The mechanisms of financing energy efficiency projects in Ukraine

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1. Summary

Financing of energy efficiency projects in Ukraine is still in its development, especially as regards seeking and introducing relevant mechanisms for the modernisation of residential and public buildings. The energy modernisation of residential and public buildings has a potential for over 50% reduction in energy consumption with respectively larger investment needs. However, the greater part of the financing for energy efficiency projects provided by international financial organisations and donors (over 80%) is available for projects to modernise thermal energy supply systems. As a result, there is a significant discrepancy between available and needed financing for energy efficiency projects.

Diagram 1.1. Demand for and supply of financial resources for modernising the thermal energy supply and consumption

![Diagram showing demand and supply of financial resources](image)

Source: consultants’ analysis

The situation was enabled by the lack of coordination between all market players (the state and local authorities, donors and investors), imperfect legislation, and a relative ease of funding energy producers as compared with energy consumers.

Energy efficiency investment programmes should be financed in close cooperation with the state and local authorities.

Table 1.1. The role of the authorities in financing energy efficiency (EE) projects

<table>
<thead>
<tr>
<th>State authorities</th>
<th>Local authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Create legislation to attract investments</td>
<td>• May act as partners of existing EE programmes or develop their own ones to be funded from local budgets</td>
</tr>
<tr>
<td>• Attract financing from IFOs (international financial organisations) and determine the terms and conditions of its use</td>
<td>• Local authorities have better understanding of the priorities of energy modernisation “on site and may attract funds for such projects</td>
</tr>
<tr>
<td>• Introduce state programmes for financing and supporting energy efficiency programmes</td>
<td>• Local authorities monitor the implementation</td>
</tr>
</tbody>
</table>
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- Provide informational and technical support for local authorities and other loan recipients
- Provide state guarantees for procured financing
- Provide municipal guaranties for procured financing

Source: consultants’ analysis

In the last years the consumption of thermal energy went down by at least 30%. However, if there are no new investments in thermal energy production and the replacement of thermal energy distribution networks, there might be technical problems with central heating.

Diagram 1.2. The diagram of the effective coordination of the energy efficiency projects implementation

*For each region (city, district etc.) separately

Source: consultants’ analysis
2. Analysis of the existing mechanisms for energy efficiency project financing

There are several mechanisms in Ukraine for providing loans to improve energy efficiency differing, in particular, by their sources and the number of players involved in the process from the provision of funds by the lender to their application. Most programmes are financed by donors and IFOs. Unfortunately, the amount of drawdown is not high for the most part.

Diagram 2.1. The existing schemes for financing energy efficiency projects in Ukraine

Table 2.1. The strengths and weaknesses of the existing project funding schemes

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Overall orientation for asset renewal, possibility to obtain funds from IFOs</td>
<td>More complicated management mechanism requiring relevant legal framework</td>
</tr>
<tr>
<td>2.</td>
<td>Possibility to obtain large funds allocating them for top-priority goals</td>
<td>Overregulated procedures, extend the process of obtaining to several years.</td>
</tr>
<tr>
<td>3.</td>
<td>Municipal authorities determine the most effective projects for the municipal budget</td>
<td>Municipal authorities mostly have no incentives to implement EE measures in the housing sector</td>
</tr>
<tr>
<td>4.</td>
<td>IFOs use an extensive network of banks and other resources to find projects</td>
<td>Loan interest rates increase because of bank margin</td>
</tr>
<tr>
<td>5.</td>
<td>Possibility for TKEs to get large loans with relatively low interest rates, minimum number of participants in the process</td>
<td>Some companies cannot get loans because of their high minimum threshold</td>
</tr>
<tr>
<td>6.</td>
<td>Relatively simple management and Spot financing results in lower</td>
<td></td>
</tr>
</tbody>
</table>

Source: consultants’ analysis
The mechanisms of financing energy efficiency projects in Ukraine

<table>
<thead>
<tr>
<th></th>
<th>convenience for the state authorities</th>
<th>effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>The State can provide loans with low interest rates</td>
<td>Additional expenses of resources, limited budget</td>
</tr>
<tr>
<td>8.</td>
<td>Established communications between banks and potential customers</td>
<td>High interest rates because of macroeconomic instability</td>
</tr>
</tbody>
</table>

*Source: consultants’ analysis*
3. Financing of projects for the energy modernisation of buildings in Ukraine

Demand for tools to improve energy efficiency in the housing and public sectors greatly increased in the last years, so programmes were started in Ukraine to support the financing of such projects. However, their budgets are quite limited and amount to about USD 200 million, with the total amount of required investments being about USD 51 billion.
3.1. Substantiation for required investments, investment needs and sources of financing

Residential and public buildings, constructed in Ukraine during the Soviet time, for the most part were not designed to be energy-efficient. In the last 25 years there were no extensive renovation programmes in Ukraine to improve the energy efficiency of residential and public buildings, as a result about 65% of natural gas used to produce thermal energy is wasted because of the low energy efficiency. With the current price of imported natural gas (~ USD 200 at the NCG gas hub in December 2016) the economic losses might be as great as ~ USD 1.8 billion annually.

Diagram 3.1. The estimate of the waste of natural gas used to produce thermal energy

\[ \text{Gas supply} \rightarrow \text{Production of thermal energy} \rightarrow \text{Thermal energy consumption} \]

\[ \text{~65% losses are due to bad thermal insulation and no temperature regulation} \]

\[ \text{Up to 15% of losses} \]

\[ \text{~50% losses} \]

Source: consultants’ analysis

The housing sector is the largest consumer of thermal energy with ~ 65% of the total consumption. So, taking into account the condition of residential buildings and their number, detached houses and apartment buildings should be considered a priority for energy efficiency improvement.

Table 3.1. The estimate of investment needs for the energy modernisation of buildings

<table>
<thead>
<tr>
<th>Field</th>
<th>Investment required</th>
<th>Gas consumption reduction potential</th>
<th>Consumption reduction per USD 1 billion of investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renovation of apartment buildings</td>
<td>USD 17 billion</td>
<td>2.3 billion m³</td>
<td>135 million m³</td>
</tr>
<tr>
<td>Renovation of detached houses</td>
<td>USD 28 billion</td>
<td>4.7 billion m³</td>
<td>168 million m³</td>
</tr>
<tr>
<td>Replacement of individual gas boilers for more efficient ones</td>
<td>USD 4 billion</td>
<td>1.7 billion m³</td>
<td>425 million m³</td>
</tr>
<tr>
<td>Renovation of public buildings</td>
<td>USD 2 billion</td>
<td>0.3 billion m³</td>
<td>150 million m³</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>USD 51 billion</strong></td>
<td><strong>9.0 billion m³</strong></td>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

Source: data of the Ministry for Regional Development

To provide financial support to households in implementing energy efficiency projects by reimbursing partially project costs or loans there are about EUR 200 million of programme funds available, or less then
1% of the investment need (with the budgets of some programmes used for the partial reimbursement of project costs).
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Diagram 3.2. Existing programmes for the financial support of households and municipalities in implementing energy efficiency projects

~ USD 200 million funding allocated for EE projects

“Warm” Loans
IQ Energy
State loans
“Energy Saving”
Local programmes
Commercial banks

Source: consultants’ analysis

Existing programmes mainly support separate energy efficiency projects, however, it is possible to achieve significant energy savings only with all-inclusive renovation projects ensuring the effective use of energy resources during their consumption.

Top-priority measures to improve energy efficiency include the installation of thermal energy meters and individual heat supply units (IHSUs) making it possible to monitor the actual consumption of thermal energy and to adjust the temperature inside the building depending on weather conditions. At present 59% of buildings in Ukraine are equipped with thermal energy meters, and 3% have IHSUs installed (see Annex 1 for more details). Such measures require investments in the amount of about USD 60 million to get 100% of buildings equipped with thermal energy meters and more than USD 1 billion to install IHSUs.

According to the household surveys conducted under a World Bank project, 44% of respondents do not invest in energy efficiency because they do not have required means. Measures to improve energy efficiency in a detached house or an apartment block may cost from UAH 7,000 to UAH 100,000 per household (for an average habitable area of 50 m²), with an average wage in Ukraine being UAH 5,400 per month. So it is impossible to introduce comprehensive energy saving measures without providing support to households.

According to the results of the household survey conducted under the USAID project in 2014 Municipal Energy Reform, 89% of Ukrainians are ready to invest in energy efficiency. 81% of the respondents mentioned as their reasons for such investments the fact that it makes Ukraine less dependent on imported energy resources, 76%—reduction of utility payments.

Diagram 3.3. Survey results: On what conditions would you be ready to invest in improving the energy efficiency and environmental friendliness of your housing? (236 respondents in 5 cities)

3.2. Comparison of the existing financing programmes

Table 3.2. The terms of the programmes for financing the energy modernisation of detached houses and apartments

<table>
<thead>
<tr>
<th>Respective programmes</th>
<th>Warm Loans</th>
<th>IQ Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>from 24.5%</td>
<td>30%</td>
</tr>
<tr>
<td>Maximum amount, million UAH</td>
<td>UAH 50,000</td>
<td>UAH 150,000</td>
</tr>
<tr>
<td>Term of repayment</td>
<td>max. 3 years</td>
<td>max. 4 years</td>
</tr>
<tr>
<td>Grant</td>
<td>20–40%</td>
<td>15–20% (E5P grant)</td>
</tr>
</tbody>
</table>

Note: Only for measures listed in the Resolution of the Cabinet of Ministers of Ukraine No. 1056.

