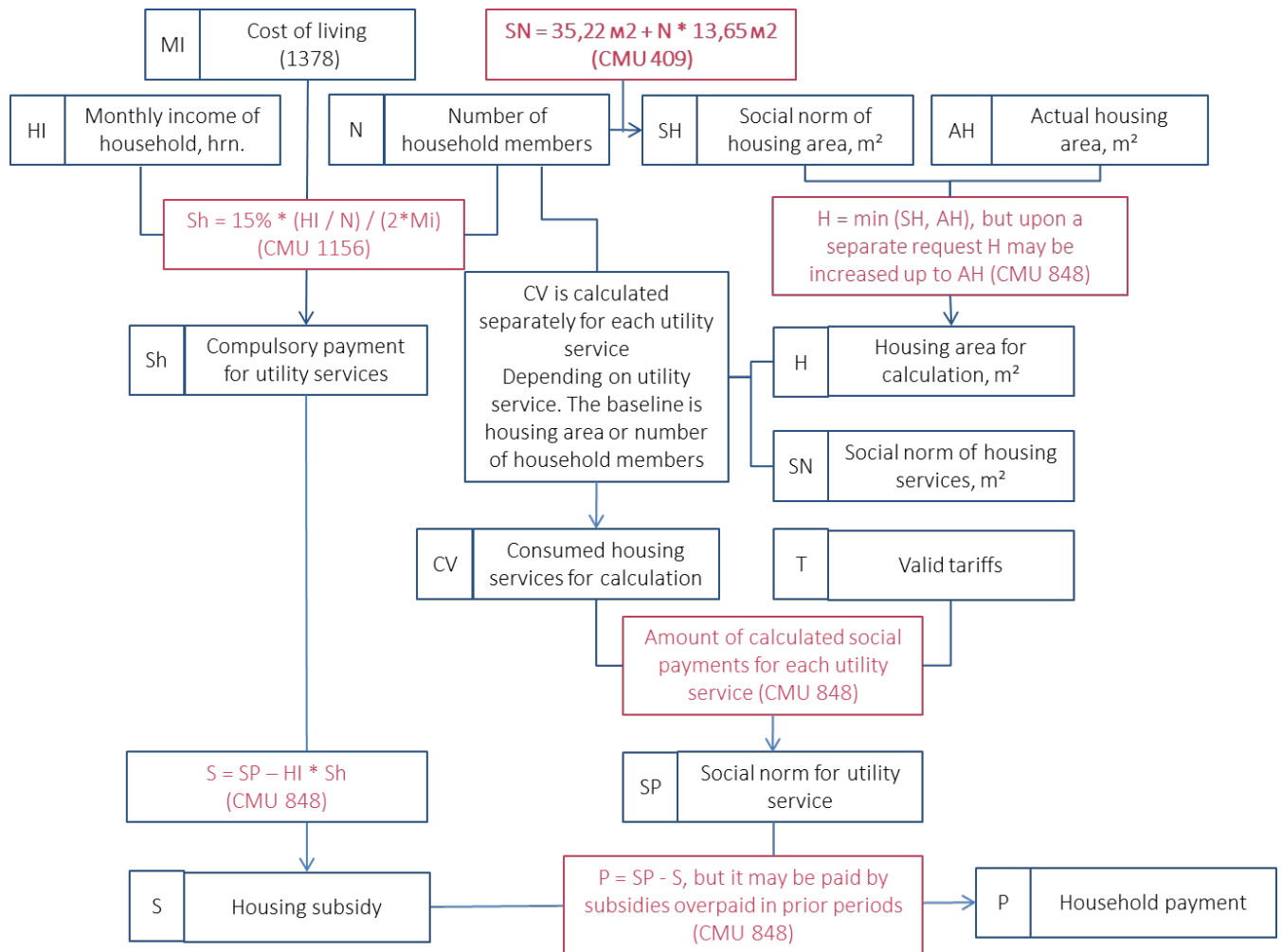
14.1. Annex 1. Scheme of gas purchase financing till 2015