Source: consultants’ analysis

Table 3.3. Terms of the programmes for financing the energy modernisation of apartment buildings

<table>
<thead>
<tr>
<th>Respective programmes</th>
<th>EIB loans (for local self-government bodies) see section 3.3.6.</th>
<th>NEFCO Energy Saving (for local self-government bodies)</th>
<th>Loans from the Youth Housing Foundation</th>
<th>“Warm” Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>2.4–4% + EUR 50,000</td>
<td>3%</td>
<td>3%</td>
<td>from 20%</td>
</tr>
<tr>
<td>Maximum amount</td>
<td>min. EUR 5 million (minimal)</td>
<td>EUR 400,000</td>
<td>-</td>
<td>UAH 10 million</td>
</tr>
<tr>
<td>Term of repayment</td>
<td>22 years</td>
<td>max. 5 years</td>
<td>max. 10 years</td>
<td>max. 10 years</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
<td>max. 6 months after project completion</td>
<td>3 months for interest rate and 1 year for principal</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: consultants’ analysis
3.3. Information about the existing financing programmes

3.3.1. “Warm” Loans government programme

Government incentives to improve energy efficiency using banks have a quite significant potential for carrying out energy saving measures. At present the State partially reimburses loans taken to pay for respective materials and equipment under the “Warm” Loans government programme.

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>ACAB/ Condominium</th>
<th>Natural persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of loan</td>
<td>max. UAH 10 million</td>
<td>UAH 1,000–50,000</td>
</tr>
<tr>
<td>Term of loan</td>
<td>max. 10 years</td>
<td>max. 3 years</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>from 20%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Fee</td>
<td>1.25%</td>
<td>3.00%</td>
</tr>
<tr>
<td>Grant</td>
<td>20–70%</td>
<td>20–35%</td>
</tr>
</tbody>
</table>

The programme was started in November 2014. After the completion of an energy efficiency project funded by a loan the household gets a reimbursement from the state budget. The amount of the reimbursement covers a part of the loan principal. Only loans used for specified energy efficiency measures are reimbursed.

Table 3.4. The terms of reimbursement of loans under the Warm Loans programme

<table>
<thead>
<tr>
<th>Reimbursed loan principal, %</th>
<th>Loan used for</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% (max. UAH 12,000)</td>
<td>purchase of solid fuel boilers</td>
</tr>
<tr>
<td>35% (max. UAH 14,000)</td>
<td>purchase of EE materials and equipment by private persons and purchase of solid fuel boilers by recipients of utility payment subsidies</td>
</tr>
<tr>
<td>40% (max. UAH 14,000 per apartment)</td>
<td>purchase of EE materials and equipment by associations of co-owners of apartment buildings (ACABs) (except for households receiving subsidies for utility payments)</td>
</tr>
<tr>
<td>70% (max. UAH 14,000 per apartment)</td>
<td>purchase of EE materials and equipment by ACABs (only for households receiving utility payment subsidies)</td>
</tr>
</tbody>
</table>

Source: Resolution of the Cabinet of Ministers of Ukraine No. 1056

At present four banks may provide “warm” loans: Ukreximbank, Oshchadbank, Urkgazbank and Privatbank.
There are certain criteria for ACABs to qualify for a loan:

- They must be registered for more than 3 months
- There must be a respective decision taken by the co-owners (at least by 75% of the votes according to the apartment area)
- No current unpaid balance
- Share of utility payments made by households in time exceeding 85%
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Diagram 3.4. Stages in receiving a reimbursement for a “warm” credit

1. Finding the energy efficiency measures required that qualify for reimbursement (CMU Resolution No. 1056)
2. Decision-making at co-owners meeting (for ACABs)
3. Selecting a provider and submitting the required documentation to a bank to get a loan
4. Submitting documents that confirm project completion to a bank
5. The bank submits documents to SAEE and they are transferred to the State Treasury Service of Ukraine
6. State Treasury Service of Ukraine transfers reimbursement to the borrower credit bank account

Source: Oshchadbank, Ukrgazbank

About 190,000 households received about UAH 2.7 billion worth of loans for improving energy efficiency in the last 2 years. In total 164,000 loans have been provided with the government reimbursing over UAH 1 billion. The average cost of a project is about UAH 18,000 for private persons and about UAH 120,000 for ACABs. The amount of loans provided to ACABs is 1.3% of the total amount of the provided loans.

Diagram 3.5. The number of loans provided under the “Warm” Loans programme in 2016

Source: SAEE data

The programme is focused on separate energy efficiency improvement projects, so it is relatively simple to administer. However, it does not provide for the evaluation and planning of its results regarding the saving of energy, and is not suitable for the implementation of comprehensive projects in apartment blocks.

Diagram 3.6. The financed EE improvement measures for households

Diagram 3.7. The financed EE improvement measures for ACABs

- Stairwell windows
- Water meters
- Heat proofing
- Doors
- Lighting modernisation
- IHU
- Temperature regulators
- Thermal insulation
3.3.2. The EBRD IQ Energy programme

IQ Energy is a programme implemented by international organisations in Ukraine. It was started in 2016 under the management of the EBRD. Funds are distributed through bank institutions.

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Private household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of loan</td>
<td>max. UAH 150,000</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>30%</td>
</tr>
<tr>
<td>Grant</td>
<td>15% and 20%</td>
</tr>
</tbody>
</table>

Under this programme households living in apartments or detached houses may obtain loans and grants for improving their energy efficiency. The budget of the programme until 2020 amounts to EUR 90 million, including EUR 75 million from the EBRD for provision of loans and EUR 15 million from the ESP Fund for provision of grants. The Ukrainian banks Ukrsibbank, Raiffeisen Bank Aval and OTP Bank are the distributors of the EBRD funds. The necessary requirement for obtaining a loan is its use for purchasing energy-efficient equipment from the online Catalogue of Technologies.

Diagram 3.8. Stages in receiving loans and grants under the IQ Energy programme

1. Selecting an energy efficient product in the EBRD online catalogue
2. Obtaining a loan in a partner bank and project initiation
3. Registration on IQ Energy website to get a grant 4 month after the loan is received
4. Submitting a grant request on IQ website after project completion
5. Project verification and grant payment

Source: consultants’ analysis, data of IQ Energy

10% of all completed projects are verified on site, other 90%—by photographs. This approach minimises the number of frauds and does not require significant administrative expenses.

Diagram 3.9. The outcomes of the programme as of September 19, 2016

Dynamics of provided loans

376 loans issued
UAH 7,2 million worth of loans in total
UAH 19,000—average loan

1 www.iqenergy.org.ua/technologies
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Source: IQ Energy
3.3.3. The NEFCO energy efficiency programme

Municipalities in Ukraine may initiate energy saving programmes and obtain funds for their implementation at their own discretion. Respective loan agreements are concluded directly between IFOs and municipal authorities, with loan funds transferred to loan recipient’s account in a local bank. In particular, this EE project funding scheme is used in the NEFCO energy efficiency programme.

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of loan</td>
<td>max. EUR 400,000</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>3%</td>
</tr>
<tr>
<td>Grace period</td>
<td>max. 6 months after project completion</td>
</tr>
<tr>
<td>NEFCO’s share in project funds</td>
<td>max. 90%</td>
</tr>
</tbody>
</table>

The aim of the programme is to improve the thermal energy efficiency of buildings of state or communal ownership. Typical measures to improve energy efficiency under the project are the modernisation of individual heating systems, installation of heating regulators, replacement of doors and windows etc. Loans are provided in condition that respective projects ensure energy cost savings of about 25% of the investments and are environmentally friendly. An energy audit of the building is necessary for project approval.

The whole procedure from submitting a request for a loan to obtaining it takes about 6 months.

Diagram 3.10. The stages in obtaining funding under the NEFCO programme

1. Submitting a request with a short 2-page project description
2. Preparation of a business plan by the borrower
3. Business plan review by NEFCO experts and submittal to investment committee
4. Preparation for signing a loan agreement after business plan approval
5. Borrower receives funds in three instalments

Source: data of NEFCO

NEFCO projects to improve the energy efficiency of public buildings have been carried out in 6 Ukrainian cities.


- 12 buildings got thermal insulation
- 224 IHUs installed
- Local funds
Grant

| 33 institutions underwent lighting modernisation |
| ~ UAH 30 million of annual savings |
| 5-year payback period |

*Source: data of NEFCO*
3.3.4. Preferential loans from the State Fund for Supporting Youth Housing Construction

The Government also seeks to support housing renovation projects, including measures to improve energy efficiency. The programme started by the State Fund for Supporting Youth Housing Construction is an example of a programme under which direct loans from the Government are provided. The Fund is a specialised financial institution that may provide preferential loans to legal entities (such as energy service companies (ESCOs)) and ACABs under the programme in accordance with its approved budget.

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>ACAB or other legal entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term of loan</td>
<td>max. 10 years</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>3%</td>
</tr>
<tr>
<td>Grace period for interest payments</td>
<td>3 months</td>
</tr>
<tr>
<td>Grace period for interest payments</td>
<td>1 year</td>
</tr>
</tbody>
</table>

The programme for providing preferential loans to legal entities, including associations of co-owners of apartment buildings (ACABs), was started in 2012. Preferential loans are provided through the regional departments of the Fund without the participation of commercial banks. The aim of the loan provision programme is to fund minor and basic repairs of residential buildings, including energy modernisation.

Main criteria for approving projects are: improvements in energy efficiency and implementation of the project in several residential buildings using the same utility system.

Diagram 3.12. Stages in the provision of loans from the State Fund for Supporting Youth Housing Construction

1. Submission of documents to the Fund’s regional department to prove solvency
2. The Fund issues solvency conclusion in one month
3. Borrower submits a feasibility study and the Fund’s conclusion to commission of the Ministry of Regional Development
4. Commission approves list of projects and informs borrowers
5. The fund makes a decision regarding the issue of the loan (if funds are available) and signs contract with the borrower
6. The funds are transferred to borrower’s account at the State Treasury Service of Ukraine

Source: Regulations on Provision of Preferential Loans in Housing and Public Utilities Sector from the State Budget
3.3.5. Programmes of commercial banks

Bank loans are a promising instrument for funding energy saving measures, although they are not used widely in Ukraine at present. Banks are very slow with the development of special loan products for improving energy efficiency. The existing interest rates in the market are very high and no reimbursement for interest payments are provided, so bank loans cannot compete with special energy efficiency funding programmes, such as “Warm” Loans, IQ Energy and others.