Source: analysis of the Working Group



14.2. Annex 2. Algorithm for calculating housing subsidies



Source: CMU Resolutions; Minregion data



14.3. Annex 3. Subsidy systems of other countries

Stable system

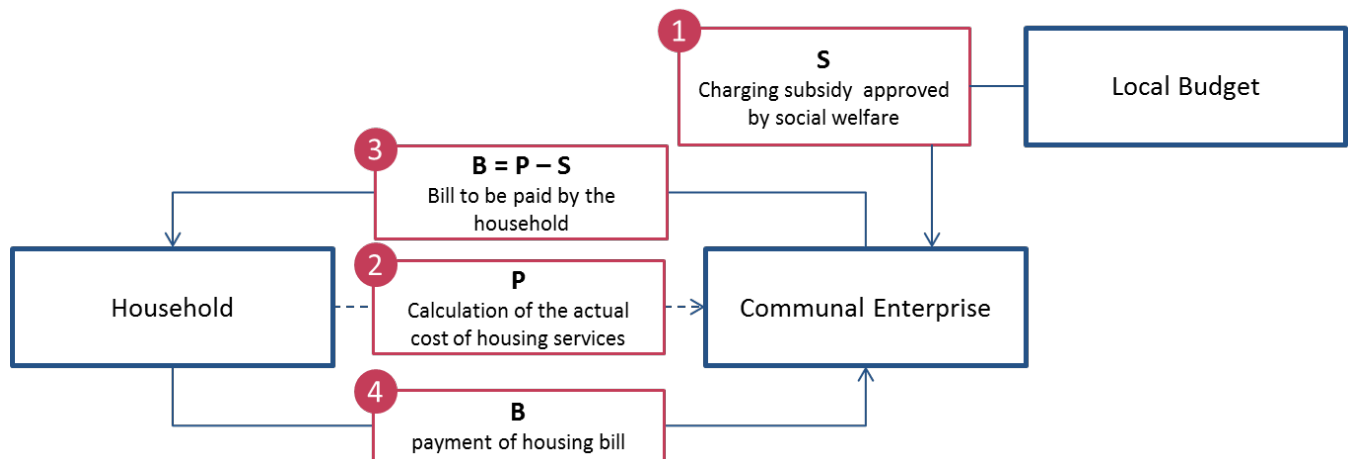
Systems that are reformed

Specific case	USA	Jordan	Iran	Ukraine
Subsidy type	Annual transfer of money to households	Compensation due to increased salaries and increased social payments	Lump-sum transfer of money to households	Monthly transfer of money to housing and utility company
Subsidy coverage	Households with low income	Households with low income and public servants	All	Households with low income
Difference	Subsidy amount depends on income, family size, energy type, location	Different amounts for public servants and recipients of social assistance	The same amount for all	Subsidy amount depends on income, family size, energy type, region
Comments to reform	-	Subsidies for public servants are too large and untargeted that increased the cost of reform	Lack of focus and differentiation increased the cost of reform and stimulated inflation	In many cases subsidies exceed energy consumption: use of funds is not envisaged. Disadvantage: reducing incentives for energy efficiency, excessive burden on the budget.

Source: data of the World Bank, analysis of the Working Group



14.4. Annex 4. Why funds are accumulated on the accounts of district heating companies



If accrued subsidy exceeds the actual cost of housing services [$S > P$], then:

- Households do not pay for housing services at all [$B = 0$].
- The difference between the subsidy and the cost of housing services [$S - P$] is accumulated in the accounts of housing and utility enterprise.
- The accumulated funds do not affect the amount of following subsidy and can not be returned.
- The accumulated funds are targeted and can be used only as a share of household's payment for utility services in the following periods.

Source: Resolutions of the CMU, data of the Ministry of Regional Development, Construction, Housing and Communal Services



14.5. Annex 5. Lack of households' motivation for EE measures

Characteristics of building:



- Calculation - Khmelnytsk region (rural area)
- Type of heating - gas boiler
- Heating area - 72 m²
- Household - 2 persons with total monthly income of 3,000 / 6,000 UAH

	Before building insulation			After building insulation	
Income	3 000	6 000		3 000	6 000
Gas subsidy, UAH	2 161	1 711	→	2 161	1 711
Gas bill, UAH	2 000	2 000	↓	1 000	1 000
Household payment, UAH	0	289	→/↓	0	0
Excess subsidy, UAH	161	0	↑	1 161	711
Accumulated excess subsidy for the heating season (6 months), UAH	966 (161 x 6)	0	↑	6 966 (1 161 x 6)	4 266 (711 x 6)

Source: analysis of the Working Group



14.6. Annex 6. Legislation improvements plans

Direction	Normative and legal acts	Key idea	Deadline	Responsible
Energy Consumption Efficiency	Law "On Housing and Utilities Services"	Improvement of legal regulation on housing services provision	1 quarter 2016	Minregion
	Law "On energy efficiency of buildings" (Directive 2010/31/EU)	Ensuring buildings with EE according to the EU requirements	1 quarter 2016	SAEE
	Law "On the commercial account of thermal energy, water and drainage system in the area of communal services"	Implementation of mandatory metering	1 quarter 2016	Minregion
	CMU "On the improvement of subsidy targeting and monetization"	Monetization of subsidies	2 quarter 2016	MSP, SAEE
Heat supply and heat distribution efficiency	Law "On long-term agreements for the supply of heating energy" (amendment to the current Law)	Long-term agreements in the area of heat supply	4 quarter 2015 (it is being considered)	SAEE
	Law "On mandatory thermoregulation stimulation"	Mandatory incentive regulation	1 quarter 2016	NEURC, SAEE
	Law "On regulation of heat supply territories" (amendment to the current Law)	Regulation of heat supply territories	1 quarter 2016	Minregion
	Law "On competitive environment in heat production" (legal distribution)	Legal unbundling (activities separation)	1 quarter 2016	SAEE
Framework legislation on EE	CMU "On monitoring of energy balance parameters"	Monitoring the indicators of energy efficiency and energy balance	2 quarter 2016	SAEE
	Law "On Energy Efficiency" (Directive 2012/27/EU)	Framework legislation on energy efficiency	4 quarter 2016	SAEE

Source: Minregion and SAEE data



14.7. Annex 7. Legislation in the field of EE Fund operation

Laws of Ukraine

On energy efficiency	Energy efficiency regulation and stimulation
On introduction of new investment opportunities, guaranteeing the rights and interests of businesses to carry out a large-scale energy modernization	ensuring conditions for energy services provision
On ensuring commercial accounting of natural gas	ensuring 100% accounting of gas consumption
On heat supply	general functioning of heat market
On natural gas market	legal basis for gas market functioning
On housing and utilities services	relationships on the housing and utilities market
On state regulation in the utility area	legal basis for housing and utilities market regulation
On association of the co-owners of apartment buildings	conditions for the functioning of Homeowners Association

Resolutions of the Cabinet of Ministers of Ukraine

Dated 1.06.2011 No 869 "On Ensuring Unified Approaches to the Formation of Tariffs for Housing and Utility Services"	method of the formation of tariffs for housing and utility services
Dated 21.07.2005 No 630 "On approving the rules for provision of central heating, cold and hot water and drainage and a model contract for provision of central heating, cold and hot water and drainage"	relationships between consumer and supplier of heat, rules for services payment
Dated 15.11.2010 No 1132 "On approving the Procedure for calculating inter-budget transfers"	Inter-budget transfers
Dated 11.01.2005 No 20 "On approving the Procedure of the transfer of certain subsidies from the state budget to local budgets for provision of benefits, subsidies and compensation"	subsidy transfer scheme
Dated October 21, 1995 No 848 "On simplified Procedure of subsidies to reimburse the expenses incurred due to payment for housing and utility services, purchase of liquid gas, solid and liquid stove fuel"	procedures for granting subsidies to population
Dated November 13, 2013 No 860 "On provision of benefits and subsidies to tenement householders, who have created the Homeowners Association, to reimburse the expenses for maintenance of buildings, constructions and adjacent territories (housing co-operatives)»	mechanism for the calculation of subsidies for Homeowners Associations



Dated 09.10.2013 No 750 "On approving the Procedure for crediting funds to the current accounts with special use for payments under investment programmes, use of funds and control over their spending in the areas"	transfer of money from the current account to the special account to implement investment programmes
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Dated 1.10.2014 No 552 "Some issues on implementation of investment programmes in the areas of heating, centralized water supply and drainage areas"	Control over investment programme implementation
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Minregion Order

Dated 14.12.2012 No 630 "On approving Procedures for development, coordination and approval of investment programmes of economic entities in the areas of heating, centralized water supply and drainage"	mechanism of investment programme approval
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Source: Resolutions of the CMU, Laws of Ukraine, analysis of the Working Group