Commercial banks in Ukraine have almost no programmes of their own for funding energy saving projects. Three banks were chosen for the study: Metabank, Kredobank and Bank Lviv.

Table 3.5. Terms of bank loans for energy efficiency projects

<table>
<thead>
<tr>
<th>Loan recipient</th>
<th>Metabank</th>
<th>Kredobank</th>
<th>Bank Lviv</th>
<th>Bank Lviv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>0.001%</td>
<td>19%</td>
<td>24%</td>
<td>approximately 25%</td>
</tr>
<tr>
<td>Fee</td>
<td>1.17% monthly</td>
<td>1% one-time payment</td>
<td>1% one-time payment</td>
<td>1.5% one-time payment 0.6% monthly</td>
</tr>
<tr>
<td>Loan amount</td>
<td>max. 60% of average monthly income</td>
<td>max. UAH 5 million</td>
<td>max. UAH 1 million</td>
<td>45,000 or more (depending on project)</td>
</tr>
<tr>
<td>The term of loan</td>
<td>max. 5 years</td>
<td>max. 10 years</td>
<td>max. 5 years</td>
<td>max. 3 years</td>
</tr>
<tr>
<td>Collateral</td>
<td>Not required</td>
<td>Not required</td>
<td>Rights to receive income</td>
<td>Mortgage of purchased equipment</td>
</tr>
</tbody>
</table>

Source: Metabank, Kredobank, Bank Lviv

In addition, Bank Lviv is a partner of local programmes encouraging energy efficiency measures. The local programmes implemented in Lviv Region and in two cities in Ivano-Frankivsk Region (Drohobych and Novoiavorivsk) get an additional reimbursement of interest payments to the amount of 10–20% of annual interest rate.

The main requirement for an ACAB requesting a loan is that the meeting of its co-owners passes a respective resolution (with more than 75% of votes proportional to the apartment area) (for further details see section 5.6.

Table 3.6. Main criteria for obtaining a loan by ACABs

<table>
<thead>
<tr>
<th>Metabank</th>
<th>Kredobank</th>
<th>Bank Lviv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period since ACAB registration</td>
<td>over 6 months</td>
<td>over 6 months</td>
</tr>
<tr>
<td>Amount of timely utility payments</td>
<td>over 95%</td>
<td>over 85%</td>
</tr>
<tr>
<td>Other</td>
<td>switching to the bank for other banking services</td>
<td>–</td>
</tr>
</tbody>
</table>

Source: Metabank, Kredobank, Bank Lviv
3.3.6. Programs of local authorities

To introduce energy efficiency projects local authorities may provide additional funds from their own budgets. Such funds may be provided through participation in various government programmes (such as “Warm” Loans) or allocated for energy saving projects directly form the budget. Municipalities also may mobilise external investments from IFOs with guarantees of the state or other lenders.

By the end of 2016 216 local programmes were established in Ukraine for additional support of the “Warm” Loans programme. Additionally 15–30% of the principal of loans received by ACABs and/or private households are reimbursed from local budgets of different levels. The total budget of such programmes in 2016 was UAH 73 million with the total amount of reimbursements of UAH 46 million for 38,400 households. The total budget of the local programmes in 2017 is UAH 71 million.

Table 3.7. The local programmes supporting “Warm” Loans

<table>
<thead>
<tr>
<th></th>
<th>Regional level</th>
<th>City/town level</th>
<th>District level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget Approved</td>
<td>20</td>
<td>40</td>
<td>49</td>
</tr>
<tr>
<td>No Budget</td>
<td>4</td>
<td>73</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>24 out of 24</td>
<td>113 out of 407*</td>
<td>79 out of 473</td>
</tr>
</tbody>
</table>

* with population over 2.5 thousand; not taking into account Crimea or the territory of ATO (anti-terrorist operation)

Source: SAEE data

Also there are some separate local programmes for improving energy efficiency, for example, the cities of Rivne, Vinnitsia and Kyiv have such programmes approved until 2019–2020. Funds under these programmes are used for insulating residential and public buildings, improving central heating systems, installing thermal energy meters etc.

The programme in Kyiv

The programme for funding housing and utility services and improving energy efficiency in 2016-2020 in Kyiv is the largest among such local programmes. Its budget for five years amounts to UAH 38.6 billion. It will be used for implementing projects to improve the quality and energy efficiency of all communal services.

Diagram 3.13. The budget of the programme to improve energy efficiency and to develop housing and communal services in Kyiv

Source: Resolution of Kyiv City Council No. 232/232
It is planned to implement 109 projects in construction and modernisation of thermal energy distribution networks, to conduct annual repairs of 595 buildings, to improve thermal insulation of 20 public buildings, and to modernise over 45 thermal energy production facilities, improving their energy efficiency under this programme. Also the programme provides financial support encouraging households to improve their energy efficiency and provides funds for joint financing of ACAB projects. In 2017 over UAH 1 billion is planned in the programme budget for the implementation of energy efficiency projects (about 10% of the total budget for 2017).

The programme in Rivne

The programme provides financial support for energy efficiency projects in Rivne initiated by ACABs or their associations. 50% of funds are provided from the local budget with the other 50% provided by ACABs.

Diagram 3.14. The scheme of the joint funding of projects to install thermal energy meters, individual heating units (IHUs) and to fulfil other measures for improving energy efficiency using funds from the local authorities and ACABs in Rivne

Source: The procedures for the implementation of the programmes “Equipping apartment blocks in Rivne with thermal energy and water meters in 2014–2017” and “Improving the thermal insulation of the residential buildings owned by Rivne City Council in 2015–2019”

The programme in Vinnytsia

In addition to providing joint co-funding for energy efficiency projects, the local programme in Vinnytsia provides loans for the implementation of such projects.

Diagram 3.15. The scheme of the joint funding of energy efficiency projects by the local authorities and ACABs in Vinnytsia

<table>
<thead>
<tr>
<th>Terms of funding</th>
<th>Fund</th>
<th>City budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan for up to 20% of project cost but UAH 200,000 at most</td>
<td>Municipal investment fund</td>
<td>Funding of up to 10% of project cost but not more than UAH 100,000 per 1 building</td>
</tr>
<tr>
<td>Signs loan agreement</td>
<td>ACAB</td>
<td>Provider</td>
</tr>
<tr>
<td>Provides documentation and transfers funds to ACAB account at the State treasury Service of Ukraine</td>
<td>ACAB determines work to be done, orders a state examination and the preparation of design and estimate documentation</td>
<td>After receiving ACAB’s request with accompanying documentation, the department of housing makes proposals regarding allocating required funds from municipal budget</td>
</tr>
<tr>
<td>Conclusion of a contract on performance of work with an advance payment of at least 10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mechanisms of financing energy efficiency projects in Ukraine

3.3.7. The ESCO contract mechanism

The mechanism for carrying out energy efficiency improvement projects using contracts with energy service companies (ESCO) is a new one for Ukraine. This mechanism allows the customer to implement energy saving measures normally without making any investments of its own. Any consumer of energy may use the ESCO mechanism, including households, ACABs, enterprises, state-financed organisations or local authorities. Relations between the consumer of energy and an ESCO company are regulated by an energy service contract, in accordance with which the company carries out energy efficiency improvements using its own funds. As a result of savings in energy consumption the consumer is able to repay the investments with a specified company’s profit during the term of the contract.

Diagram 3.16. The ESCO mechanism for carrying out EE projects

* the project may be funded partially from the state budget or by other interested parties

** if required, funds from banks or other financial institutions may be mobilised

Source: consultants’ analysis

This mechanism establishes mutually advantageous relations between the company and the consumer, as the company gets its profits for provided services, and the consumer pays less for utilities without making any initial investments—up to 20% during the term of the ESCO contract and up to 70% after its completion (full recovery of its investments by the company). As per the Law of Ukraine, the duration of an energy service contract may not exceed 10 years, however, usually the payback period for such projects is 5–7 years. After the recovery of its investments and profit by the ESCO company the contract is terminated, and all respective equipment and materials become the property of the consumer.

Diagram 3.17. An example of the energy modernisation of a residential building carried out using an ESCO contract (Lutsk, 2010)

<table>
<thead>
<tr>
<th>Project information</th>
<th>Monthly household heating payments for 50m² apartment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartment count</td>
<td>144</td>
</tr>
<tr>
<td>Building area, total</td>
<td>8,412m²</td>
</tr>
<tr>
<td>Heat consumption in 2009/2010 heating season</td>
<td>987 Gcal</td>
</tr>
<tr>
<td>Energy efficiency improvement costs incurred by ESCO company</td>
<td>UAH 2.5 million</td>
</tr>
<tr>
<td>Consumption in 2010/2011 heating season</td>
<td>580 Gcal</td>
</tr>
<tr>
<td>Project payback period for ESCO</td>
<td>13 years with</td>
</tr>
<tr>
<td></td>
<td>Before conclusion of contract</td>
</tr>
<tr>
<td></td>
<td>1,504</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The mechanisms of financing energy efficiency projects in Ukraine

<table>
<thead>
<tr>
<th>Company (calculated duration of contract)</th>
<th>2011 rates, 4 years with 2017 rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Heating payment</td>
</tr>
<tr>
<td></td>
<td>- Payment to ESCO company</td>
</tr>
<tr>
<td></td>
<td>- Consumer’s savings</td>
</tr>
</tbody>
</table>

* recalculated for the current charge rate for thermal energy of the year 2010 (UAH 1338 as of January 2017)

Source: Lutski Komunalni Systemy Energy Service Company

The amount of payment to the ESCO company is calculated as a percentage share of energy cost savings, so metering equipment is necessary for making payments. If not available, such equipment is installed in the beginning of the project.