14.8. Annex 8. Reference on key energy efficiency investment programmes

Institution	Programme	Terms of financing	Real EE projects	EE financing potential
EBRD	Loans to DHP	<ul style="list-style-type: none"> Loan amount is from EUR 5 mln, rate ~10%, period is 10-15 years 	<ul style="list-style-type: none"> Approved DHP projects in the amount of EUR 130 million 	<ul style="list-style-type: none"> EUR 180 mln – DHP (2 more potential projects)
	USELF (loans to private companies)	<ul style="list-style-type: none"> Loan amount is EUR 1.5-15 mln Focus on the projects with renewables 	-	<ul style="list-style-type: none"> EUR 100 mln – private sector
	UKEEP (loans to private and ESC companies)	<ul style="list-style-type: none"> Loan amount is EUR 3-10 mln 	-	<ul style="list-style-type: none"> EUR 100 mln – private sector
	loans to private companies through Ukreximbanl	<ul style="list-style-type: none"> Loan amount is up to EUR 3 mln 	-	<ul style="list-style-type: none"> EUR 50 mln – private sector
	UREEF (EE in residential sector) (on the stage of development)	<ul style="list-style-type: none"> Loans to EE project in residential sector through commercial banks, namely, OTP, Raiffeisen, etc 	-	<ul style="list-style-type: none"> EUR 100 mln – residential buildings
Fund ESP	Multilateral donor fund with the amount of EUR 93 mln (fund administrator is the EBRD)	<ul style="list-style-type: none"> Grant up to EUR 5 mln is provided as additional support of the projects financed by EBRD, EIB, NEFCO, etc. 	<ul style="list-style-type: none"> ~ EUR 10 mln 	<ul style="list-style-type: none"> EUR 50 mln – DHP EUR 30 mln – public buildings EUR 20 mln - residential buildings
EIB	Direct financing of projects	<ul style="list-style-type: none"> Loan amount is from EUR 25 mln 	-	-
	Programme for the recovery of eastern Ukraine (loans)	<ul style="list-style-type: none"> Programme budget is EUR 200 mln (part of funds for EE projects) 	<ul style="list-style-type: none"> ~ EUR 10 mln Projects on EE in public buildings 	<ul style="list-style-type: none"> EUR 20 mln - public buildings



	Municipal infrastructure development programme	<ul style="list-style-type: none"> • Programme budget is EUR 400 mln • Interest on loan is 2.4 - 4% • Part of funds can be used for EE projects 	-	<ul style="list-style-type: none"> • EUR 100 mln – DHP • EUR 100 mln - public buildings
IBRD	UDHEEP (Enhancing energy efficiency in the sector of centralized heat supply)	<ul style="list-style-type: none"> • Interest on loan is <1.0% 	<ul style="list-style-type: none"> • 8 DHP projects are selected to the total amount USD 291 mln 	<ul style="list-style-type: none"> • USD 309 mln – DHP
	Loan provision through Ukreximbank	-	-	<ul style="list-style-type: none"> • USD 150 mln – public sector • USD 50 mln – DHP
KfW	Investment projects on the recovery of eastern Ukraine	<ul style="list-style-type: none"> • Interest on loan is 4.5% • Part of funds can be used for EE projects 	<ul style="list-style-type: none"> • EUR 39 mln – preliminarily selected projects 	<ul style="list-style-type: none"> • EUR 39 mln - DHP
	Programme of German-Ukrainian Fund (GUF)	<ul style="list-style-type: none"> • Loan amount is EUR 100-200 ths 	-	-
IFC	Energy efficient projects and support of Homeowners Association	<ul style="list-style-type: none"> • Loan amount depends on project 	-	-
SIDA	Support programmes	<ul style="list-style-type: none"> • Provision of additional grants to support loan projects 	-	-
NEFKO	Programme "Demo – Ukraine"	<ul style="list-style-type: none"> • Loan amount is up to EUR 3 mln • Interest on loan is 3% 	<ul style="list-style-type: none"> • EUR 10 mln – DHP (Demo - 1) 	<ul style="list-style-type: none"> • EUR 20 mln – DHP (together with Demo - 2)
	"Green" production (loans to enterprises)	<ul style="list-style-type: none"> • Loan amount is up to EUR 350 thous • Interest on loan is 6% 	-	-



SAEE	Programme on reimbursement of principle amount of the EE loan	<ul style="list-style-type: none"> Reimbursement of 20%-70% of principle amount of the EE loans granted by the state banks, namely, Ukgasbank, Savings Bank, Ukreximbank 	<ul style="list-style-type: none"> UAH 1 246 mln loans attracted in 2015 	<ul style="list-style-type: none"> UAH 3 bln – potential of attraction in 2016 (~UAH 800 mln of budget funds for 2016)
NEURC	Installation of heat meters	<ul style="list-style-type: none"> Installation of heat meters in buildings due to investment component in the tariff 	-	-
Naftogas	Replacement of individual gas boilers (on the stage of development)	<ul style="list-style-type: none"> ESC model on the basis of Naftogaz It is expected to replace 3.5 mln gas - boilers with more efficient ones 	-	<ul style="list-style-type: none"> USD 1.5 billion – Replacement of individual gas boilers (loan from China Development Bank)