Diagram 3.18. The stages in the implementation of a project using the ESCO contract mechanism

1. Owners decide to implement EE measures through an ESCO contract
2. Conclusion of a contract with an ESCO company
3. Energy audit of the building
4. Development of a business plan specifying technical solutions, required funds, repayment period etc.
5. Developing design and estimate documentation
6. Completion of work, investment recovery by ESCO company from consumers’ payments

Source: consultants’ analysis

The market of ESCO contracts in Ukraine is in its initial stage of development. At present ESCO companies in Ukraine work mainly with private companies, as there are no legal obstacles for making contracts between them. Recently, after the adoption in April and May 2015 of the Law of Ukraine No. 327-19 “On the Introduction of New Investment Opportunities for Energy Modernisation” and the Law of Ukraine No. 328-19 “On the Amendments to the Budget Code of Ukraine” it became possible to make such contracts with government organisations and ACABs.
3.3.8. The Energy Efficiency Fund Project

The Energy Efficiency Fund is in the process of development. The establishment of the Fund was initiated by the Government, its aim is to simplify procedures for mobilising funds from IFOs and to use them for the comprehensive energy modernisation of residential and public buildings, the former being a priority. As the experience of European countries such as Poland or Lithuania demonstrates, the Fund may become a comprehensive solution allowing to carry out energy modernisation in the whole housing sector.

At present the Government has already developed a corresponding mechanism for funding energy efficiency projects. Under this mechanism, funds from the Fund will be transferred to projects through banking institutions.

Diagram 3.19. The mechanism for funding energy efficiency projects through the Fund

The Fund will be financed from the State Budget of Ukraine (with UAH 400 million allocated for 2017) and by donors (there is an agreement with the EU and Germany for providing UAH 100 million).

The products of the Fund will include 3 packages with various energy saving measures. It will be possible to get funds for implementing these packages, as well as a grant of up to 50% of the cost of project. The Fund will also provide technical support during the implementation of projects, since at present most households and ACABs do not know enough about energy efficiency measures.

Table 3.8. The products of the Energy Efficiency Fund

<table>
<thead>
<tr>
<th>Type of building of the project owner</th>
<th>Light Package</th>
<th>All-Inclusive Package</th>
<th>Private Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate project cost</td>
<td>UAH 400,000</td>
<td>UAH 5 million</td>
<td>UAH 120,000</td>
</tr>
<tr>
<td>(for 100 apartments)</td>
<td>(for 100 apartments)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction in heating costs</td>
<td>20%</td>
<td>max. 60%</td>
<td>max. 60%</td>
</tr>
</tbody>
</table>

Source: data of the Ministry for Regional Development
The mechanisms of financing energy efficiency projects in Ukraine

<table>
<thead>
<tr>
<th>Grant</th>
<th>20–30%</th>
<th>40–50%</th>
<th>40–50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payback period</td>
<td>1.5–2 years</td>
<td>5–7 years</td>
<td>5–7 years</td>
</tr>
</tbody>
</table>

*Source: data of the Ministry for Regional Development*

The choice of one of these packages for each building will be made depending on the results of an energy audit.

**Diagram 3.20. The stages in obtaining funding from the Energy Efficiency Fund**

1. Selection of energy efficiency product by owner/ACAB for submission (based on energy audit results)
2. Submission of documents to a bank, getting project funding approved
3. Hiring providers for project implementation by owner/ACAB (to be paid from loan)
4. Monitoring of project results by Fund’s technical office, reworking if necessary
5. Grant transfer to owner’s/ACAB’s account or directly to repay project loan

*Source: data of the Ministry for Regional Development*
4. Funding projects to modernise thermal energy supply systems in Ukraine

Such projects are funded in accordance with the basic principles of bank lending. However, the project introduction period may exceed three years because of the excessive regulation of the state financial sector. In 2017 the total budget of the programmes of international donors and financial organisations amounts to about USD 700 million with the estimated investment needs of USD 6 billion.
4.1. Substantiation of the necessity of investments, investments needs and sources of financing

Most TKEs (thermal energy producers) are in communal ownership (owned by municipalities). The thermal energy production and distribution systems in Ukraine are obsolete and in bad technical condition, so over 30% of thermal energy is lost before it gets to consumers, also they were designed without taking into account modern trends for reducing the consumption of thermal energy in buildings. If the energy modernisation of the thermal energy production and distribution in Ukraine is fully funded, it is preliminary estimated that the natural gas consumption might be reduced by about 2.4 billion of m³ costing about USD 48 million (with 1000 m³ of gas costing ~ $200 at the NCG hub in December 2016).

Diagram 4.1. The average energy losses in central heating systems

* data of the State Statistics Service of Ukraine (Ukrstat) Actual losses may be as high as 50%

Source: data of Ukrstat, Ministry for Regional Development

In some areas investments in the decentralisation of heating may be a more effective solution compared with investing in improving the efficiency of thermal energy suppliers. To move 20% of the market from central to decentralised heating USD 550–1,100 million are needed depending on technical solutions to be used (in more detail see the Report “Decentralised Heating in Ukraine: Potential and Ways of Implementation”).

Table 4.1. The investments needs in the energy modernisation of thermal energy supply systems

<table>
<thead>
<tr>
<th>Area</th>
<th>Investment need</th>
<th>Gas consumption reduction potential</th>
<th>Consumption reduction per USD 1 billion of investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modernisation of thermal energy production systems</td>
<td>USD 3 billion</td>
<td>1.1 billion m³</td>
<td>366 million m³</td>
</tr>
<tr>
<td>Modernisation and replacement of thermal energy distribution networks</td>
<td>USD 3 billion</td>
<td>1.3 billion m³</td>
<td>433 million m³</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>USD 6 billion</strong></td>
<td><strong>2.4 billion m³</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: consultants’ analysis

Programme funds available at present for investments into the energy modernisation of thermal energy supply systems amount to approximately EUR 700 million or approximately 12% of the total investments needs. However, owing to a number of problems a greater part of these funds are not used (in more detail see section 7).
The mechanisms of financing energy efficiency projects in Ukraine

Diagram 4.2. The existing programmes for funding the energy modernisation of thermal energy suppliers

~ USD 700 million allocated funding for EE projects

Source: consultants’ analysis

Most thermal energy suppliers in Ukraine are unprofitable. The operational losses of the 5 most unprofitable companies amount to approximately UAH 2 billion or 70% of the total amount of operational losses in Ukraine (for more details see Annex 2). The main reasons for the thermal energy producers running at a loss are:

- Ineffective company management and the bad technical condition of equipment
- Rates are not high enough to cover operating costs
- Payment discipline of consumers is not good enough

So a vicious circle is created when municipalities and the state have to cover the losses of the thermal energy suppliers that are a result of inefficient production, leaving no available funds for investments in energy efficiency projects.
4.2. Comparison of the terms of the programmes to mobilise funds for energy modernisation projects

Table 4.2. The terms of the programmes to mobilise funds for the energy modernisation of thermal energy supply systems

<table>
<thead>
<tr>
<th>Respective programmes</th>
<th>Ukreximbank programme</th>
<th>Demo-Ukraine</th>
<th>Clean Technology</th>
<th>EBRD loans</th>
<th>EIB loans</th>
<th>UDHEEP IBRD loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>no data</td>
<td>6%</td>
<td>6%</td>
<td>10%</td>
<td>2.4-4% + approximately 1%</td>
<td></td>
</tr>
<tr>
<td>Minimal amount</td>
<td>none</td>
<td>EUR 50,000</td>
<td>EUR 50,000</td>
<td>EUR 5 million</td>
<td>EUR 10 million</td>
<td>USD 30 million average project cost</td>
</tr>
<tr>
<td>Maximum amount</td>
<td>USD 30 million</td>
<td>EUR 500,000</td>
<td>EUR 500,000</td>
<td>EUR 250 million</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Term of repayment</td>
<td>10 years</td>
<td>8 years</td>
<td>5 years</td>
<td>max.15 years</td>
<td>22 years</td>
<td>18 years</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
<td>5 years</td>
<td>3 months after project</td>
<td>to be agreed</td>
<td>5 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Grant</td>
<td>-</td>
<td>max. EUR 3 million</td>
<td>E5P option</td>
<td>E5P option</td>
<td>E5P option</td>
<td></td>
</tr>
</tbody>
</table>

Source: consultants’ analysis
4.3. Information about the project funding mechanisms

4.3.1. The UDHEEP IBRD programme, EIB programme “Development of Municipal Infrastructure in Ukraine” and KfW programme “Untied Financial Loan for Reconstruction of Eastern Ukraine”

Ukraine District Heating Energy Efficiency Project (UDHEEP)

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Repayment term</th>
<th>18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate</td>
<td>LIBOR± spread (total approximately 1%)</td>
<td></td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
<td></td>
</tr>
<tr>
<td>Fee</td>
<td>0.25% of loan sum</td>
<td></td>
</tr>
<tr>
<td>Services of the Ministry of Finance</td>
<td>0.01% of subloan</td>
<td></td>
</tr>
</tbody>
</table>

UDHEEP is the largest investment project in energy efficiency in Ukraine. The project started in May 2014 and is approved until October 2020. The budget of the project includes funds from the IBRD and the Clean Technology Fund, its total amount is USD 382 million. Loans to the Government are given sovereign guarantees.

Table 4.4. The UDHEEP budget

<table>
<thead>
<tr>
<th>CTF funds for water supply projects</th>
<th>USD 382 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBRD funds for TKE projects</td>
<td>332</td>
</tr>
</tbody>
</table>

Diagram 4.5. Distribution of the IBRD funds

- Subprojects
- Undistributed amount
- CPMG budget
- One-time fee
- Cancelled by borrowers

Source: IBRD data

The participants of the project were chosen before the conclusion of the agreement between the Government and the IBRD, so at present no new participants may join the project (for more details about the procedure see section 5.1). Further mobilisation of investments in energy efficiency should take into account the practice of this project for improving the corresponding procedures.