Source: analysis of the Working Group



14.9. Annex 9. Reference on technical assistance programmes in energy efficiency area

Title of project (programme)	Budget, USD mln	Executor	Donor	Implementation period
Project on energy efficiency in Vinnytsya city	21,4	First Climate (Switzerland) AG, Zurich; Fela Planungs AG, Energoresource-invest, LLC "KSK Automatyzatsia", Viesmann (Schweiz) AG, LLC "Komenenergосervice	Switzerland	01.01.2012 – 30.06.2017
INOGATE programmes " INOGATE Technical Secretariat and Integrated Programme in support of the Baku Initiative and the Eastern Partnership energy objectives"	16,6	A consortium led by Ramboll Danmark A/S	EU	02.2012 – 01.2016
Project on energy efficiency in Zhytomyr city	15,7	-	Switzerland	07.05.2015 – 31.07.2019
Municipal energy reform in Ukraine	14,5	International Resources Group; All-Ukrainian Charity Organization "Institute for Local Development" (additional executor is defined)	USA	27.09.2013 – 29.09.2017
Grant of the programme "Demo - Ukraine"	8,3	LLC "Energy Equipment Plant "ДАН", JSC "Axis Industries" (Lithuanian Republic), LLC "Brunata" (Republic of Bulgaria)	Sweden	2012 – 2016
"Improving energy efficiency and promoting renewable energy sources in the agri-food and other small and medium-sized enterprises (SMEs) in Ukraine"	5,2	Mission of the United Nations Industrial Development Organization (UNIDO)	GEF	01.2012 – 04.2016
Programme for energy efficient construction	5,2	German International Cooperation (GIZ) GmbH	Germany	15.03.2009 – 31.07.2016








Development and commercialization of bioenergy technologies in the municipal sector in Ukraine	4,7	United Nations Development Programme in Ukraine (UNDP)	GEF	01.06.2014 – 31.03.2018
Energy efficiency in communities	4,5	German International Cooperation (GIZ) GmbH	Germany	01.09.2013 - 31.08.2016
Nordic energy efficiency and humanitarian support initiative in Ukraine	3,7	-	Norway	2014 – 2015
Creation of energy agencies in Ukraine	3,4	German International Cooperation (GIZ) GmbH	Germany	01.01.2014 – 31.12.2017
Modernization of partnership energy efficiency in hospitals	3,2	-	Germany	2016 – 2019
Local initiatives for sustainable development of Ukraine	3,0	-	Norway	04.2015 – 03.2018
Creation of Bioenergy Knowledge and Learning Center and local energy management	2,9	-	Norway	2015 – 2017
Ukrainian - Danish Energy Center	2,1	-	Denmark	2015 – 2018
Total	114,4			

Source: data of MEDT and Minregion



14.10. Annex 10. Main regulatory risks and obstacles to the implementation of EE projects in DHP

	Risk	Description	Normative and legal documents
	<ul style="list-style-type: none">Blocking of loan funds of IMO and donorsRepayment of Naftogaz debts at the expense of loan funds	DHP accounts with loan and grant funds may be blocked by Naftogaz for debts according to the legislation.	Law of Ukraine No 419 dated May 14, 2015
	<ul style="list-style-type: none">Increase the effective loan interest	Due to loan provided in Euro Ukraine bears a foreign exchange risk. In result of hryvnia devaluation only projects with high profitability can be financed.	
	<ul style="list-style-type: none">Municipalities may not have access to loan funds of IFI	Based on crisis response the IFI funds may be blocked on the Treasury accounts.	Resolution of the Cabinet of Ministers of Ukraine No 65 Resolution of the National Bank of Ukraine No 160
	<ul style="list-style-type: none">DHP failure to reimburse expenditures for individual heating units	Investment component in the tariff structure is about 2%. The tariffs are based on costs for services.	
	<ul style="list-style-type: none">Failure to cover DHP expenditures	In case the expenditures are increased the NEURC holds down the increase of tariffs.	