Important roles in the implementation of the project are played by the Central Project Management Group (CPMG) and Regional Project Management Groups (RPMGs) with the activities of the CPMG funded from the funds of the project (making up 1-2% of the total project budget, and RPMGs funded by public utility companies (taking part in the project).
The mechanisms of financing energy efficiency projects in Ukraine

Diagram 4.6. The UDHEEP management scheme (exclude local authorities)

- Setting the corresponding rate share for loan repayment
- Coordination and general management
- Monitoring and reporting
- Technical support to RPMG
- Conduct of tenders to select contractors
- Coordination of cooperation with contractors of municipal utility companies
- Monitoring, evaluation, and reporting on project implementation process and its results

Source: data of the Ministry for Regional Development

Funds are provided through accounts in Ukreximbank managed by the Ministry of Finance.

Diagram 4.7. The scheme of document management and the flow of funds

Source: data of the Ministry for Regional Development

The energy modernisation project is implemented in 8 cities with the total budget of USD 250 million.
Diagram 4.8. The geography of UDHEEP funding and its results

USD 250 million
Total cost of projects

17.2% 600,000 tonnes 500,000 Gcal UAH 337 million
Expected internal revenue rate (IRR) Annual reduction in atmospheric emissions Annual savings of thermal energy Annual energy cost savings

* The expected results of the programme include the Clean Technology Fund projects (7 additional projects)

Source: IBRD data
The mechanisms of financing energy efficiency projects in Ukraine

The EIB programme “Development of Municipal Infrastructure in Ukraine”

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Thermal energy suppliers and authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment term</td>
<td>22 years</td>
</tr>
<tr>
<td>Interest rate</td>
<td>2.4–4%</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
</tr>
<tr>
<td>Fee</td>
<td>EUR 50,000</td>
</tr>
<tr>
<td>Services of the Ministry of Finance</td>
<td>0.01% of subloan</td>
</tr>
</tbody>
</table>

The project “Development of Municipal Infrastructure in Ukraine” was approved by the EIB Board of Directors in May 2015, and on February 3, 2016 the agreement was signed on the provision of the EIB loan under the programme. The total amount of the loan is EUR 400 million. From this amount EUR 160 million may be used for energy efficiency heating projects with EUR 40 million available for the energy modernisation of buildings.

The minimum project cost has to be at least EUR 10 million for thermal energy supply projects and EUR 5 million for building energy efficiency projects with their duration up to 5 years.

Diagram 4.9. The stages in obtaining an EIB loan

1. Filling application forms and submitting them to a commission with the Ministry of Regional Development
2. Review of application forms by the Ministry of Regional Development
3. Project examination by EIB
4. Project preparation (feasibility study, assessment of social and environmental impact, procurement planning etc.)
5. Project assessment and approval by EIB, signing subloan contracts
6. Approval of subloan contracts with the Ministry of Regional Development, Ministry of Finance, end beneficiaries and National Energy and Public Utilities Regulatory Commission / local authorities
7. Allocation of funds for project implementation as per approved manuals and agreements

Source: data of the All-Ukrainian Confederation of Employers of the Housing and Utilities Sector of Ukraine

The selection of EIB projects takes place after the signing of an international agreement between the EIB and the Government of Ukraine (for more details see section 5.1)
The mechanisms of financing energy efficiency projects in Ukraine

The KfW programme “Untied Financial Loan for the Reconstruction of Eastern Ukraine”

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Thermal energy suppliers and authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment term</td>
<td>15 years</td>
</tr>
<tr>
<td>Interest rate</td>
<td>4.5%</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
</tr>
<tr>
<td>Fee</td>
<td>0.75%</td>
</tr>
</tbody>
</table>

The programme of the Government of Ukraine and the KfW is focused on projects in 5 eastern regions of Ukraine (Dnipropetrovsk, Kharkiv, Donetsk, Luhansk and Zaporizhzhia Regions). The amount of the loan obtained by the Government of Ukraine is UAH 500 million, including UAH 200 million for budget spending and UAH 300 million for projects in three fields. The selection of projects takes place after the signing of an international agreement (for more details see section 5.1).

Diagram 4.10. The distribution of the loan funds between various programmes and projects (as at the end of 2015)*

*the projects and the funds distribution structure may be changed

Source: data of the Ministry for Regional Development

To provide funds from the lender to the project executor a loan agreement between 4 or 5 parties is made (between the KfW, respective Ministry or Regional State Administration, beneficiary and optionally the National Energy and Public Utilities Regulatory Commission).

Diagram 4.11. The movement of funds from the lender to project executors
The mechanisms of financing energy efficiency projects in Ukraine

The implementation of the programme is managed and monitored by working groups at various levels.

Diagram 4.12. The recommended organisational structure for managing the KfW programme and implemented projects

High-Level Group
- Approves project implementation priorities
- Create joint Ukrainian-German Working Group
- Signs loan contracts and other project documents

Ukrainian-German Working Group
- Selects projects and a Ministry responsible for their implementation
- Approves projects and submits them to KfW for examination
- Makes project management decisions

CPMG and RPMGs:
- Organise effective information exchange
- Report to Working Group and monitor how its decisions are complied with
- Organise and monitor regular reporting of business entities

Source: data of the Ministry for Regional Development
4.3.2. The project of Ukreximbank and the IBRD

If an IFO provides funds for energy efficiency projects through a local bank, it does not have to spend a lot of time and resources for studying regional specifics, determining risks and selecting projects. The bank selects projects on its own discretion and funds them using subloan agreements under standard procedures. The joint project of Ukreximbank and the IBRD is an example of such approach.

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Thermal energy supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment term</td>
<td>max. 10 years</td>
</tr>
<tr>
<td>Amount of loan</td>
<td>max. USD 30 million</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
</tr>
<tr>
<td>Fee</td>
<td>0.25% of loan sum</td>
</tr>
<tr>
<td>Services of the Ministry of Finance</td>
<td>0.01% of subloan</td>
</tr>
</tbody>
</table>

The project to fund the energy modernisation of thermal energy suppliers is implemented since May 2011 and will last until April 2017 with the credit line in the amount of USD 200 million. The loan to Ukreximbank is guaranteed by the Government of Ukraine (for more details see section 5.2). Ukreximbank acts as a financial intermediary between the IBRD and project executors or other banking institutions that will provide subloans for energy efficiency projects.

For a project to be financed with funds from the IBRD it must have a real internal rate of return of at least 10% (estimated exclusively on the basis of energy consumption reduction). Also as a necessary requirement for signing a loan agreement the end borrowers of funds must have a debt service ratio of at least 1.3.

Diagram 4.13. The stages in obtaining a loan from Ukreximbank

1. Submission of a request and a package of documents to Ukreximbank
2. Review of request and assessment of borrower based on acceptance criteria (project assessment, environmental impact evaluation etc.)
3. Request submitted by Ukreximbank to IBRD for approval (if loan amount exceeds USD 10 million and in some other cases)
4. Ukreximbank informs the borrower about project approval
5. Signing of subloan agreement

Source: The IBRD document on project evaluation (Report No. 58625-UA)
4.3.3. The EBRD and NEFCO projects

Obtaining direct funding for energy efficiency projects of thermal energy suppliers (item 5 in Diagram 2.1) makes economic sense for large loans as they are available at lower than market rates (not taking into account currency risks for loans in foreign currency). For utility companies to obtain loans from IFOs they must be guaranteed by the local authorities (for more details see section 5.3). The examples of programmes allowing utility companies to obtain loans directly from IFOs include DemoUkrainaDH and Chyste Vyrobnytstvo by NEFCo and the EBRD programme for providing direct loans to private companies.

**EBRD loans**

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Municipal or private companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of loan</td>
<td>from EUR 5 million to EUR 250 million</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>LIBOR+ spread (approximately 7–10%)</td>
</tr>
<tr>
<td>Repayment term</td>
<td>max. 15 years</td>
</tr>
<tr>
<td>Grace period</td>
<td>max. 3 months after project completion</td>
</tr>
<tr>
<td>Joint funding share</td>
<td>max. 35%</td>
</tr>
</tbody>
</table>

Loans from the EBRD are obtained on purely commercial basis, so they may be used also in other areas, not only in energy efficiency projects. The average amount of the EBRD loans is about EUR 25 million. The borrower must provide guarantees for the lender, such as mortgage of assets, company shares etc. as previously agreed. In addition to the interest rate, the borrower may have to pay additional fees and charges, such as mortgage assessment fee, one-time fee, currency conversion fee etc.

**Diagram 4.14. Stages in obtaining a loan from the EBRD**

1. Approval of project concept and its general structure (including funding)
2. Signing of a mandate letter approving the plan, expenses, and obligations
3. Final examination of project after signing loan terms and conditions and conducting all necessary studies
4. Project presentation to the Board of Directors and its approval
5. Signing of agreement and transfer of funds to the borrower

*Source: IBRD data*
The mechanisms of financing energy efficiency projects in Ukraine

### DemoUkrainaDH programme

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Thermal energy supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum loan</td>
<td>EUR 500,000</td>
</tr>
<tr>
<td>Repayment term</td>
<td>max. 8 years</td>
</tr>
<tr>
<td>Interest rate</td>
<td>6%</td>
</tr>
<tr>
<td>Grace period</td>
<td>5 years</td>
</tr>
<tr>
<td>Grant</td>
<td>max. 50% of external funding, not exceeding EUR 3 mil.</td>
</tr>
<tr>
<td>Share of project funding by lender</td>
<td>over 15%</td>
</tr>
</tbody>
</table>

DemoUkrainaDH is a funding facility established by NEFCO and Sida in cooperation with the Ministry for Regional Development. The lender must provide a municipal guarantee of up to EUR 500,000.

Diagram 4.15. The stages in the project implementation

1. Submitting request and its preliminary review by DemoUkrainaDH group
2. Project approval by committee representing NEFCO and Ministry for Regional Development
3. Preparation of business plan by project management consultant. Assessment of financial situation of municipality and municipal thermal energy supplier (TKE) by NEFCO
4. Approval of business plan and municipal guarantee
5. Signing financial agreements (loan, grant and guarantee agreements)
6. Establishing project implementation group at thermal energy supply company to support and monitor project implementation

Source: Data of DemoUkrainaDH

At large 18 projects were started in Ukraine with 6 of them already completed.
The mechanisms of financing energy efficiency projects in Ukraine

“Chyste vyrobnytstvo” Programme

<table>
<thead>
<tr>
<th>End user of loan</th>
<th>Municipal or private companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of loan</td>
<td>EUR 50,000-500,000</td>
</tr>
<tr>
<td>Annual interest rate</td>
<td>6%</td>
</tr>
<tr>
<td>Repayment term</td>
<td>max. 5 years</td>
</tr>
<tr>
<td>Grace period</td>
<td>max. 3 months after project completion</td>
</tr>
<tr>
<td>NEFCO’s share in project funds</td>
<td>max. 90%</td>
</tr>
</tbody>
</table>

“Chyste vyrobnytstvo” Programme provides funding for projects aimed at reducing industrial pollution and measurable environmental impact is its basic indicator for project assessment. In particular, such impact may be achieved through the energy modernisation of industrial enterprises resulting in the reduction of energy consumption. Besides improving the environmental situation, to get a loan the project has to have ROI of about 25%. Collateral/guarantee 125% (may be a municipal guarantee, real property or equipment).

Diagram 4.16. The stages in obtaining funding under “Chyste vyrobnytstvo” Programme

1. Submission of a request with a brief two-page project description
2. Preparation of a business plan by the borrower
3. Review of business plan by NEFCO experts, submitting it to the investment committee
4. Preparation for signing loan agreement after the approval of business plan
5. Transfer of loan funds to the borrower in three instalments

Source: data of NEFCO

Loans are repaid in quarterly instalments. Until the full repayment of the loan the borrower provides annual reports on achieved environmental impact.

As of 01.03.2013 contracts for 29 projects in Ukraine were signed with NEFCO for the total amount of about EUR 28 million, of which 14 projects (for the amount of EUR 8 million) had their local guarantees agreed with the Ministry of Finance and approved by the Cabinet of Ministers of Ukraine.
4.3.4. Funding of programmes by thermal energy suppliers from their own funds

Technical equipment of thermal energy producers and distributors is modernised and replaced under their own investment programmes as well. According to Orders of the Ministry for Regional Development No. 630 and of the Energy and Utilities National Regulatory CommissionNo. 381, each municipal thermal energy producer (Teplokunenergo or TKE) must have such programme approved annually. However, less than a half of the thermal energy producers (89 out of 183 in 2015) have charge rates sufficient for making any investments. Some programmes are not approved because they are not compliant with law. For other thermal energy producers the investments share in their charge rates is very low. As a result the thermal energy producers (TKEs) are not able to improve energy efficiency using their own funds and must have external instruments for financing such projects.

Diagram 4.17. Investments share in the charge rates

Source: Energy and Utilities National Regulatory Commission data

In 2015 the total amount of investment programmes approved by the Energy and Utilities National Regulatory Commission was UAH 927,760,000. Loans as an investments source for TKEs account only for 0.4% of all investments into energy modernisation in 2015. This is stipulated by the complexity of the approval procedure for investments programme with loans (because this results in growing charge rates), other problems with the use of such funds and repayments of loans.

Diagram 4.18. The sources of funding of the Energy and Utilities National Regulatory Commission investments programmes in 2015

Diagram 4.19. The areas where the funds of the investments programmes were used

Source: Energy and Utilities National Regulatory Commission data

Because of a number of problems with the operational activities of the thermal energy producers the approved investments programmes were actually funded only by 39% or UAH 357,705,000.
5. Procedures and conditions for obtaining funding

Procedures for obtaining funding for energy efficiency projects are regulated by a great number of laws and regulations. Besides, the Ukrainian legal procedures do not always fully correspond to the procedures of IFOs. This complicates and prolongs the process for obtaining funds for projects. The expected period from the initiation of a project until the beginning of its implementation is at least three years, including project selection (approximately 1 year), provision of sovereign guarantees and signing of an international agreement (approximately 1–2 years), preparation of operational manuals, conclusion of contacts and conducting tenders (more than 1 year).
5.1. Procedure for the conclusion of agreements on providing loans with sovereign guarantees between the Government of Ukraine and IFOs

Loans for funding energy modernisation projects of thermal energy suppliers could be employed by the Government of Ukraine. However, the processes for employing such loans are quite difficult to administer and are regulated by a great number of regulations and contracts. An international agreement serves as a main legal document on the basis of which the Government of Ukraine obtains loans. Additional subloan agreements are signed for funding specific projects. The movement of funds, budgeting and reporting, purchasing (tendering) and other processes are regulated by respective operational manuals.

Diagram 5.1. Main documents regulating projects funded by IFO loans

Source: consultants’ analysis

Loans from IFOs get sovereign guarantees from the Government of Ukraine.

Diagram 5.2. The general scheme of operation for projects with sovereign guarantees

* some loans from IFOs obtained with sovereign guarantees may be repaid directly from the national or local budgets

Source: data of the Ministry for Regional Development

All international loan agreements between IFOs and the Government of Ukraine are concluded in accordance with the procedure described in the Government Resolution of the KMU No. 70. The expected duration of the process to conclude a loan agreement with sovereign guarantees is approximately one year.
Diagram 5.3. The process for concluding a loan agreement according to the Resolution of the CMU No. 70

1. **Identification of needs**
   - Identification of needs by the Government (corresponding ministry) or using requests submitted by beneficiaries

2. **Initiation in accordance with the Government-Approved Procedure No. 70**
   - Corresponding ministry (project proposal) → Ministry of Finance → Letter to IFO → contractor → Ministry of Finance, Ministry of Justice, other ministries → CM of Ukraine

3. **Preparation of draft financial agreement**
   - The corresponding ministry → Ministry of Finance → approval of expenses plan; contractor (procurement plan) → IFO (draft agreement) → contractor → Ministry of Finance, Ministry of Foreign

4. **Negotiations and signing of a financial contract**
   - IFO (invitation to negotiations) → Contractor → Corresponding ministry → CM of Ukraine → Presidential Administration of Ukraine → minutes of negotiations → signing

5. **Ratification**

**Source: Resolution of the CMU No. 70, consultants’ analysis**

Energy efficiency projects to be funded from loans obtained by the Government of Ukraine from IFOs may be approved either before or after the signing of the international loan agreement. The expected duration of the project selection process is approximately one year.

Diagram 5.4. The process of obtaining IFO loan funds for the implementation of projects depending on the time of their selection
The mechanisms of financing energy efficiency projects in Ukraine

After the signing of all subloan contracts, a tendering process for choosing subcontractors and preparations to pay for their services may continue for about a year and a half.

Diagram 5.5. The expected duration of the tendering process and payments under contracts

1. Preparing tender documentation 1-6 months

2. Approval of tender documentation 1 month

3. Tendering 3-6 months

~1 month

4. Approval of report

5. Signing of contract with the provider 1-2 months

6. Receiving funds for advance payments 1-2 months

7. Payments from special accounts 1-2 months

8. Approval of feasibility study 2 months and more

* if is not specified otherwise by the corresponding international agreement

Source: data of the Ministry for Regional Development
The mechanisms of financing energy efficiency projects in Ukraine

The approval of project documentation (including feasibility study) is done as described in the Resolution of the CMU No. 560. Duration of the approval period depends on the cost of the project and increases by about 2 months if the cost exceeds UAH 400 million.

Diagram 5.6. The approval procedure for feasibility study

Source: data of the Ministry for Regional Development
5.2. The procedure for providing municipal guarantees for loans obtained from IFOs

To obtain direct loans from IFOs, thermal energy suppliers must provide municipal guarantees. Such guarantees are currently provided for projects under the NEFCO and EBRD programmes. Municipal guarantees are provided by the local self-governing bodies in the form of a corresponding resolution that has to be agreed with the Ministry of Finance.

Diagram 5.6. The scheme for providing local guarantees for a direct IFO loan

Source: Resolution of the CMU No. 541 dd. 14.05.2012

Main condition for approving a local guarantee by the Ministry of Finance is that the new amount of local guarantees (in case of approval) must not exceed the limit amount of 200% (400% for Kyiv) from the average expected annual budget income, excluding local loans and capital subsidies from other budgets.

The approval of the amount and conditions for the provision of the local guarantee by the Ministry of Finance does not mean that the Government guarantees that the borrower will fulfil its obligations in connection with the local guarantee or endorses its creditworthiness.
5.3. Procedure for obtaining loans by local self-governing bodies

According to the Law of Ukraine “On Local Self-Government” and the Budget Code of Ukraine, local self-governing bodies may obtain external funding (loans). The procedure for approving such loans is regulated by the Resolution of the Government of Ukraine No. 110.

Diagram 5.7. Stages in obtaining loans by local self-governing bodies

1. Identifying problems and selecting projects for funding
2. Selecting customer (department of local self-government or municipal utility companies)
3. Determining project cost and terms and condition of funding
4. Determining loan terms and conditions and collateral (with its assessment if required)
5. Preparing by financial authority draft document on loan and its preliminary approval by local council
6. Preparing by financial authority documentation package and submitting it to the Ministry of Finance for approving loan terms and conditions
7. Receiving loan approval from the Ministry of Finance in one month
8. Determining city’s creditworthiness level and getting credit rating at rating agency
9. Draft resolutions on loan and amendments to local budget approved by local council
10. Signing loan agreement and its registration with the State Treasury Service of Ukraine for opening respective accounts

Source: consultants’ analysis
5.4. Operational conditions for private thermal energy suppliers

Privately owned thermal energy suppliers may obtain loans and repay them from their own incomes at their discretion. The income of the thermal energy suppliers entirely depends on the level of charge rates approved by the Energy and Utilities National Regulatory Commission or the local authorities. The charge rates are the main factor in ensuring the creditworthiness of a company and its ability to obtain investments for energy efficiency projects and should provide for all financial expenses.