- Failure to return VAT
- Discrimination of Ukrainian subcontractors

There is no mechanism for returning VAT paid by Ukrainian subcontractors. This gives a competitive advantage to international contractors.

Article 3, paragraph 3.2 of the Tax Code of Ukraine



- Law requirement contradicts the decentralization reform

Ministry of Finance requires the availability of tender committees before municipal guarantees are provided.

Article 12, paragraph 1 of the Law of Ukraine "On investment activities"



- Unconformity with the IFI procurement rules
- More time for investment programme approval

Order / Resolution containing the requirement concerning the provision of detailed design documentation, quotations, names of producers before the programme is approved.

Order of the Minregion No 630
Resolution of NEURC No 381



- Rationality in the guaranteeing procedure

The Minfin obliges the CE to pledge the security to municipality, although the CE property belongs to it.

Source: analysis of the Working Group



14.11. Annex 11. Comparison table of polish projects

Programme	Renovation Fund	RYS	Air protection	KAWKA	SME	OPI&E	ROP
Date	Since 1999	2015 – 2023	No time limits	2014 – 2020	2014-2017	2014-2023	2014-2022
Administration	State Development Bank of Poland	National Fund for Environmental Protection and Water Management (NFEPWM)	Regional Fund for Environmental Protection and Water Management (RFEPWM)		National Fund for Environmental Protection and Water Management		Regional Councils
Type of financing	Grants	Grants or loans	Grants, subsidies, preferential loans	Grants, preferential loans	Grants	Grants - public buildings	Type of financing
Budget/ sources	Annually - EUR 49 mln/ National Budget	EUR 95 mln in 2015- 2020	EUR 147 mln (annual budget of all Funds)	EUR 190 mln, EUR 95 mln/ RFEPWM	EUR 14.3 mln/ NFEPWM	EUR 166 mln - public buildings EUR 226 mln - residential buildings/ co-financed with Cohesion Fund	EUR 985 mln - public buildings EUR 481 mln - residential buildings/ EFDF
Coverage	National	National	Regional	Regional	National	National	Regional
Projects	Full upgrading on the basis of energy audit	Full upgrading on the basis of energy audit	Full and partial upgrading on the basis of energy audit	Full and partial upgrading on the basis of energy audit	Full and partial upgrading on the basis of energy audit	Full and partial upgrading on the basis of energy audit	Full and partial upgrading on the basis of energy audit
Result	-	Reduce in energy consumption by 71 ths Gcal	-	-	Reduce in energy consumption by 130 ths Gcal (2015 - 2016)	-	Reduce in energy consumption by 531 ths Gcal

Source: BPIE data



14.12. Annex 12. Draft Resolution of the CMU on the action plan for EE Fund establishment

Description	Responsible	Deadline
To ensure the approval and submit to the CMU the draft Law on ensuring energy efficiency of buildings.	Minregion, MEDT, Minfin, SAEE, Ministry of Justice	I quarter 2016
To ensure the approval and submit to the CMU the draft Law on mandatory commercial accounting of heat energy and water.	Minregion, MEDT, Minfin, SAEE, Ministry of Justice	I quarter 2016
To study the model and provide financial and economic justification of the EE Fund operation involving experts of international technical assistance projects and consulting with the EU Delegation to Ukraine and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.	Minregion, MEDT, Ministry of Social Policy, Minfin, SAEE	I quarter 2016
To develop and submit to the CMU the Act that envisages the possibility for subsidy recipients to use its part for the EE purposes (including the subsidies that remain unused as of the end of the heating period 2014-2015, 2015-2016). Moreover, to provide additional suggestions concerning the involvement of the those who receive housing subsidies in the implementation of EE activities.	Ministry of Social Policy, Minregion, Minfin, SAEE	I quarter 2016
To provide suggestions on the EE Fund financing from the state budget of Ukraine. To provide suggestions on the possibility of directing the part of housing subsidy, saved due to the implementation of EE activities, for financing of the EE Fund.	Minfin, Minregion, MEDT, SAEE, Ministry of Social Policy	I quarter 2016
To develop and submit to the CMU the draft Act on the EE Fund establishment including the processed models of Fund functioning.	Minregion, Minfin, MEDT, Ministry of Justice, SAEE	II quarter 2016
To study the mechanism of attracting donors' funds for the EE Fund functioning, mechanisms of cooperation and coordination with the EE Fund, including decisions on financing of EE projects, jointly with the EU Delegation to Ukraine and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.	Minregion, Ministry of Social Policy, Minfin, SAEE	II quarter 2016
If necessary, to submit to the CMU the proposals on amendments to the Laws to ensure the EE Fund functioning.	Minregion, Minfin, MEDT, Ministry of Social Policy, Ministry of Justice, SAEE	III quarter 2016