What body grants a license to a thermal energy supplier depends on the maximum amount of thermal energy produced, transported or supplied and/or on the number of areas where it operates. 97% of thermal energy available at the heating market is provided by companies licensed by the Energy and Utilities National Regulatory Commission.

Diagram 5.8. Who licenses thermal energy suppliers

**LICENCED BY THE NATIONAL ENERGY AND PUBLIC UTILITIES REGULATORY COMMISSION**

- Thermal energy supplier is licensed by National Energy and Public Utilities Regulatory Commission if it:
  - operates in more than one region or
  - produces annually > 18,000 Gcal

- 248 licensees
- 48.4 million Gcal consumed in 2015

**LICENCED BY LOCAL AUTHORITIES**

- Thermal energy supplier is licensed by local authorities if it:
  - operated only in one region and
  - it produces annually < 18,000 Gcal
  - ~750 licensees
  - 1.5 million Gcal consumed in 2015


Loans obtained by thermal energy suppliers require paying interest rates for their use, resulting in higher prices for thermal energy for end users (method COST+). In this connection there may be certain problems with the substantiation of charge rates when getting approval for them from the corresponding licensor.

The procedure for establishing or adjusting the charge rate and its approval is initiated by the thermal energy supplier, its duration is about 1-2 months.

Diagram 5.9. The charge rate approval procedure for a company licensed by the local authorities

1. Submitting charge rate calculations and supporting documents
2. Verification of charge rate calculations
3. Recommendations on approval of charge rates
4. Approval of charge rates
5. Thermal energy supply contract for 1 year

Source: consultants’ analysis

The charge rate approval procedure for companies licensed by the Energy and Utilities National Regulatory Commission is similar (excluding the Housing and Utilities Committee).
Charge rates are approved for 1 calendar year; after this period (or earlier, if there is a significant change in expenses) they are necessarily reviewed.

5.5. Procedures for decision making at ACAB

In accordance with the Law “On the Specifics of Exercising Property Rights in Apartment Blocks” adopted in 2015, an approved decision by the co-owners is needed to initiate an energy efficiency project in the building owned by an Association of Co-Owners of Apartment Block. Decisions on conducting repairs, energy efficiency projects, obtaining loans etc. must be adopted at general meetings of co-owners by at least 75% of the votes. The votes are assigned proportionally to the size of co-owners’ housing area (including both living and non-living area).

An adopted decision must be documented in a corresponding record signed by all co-owners; this record is one of required documents to be submitted to a lender for obtaining a loan.

Diagram 5.10. The stages in adopting joint decisions at ACABs

1. Initiation of meeting (by manager or at least three co-owners)
2. Formation of co-owner list
3. Notifying co-owners about meeting specifying its time, date, location etc. (against signature)
4. Voting at meeting, getting votes from absent co-owners in writing (in 15 days)
5. Making official record of the decision (to be submitted to local authorities)
6. Notifying about the adopted decision and its implementation

Source: IFC data
6. Grants and technical support for energy efficiency projects in Ukraine

energy efficiency market is relatively new for Ukraine, so even its key players do not have sufficient knowledge of tools and mechanisms available for the implementation of projects. The aim of technical support programmes is to help enterprises, households, authorities and private companies in implementing energy efficiency projects. Such technical support programmes are provided in Ukraine by the governments of the US, Canada, Switzerland, Germany and other countries, as well as by the EU and various funds and donors.

Besides the technical support programmes there are also grant programmes for energy efficiency projects.
6.1. The grants support programme for energy efficiency projects (ESP Fund)

Grant support is an effective tool for encouraging energy efficiency projects. Such support helps to reduce financial burden for thermal energy suppliers implementing energy efficiency projects and to reduce the growth of their charge rates during the repayment period. At present grants in addition to obtained loans under other IFO programmes are provided in Ukraine by the ESP Fund.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Grant max. EUR 5 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>for which grants are provided</td>
<td>Programmes of NEFCO, EBRD, EIB, IBRD and NIB (Nordic Investment Bank)</td>
</tr>
</tbody>
</table>

ESP is a multi-donor fund established in 2009 in Sweden. The total budget of the Fund is EUR 168 million with 65% of the budget (about EUR 108 million) earmarked for projects in Ukraine. The remaining EUR 60 million are divided in equal parts between Georgia, Armenia and Moldova. The donors of the ESP programme are 13 different countries and the EU. Three largest donors provide 70% of the total budget (the EU—EUR 40 million, Sweden—EUR 27 million and Germany—EUR 11 million).

Diagram 6.1. Share of Ukraine in the total budget of the Fund

Diagram 6.2. Structure of the ESP budget for projects in Ukraine

Source: ESP data Source: ESP data

Table 6.1 Examples of projects provided with ESP grants

<table>
<thead>
<tr>
<th>Project</th>
<th>Lender</th>
<th>Project cost</th>
<th>ESP grant</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency for public buildings (Zhytomyr)</td>
<td>NEFCO</td>
<td>EUR 4.70 million</td>
<td>EUR 1.35 million</td>
<td>Completed</td>
</tr>
<tr>
<td>Modernisation of municipal thermal energy supplier (TKE) (Kryvyi Rih)</td>
<td>EIB</td>
<td>EUR 38.00 million</td>
<td>EUR 6.40 million</td>
<td>Approved</td>
</tr>
<tr>
<td>TKE modernisation (Ternopil)</td>
<td>EBRD</td>
<td>EUR 16.10 million</td>
<td>EUR 5.00 million</td>
<td>Completed</td>
</tr>
<tr>
<td>Energy efficiency for public buildings</td>
<td>EBRD</td>
<td>EUR 22.50 million</td>
<td>EUR 2.50 million</td>
<td>Completed</td>
</tr>
</tbody>
</table>
(ESCO project)

Source: ESP data

Until 2019 the ESP Fund will provide EUR 60 million for the implementation of energy efficiency projects in Ukraine. The ESP programme might be extended in Ukraine beyond 2019, depending on the results of the projects.

6.2. The UNDP project “Ukraine Energy Efficiency Secretariat and Expert Hub” (with the support of Slovakia)

<table>
<thead>
<tr>
<th>Implementation period</th>
<th>June 2016–June 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project goal</td>
<td>Developing an effective energy policy in Ukraine</td>
</tr>
</tbody>
</table>

The project was started under the UN Development Programme in Ukraine with the financial support of the Government of Slovakia. The secretariat and expert hub established under the project will provide informational, consultative and technical support to the Government of Ukraine. This support includes such areas as improving energy safety, improving energy efficiency and developing sustainable energy production in Ukraine. The following activities are carried out during the implementation of the project:

- Establishing a mechanism for supporting the Government through the expert hub and improving coordination between the key players in the Ukrainian energy market to promote initiatives on improving energy efficiency, corresponding laws and regulations etc.
- Supporting government reforms in the energy sector, including the establishment of the Energy Efficiency Fund
- Sharing experience in introducing the best international practices in energy efficiency and sustainable energy production through a number of pilot projects
- Helping the Government to develop the market of energy service companies (ESCO) as a key instrument for obtaining additional investments in the energy efficiency sector in Ukraine

The outputs of the project will include over 20 analytical reports:

- Strategy for the development of the energy market in Ukraine
- Concepts and action plans for the introduction of energy production reforms in Ukraine
- Action plan for the winter period 2016-2017
- Recommendations on the introduction of energy-efficient approaches in various sectors, including the housing sector
- Review of investments opportunity in the housing sector, viability of introducing decentralized heating, using alternative energy sources etc.
- Other issues in improving energy safety, energy efficiency and developing alternative energy production in Ukraine
The mechanisms of financing energy efficiency projects in Ukraine

6.3. USAID Municipal Energy Reform in Ukraine (MERP)

<table>
<thead>
<tr>
<th>Budget</th>
<th>$ 14.5 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation period</td>
<td>September 2013–September 2017</td>
</tr>
<tr>
<td>Project goal</td>
<td>Support of energy efficiency improvement measures, including the harmonisation of respective Ukrainian laws and regulations with the corresponding laws and regulations of the EU.</td>
</tr>
</tbody>
</table>

The project is implemented in four areas:

1. Improving the legislative framework
2. Attracting investments into energy efficiency and clean energy
3. Developing professional potential and disseminating the best practices
4. Developing a strategy for low-carbon development in Ukraine

The project is implemented both at the national and local levels in 17 selected partner cities. They include Vinnytsia, Dnipro, Zaporizhzhia, Ivano-Frankivsk, Kamianets-Podilskyi, Kyiv, Kramatorsk, Kryvyi Rih, Lutsk, Lviv, Pavlograd, Rivne, Sumy, Ternopil, Kherson, Khmelnytskyi, Chernihiv. Also in 13 partner cities Resource Centres for ACAB Support have been created, where consultations are provided on establishing ACABs and their activities and trainings are conducted. The project approach to its implementation.