Source: draft Resolution of the CMU "On approval of the Action Plan on the Energy Efficiency Fund establishment"



14.13. Annex 13. Experience of Bulgaria

Programme title	The National Programme for renovation of the residential buildings in			
Programme period	2006-2020			
Programme type	The project aimed at developing the reproductive scheme for renovation of residential apartment buildings consists of three main components: a) conditional subsidies to condominiums for renovation; b) facilitated access to the loans for renovation; c) technical support to the Houseowners Associations in organization of renovation process.			
Targeted at buildings	Residential		Non-residential	
	Individual	Multi-apartment	Private	Public
	X	X		
Budget/ source	EUR 500 million			
Supported activities	It supports the following activities: energy efficiency measures, i.e. heat- and waterproofing, replacement of doors and windows, repair of joints of facade external panels, others activities recommended in the report of energy audit, repair based on EE and life safety principles, in particular, repair of front door, baldachin, painting of walls, replacement of old water system (vertical water system, sewage pipes), reconstruction of adjacent territories.			
Support level	Financial support in the amount of 100% of the cost of building reconstruction.			
Programme deliverables	Saved 5.274 thousand joule (till 2020).			

Source: BPIE data



14.14. Annex 14. Experience of Croatia

Programme title	Programme on energy reconstruction of residential buildings			
Programme period	2014-2020			
Programme type	Grants/ subsidies			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multi-apartment	Private	Public
	X			
Budget/ source	27.5 million Euro; such amount is allocated for the year and it is funded by the Environmental Protection and Energy Efficiency Fund (ZNSEE), EU Structural Funds, local and regional authorities and sources of public funding.			
Administrator of funds	The Environmental Protection and Energy Efficiency Fund			
Supported activities	The measure objective is to provide financial assistance for improving the energy efficiency of buildings by investing in thermal insulation of building framework (walls, roof, basement), replacement of external frames, windows, replacement old heating systems with new ones, increase of system energy efficiency using renewable energy sources.			
Criterion	Priority and / or larger co-funding is given to projects that achieve higher energy efficiency level than it is required, and households with older heating systems and heating systems whose service life is coming to an end.			
Programme deliverables	It is estimated that about 2 000 buildings in the country will participate in the programme on an annual basis. Saved 1.412,6 thousand J (general)			

Source: BPIE data



14.15. Annex 15. Experience of Czech Republic

Programme title	New Green Preservation - the third part of the Green Preservation Programme			
Programme period	2014-2020			
Programme type	Subsidies are always charged post factum			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multi-apartment	Private	Public
	X	X		
Budget/ source	1 billion Euro was provided by the State Environment Fund			
Supported activities	Reducing energy consumption in existing residential buildings (compliance with the average energy saving rate of building frame, technical supervision); construction of buildings with low energy consumption; efficient use of energy resources (replacement of old energy sources with environmentally friendly sources, such as biomass boilers, heat pumps and condensing boilers; solar systems, CHP ventilation systems).			
Coverage	Throughout the Czech Republic			
Support level	Depending on the level of energy consumption reduction, it covers 30/40/55% of the cost Depending on the level of energy consumption of the new building, assistance in the amount of 14.770 or 20.312 euro.			
Programme deliverables	Saved 14.31 PJ			

Source: BPIE data



14.16. Annex 16. Experience of Estonia

Programme title	Support for energy efficient renovation of residential buildings			
Programme period	2003 till now			
Programme type	Grants			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multi-apartment	Private	Public
		X		
Budget/ source	Cohesion Fund			
Supported activities	The works related to building insulation, including the upgrading of boilers and heating equipment for inside heating, construction of CHP ventilation systems.			
Coverage	Throughout the country.			
Criterion	The state programme supports the repair works on rebuilding and reconstruction of apartment buildings.			
Support level	Funding scheme - 15-35% (changes with time) of the cost of reconstruction aimed at improving the energy efficiency of residential buildings and 50% of the cost of preparation of project documentation, project management, supervision.			
Programme deliverables	Saved 198.5 gWatt			

Source: BPIE data



14.17. Annex 17. Experience of Latvia

Programme title	Improving the energy performance of apartment buildings: the EU programme period 2014-2020			
Programme type	Grants, preferential loans, guarantees			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multi-apartment	Private	Public
		X		
Budget/ source	EUR 176.47 was provided by EFRD (EUR 150 million) and State (EUR 26.471 million)			
Administrator of funds	JSC "ALTUM" will be responsible for the implementation of this activity / financial instrument.			
Supported activities	Construction works on EE, renovation, reconstruction of engineering systems of the building, purchase and installation of boilers that run on renewable energy, project management and supervision of construction works.			
Coverage	It is aimed at owners of apartment buildings / Homeowners Associations throughout Latvia			
Support level	Financial support can be provided in the following forms: <ul style="list-style-type: none"> • Subsidy (grant) – depending on the EE level after works completion; • Loan (up to 20 years) the low interest rate of 2%+12 months– from ALTUM or other financial institution; Loan is guaranteed, it is provided by ALTUM and it covers up to <i>80% of financial services, annual premium is 0.65%</i>			
Programme deliverables	Each specific measure should provide a cumulative effect in saving 1.5% energy according to the Article 7 of the EU Directive 2012/27/EU. Saved 0.84 PJ			

Source: BPIE data



14.18. Annex 18. Experience of Slovakia

Programme title	SLOVSEFF III			
Programme period	2014-2016			
Programme type	SLOVSEFF III is the Programme to finance renewable energy that provides stimulative funding and technical assistance in housing and industrial EE. A stimulative funding of housing EE projects is based on the environmental impact that can be achieved with the help of these projects. The applications for this project can be submitted by Homeowners Associations, private enterprises, ESCs			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multi-apartment	Private	Public
		X	X	X
Budget/ source	Credit lines up to EUR 40 million are financed by EBRD in cooperation with the Ministry of Environment of the Slovak Republic and the Ministry of Agriculture, Food and Environment of Spain.			
Administrator of funds	Financial institutions participating in SLOVSEFF III: Slovenská sporiteľňa, a.s. and VÚB, a.s.			
Supported activities	SLOVSEFF III includes the following activities: high efficient ventilation equipment with heat cogeneration, municipal renewable energy systems, such as solar energy boilers, heat pumps, building-integrated photovoltaic panels, biomass boilers, geothermal and urban air turbines, high efficiency boilers, micro-cogeneration, thermal plants and heat meters, heat system balancing, individual heating points, new EE windows (in all the building apartments), new EE radiators and other means of space heating, insulation systems of heat and water supply.			
Coverage	National			
Support level	<ul style="list-style-type: none"> Coverage 5-20% of the loan amount, depending on the project characteristics; <i>The maximum budget for housing EE projects is EUR 2.5 million.</i>			
Programme deliverables	Saved 8.48 ths J (for the period 2017-2020)			

Source: BPIE data



14.19. Annex 19. Experience of Slovenia

Programme title	EE scheme for households with low income			
Programme period	2009-2020			
Programme type	Grants, subsidies. Financial subsidy gives the opportunity to implement measures with low investments for reducing energy costs and improving comfort for living.			
Targeted at buildings	Residential		Targeted at buildings	
	Individual	Multistory	Individual	Public
	X	X		
Budget/ source	The state funds in the amount of EUR 56 million allocated for 2011-2016.			
Supported activities	Activities are the following: rehabilitation of buildings to reach minimum EE standards, thermal insulation of facades, roofs, correction of design and thermal insulation of critical spots, hydraulic balancing of heating system and implementation of the heating cost distribution system, distribution of EE household appliances, heating systems (especially heat pumps, if the household is heated by electricity), EE lighting and other measures.			
Coverage	National			
Support level	Grants/ subsidies for the implementation of EE measures that cover 100% of the investment connected with their share of funding, while a grant is provided that covers up to 25% of the investments of other investors.			
Programme deliverables	Saved 98 gWatt (in 2020)			

Source: BPIE data



14.20. Annex 20. Composition of the Working Group

The report was prepared by advisers to the Vice Prime Minister, Minister of Regional Development, Construction and Housing and Communal Services of Ukraine and in close cooperation with:

- Coordination Center for Interaction with the CMU at the President of Ukraine
- the Government of Germany
- the EU Delegation to Ukraine
- the EU Support Group to Ukraine
- Berlin Economics
- the State Agency for Energy Efficiency and Energy Saving of Ukraine
- experts of the World Bank Group in Ukraine



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