Table 6.2 Areas of project implementation

<table>
<thead>
<tr>
<th>National level:</th>
<th>Municipal level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strengthening legal, regulatory and institutional basis for improving municipal energy services</td>
<td>• Developing the capacity of the partner cities in the planning, management and funding of the energy systems development</td>
</tr>
<tr>
<td>• Improving tariff regulation</td>
<td>• Attracting investments for projects from investors at various levels (creating effective mechanisms and procedures)</td>
</tr>
<tr>
<td>• Improving social protection of population</td>
<td>• Training the public</td>
</tr>
<tr>
<td>• Conducting a public awareness campaign</td>
<td></td>
</tr>
</tbody>
</table>

Source: USAID data, analysis of consultants

The expected outcomes of the project:

• Saving 266 million m³ of natural gas
• Attracting $200 million in energy efficiency and clean energy projects
• Reducing CO₂ emissions by 500 thousand tons
• Functioning of an independent regulator in accordance with the best international practice
• Using new charge rate methodology and benchmarking at 100 municipal companies
• Creating 10 regional clean energy resource centres etc.
6.4. The IFC Residential Energy Efficiency Project

<table>
<thead>
<tr>
<th>Implementation period</th>
<th>Implemented since 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project goal</td>
<td>Improving energy efficiency in the housing sector</td>
</tr>
</tbody>
</table>

The goal of the project is to establish a legal and institutional framework for creating opportunities for ACAB and managing companies to obtain funding for energy efficiency projects. The project is implemented in close cooperation with the Government of Ukraine and other donor in the following areas:

1. Developing and improving laws and regulations to create opportunities for ACABs in obtaining funding for energy efficiency projects
2. Creating tools for funding energy efficiency projects in close cooperation with commercial and state banks
3. Increasing the expert knowledge of interested parties in energy efficiency


To introduce financial tools, the IFC provides technical support in the development of the “Warm” Loans programme, Energy Efficiency Fund and regional funding projects.

To improve the expert knowledge of all interested parties (including the Government) in energy efficiency, the IFC prepares promotional and informational leaflets, booklets, analytical reports, presentation materials etc.
6.5. The GIZ projects in Ukraine—“Energy Efficiency in Municipalities” and “Establishing Energy Agencies”

**Energy Efficiency in Municipalities**

<table>
<thead>
<tr>
<th>Budget</th>
<th>EUR 4 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation period</td>
<td>September 2013–April 2017</td>
</tr>
<tr>
<td>Project goal</td>
<td>Strengthening the role of municipalities in improving energy efficiency</td>
</tr>
</tbody>
</table>

The main goal of the project is to strengthen the role of municipalities as a driving force in improving energy efficiency.

Consultative support is provided in two fields:

- at the national level—on establishing necessary legal framework for creating energy agencies and introducing energy efficiency projects;
- at the regional level—on introducing energy management, planning and implementing local programmes to improve energy efficiency. Training and in-service education activities are conducted for municipal workers.

Five larger communities in Dnipropetrovsk, Chernivtsi, Poltava, Zhytomyr and Luhansk Regions take part in the project (in total 16 towns). Acquired knowledge and practices are shared among professionals working in government and self-government agencies at all levels.

The outcomes of the project are:

- ten partner municipalities joined the European Covenant of Mayors, and develop and implement action plans to reduce energy consumption by 20% by 2020
- Energy efficiency measures were implemented in accordance with the development plans in three towns (development continues in other towns), consultations were provided and a hospital heating system was modernised in Dnipro
- 60 employees of municipal agencies took part in trainings on energy efficiency in Germany
- Over 100 activities were conducted to share best practices and knowledge in energy efficiency at the municipal level
The mechanisms of financing energy efficiency projects in Ukraine

**Establishment of Energy Agencies in Ukraine**

| **Budget** | EUR 3 million |
| **Implementation period** | Jan. 2014–Feb. 2018 |
| **Project goal** | To study the potential for introducing energy efficiency programmes at the national and regional levels |

The project aims to provide conditions for investing in energy efficiency projects in Ukraine, mainly, with the support of unified communities as they may become a powerful driving force in introducing energy efficiency projects. The project is implemented in three fields:

- at the national level—cooperation with the authorities to improve the existing legal framework helping to attract investments and introduce energy efficiency measures;
- at the local level—establishing energy agencies in two pilot regions. The development and implementation of a business plan for Odesa Municipal Energy Agency that will serve as an example and the source of practical experience for other municipalities
- Conducting an information campaign and sharing the best practices with all interested parties

The City of Odesa already had a pilot energy agency. Its objective was to provide consultations on implementing energy efficiency projects for local communities and informing the public on this subject.

An energy management system was established on the basis of Odesa Energy Agency and EUR 500,000 of funds obtained for modernizing three municipal schools. Studies and reviews were conducted at the national levels helping to conduct reforms in energy efficiency.

The project is implemented with the support of the following partners: The Ministry of Regional Development, Odesa Oblast (Regional) Council, Odesa City Council and the Energy-Efficient Cities of Ukraine Association.
7. Factors constraining the development of energy efficiency funding programmes
Main obstacles in obtaining funds for the modernisation of thermal energy supply systems

The rates setting methodology does not ensure the availability of funds for investments that hampers their employment

1. Because of possible social discontent the authorities sometimes do not agree to include expenses for energy modernisations into the charge rate and increase it. This significantly constraints the process of obtaining loans for investment projects as companies are not able to pay interest rates for using loans

2. The fixed assets of companies have not been reevaluated for a long time resulting in a lesser amount of depreciation deductions included in the charge rate. As a result municipal thermal energy suppliers (TKEs) do not have funds necessary for major repairs or modernisation.

3. The rate setting for TKEs is done using “COST+” methodology that does not encourage (and actually discourages) investments. Firstly, the charge rate does not include a profit margin for investors. Secondly, the thermal energy suppliers are not encouraged to modernise or replace its equipment as the charge rate covers all ineffective expenses and is automatically reduced in case of any savings.

4. The current system of settlements between the players in the thermal energy market is very complicated because the final dates for payments for natural gas and centralised heating are not compatible, the ineffective existing clearing system and the lack of motivation for customers to pay in time for this service.

5. The existing subsidised payment system has the following disadvantages: (a) there is no clearly defined liabilities for not paying in full/ in time for received services for consumers and numerous intermediaries taking part in settlements; (b) there is the lack of control to ensure that accrued subsidies correspond to actually received ones; (c) the existing system encourages reciprocal offsets that has a negative effect on overall settlements and liabilities for incorrectly determined payment amounts.

Shortcomings of the Ukrainian laws and their incompatibility with the IFO procedures slow down the processes of approval and implementation of investments projects

1. The current version of the Order of the Ministry for Regional Development and the Energy and Utilities National Regulatory Commission No.630/381 contradicts the rule of all international financial organizations, creating as a result significant obstacles in using grants and loans for investments in thermal energy and water supply projects.

2. Per the Law “On Investment Activities” prior to the provision of local guaranteed investment projects must be selected and registered with the Ministry of Economic Development and Trade. Such approach in fact prevents the provision of local guarantees for investment projects.

3. Also modern equipment and design principles may not correspond to the current Ukrainian construction norms and standards. As a result there may be problems with getting approvals from the Ukrainian construction and other authorities.

4. Investment programmes of thermal energy suppliers are not approved by the Energy and Utilities National Regulatory Commission as its procedures for assessing investment business plans differ from IFO procedures. For example, prior to approving an investment programme the Energy and Utilities National Regulatory Commission demands completed project documentation with price proposals that is in direct contradiction with IFO requirements.
If a thermal energy supplier has debts for consumed natural gas, its accounts may be blocked together with IFO investment funds (if the project is provided with local guarantees). This problem is partially solved if the company may use the Law “On Debts Restructuring”, however, such approach provides only a temporary solution. If the project has sovereign guarantees as described in the Resolution of the CMU No. 70, corresponding accounts have a special status and are protected as specified in the Law of Ukraine “On Heat Supply”.

A long and complicated registration process with the Ministry of Economic Development for grants provided under investment projects. Even if changes in the project are insignificant, the corresponding registration procedure is almost the same as for a new project. This problem mainly concerns the registration of new contractors in the framework of an already existing programme.

There is no existing mechanism for VAT refunds when payments for goods or services are made using grant funds.
The mechanisms of financing energy efficiency projects in Ukraine

The main obstacles in obtaining funding for energy modernisation of residential and public buildings

Funds allocated from the state budget for energy efficiency programmes are not sufficient to meet all demands of households and local authorities. However, almost one half of households receive subsidies for utilities payments.

The existing programmes for funding energy efficiency improvements are oriented mainly at individual investment projects; as a result it is impossible to achieve a maximum possible reduction in energy consumption.

The lack of a legal framework for the energy efficiency market regulating relations between key market players makes it more difficult to create funding mechanism and to introduce energy efficiency projects.

General obstacles in obtaining funding and introducing energy efficiency projects

The lack of corresponding knowledge among households, municipal and private companies, local authorities and other energy efficiency market players significantly slow downs the process of obtaining funds and the implementation of energy efficiency projects.

Demand for loans from commercial banks is low owing to high interest rates in the market. Payback periods for energy efficiency projects with such funding may be significant.
8. Recommendations for improving energy efficiency and developing corresponding funding mechanisms
The mechanisms of financing energy efficiency projects in Ukraine

Recommendations for improving investment environment for the energy modernisation of thermal energy supply systems

1. **Improving charge rate setting procedures for thermal energy suppliers to increase their investment potential and motivations for implementing energy modernisation**
   
   Including financial expenses for repaying the loan principal into charge rates to ensure the fulfilment of the obligations of thermal energy suppliers to IFOs

2. **Revaluation of the assets of thermal energy suppliers to determine a fair amount of depreciation**
   
   Introducing the elements of a motivating rate setting procedure. For example, freezing certain rate components for 3-5 years (with adjustments) to motivate companies to reduce operational expenses. Consider options for changing over to a more efficient charge rate setting method such as price cap or benchmarking

3. **Improving Ukrainian legislation framework and making it compatible with IFO procedures**
   
   Harmonisation of the Ukrainian procedures for project registration with the IFO procedures by adopting new laws and regulations and amending the existing ones

4. **Making amendments to the Tax Code to introduce a mechanism for refunding VAT**
   
   Making amendments to the Law of Ukraine “On Investment Activities” and the Resolution of the CMU No. 541, 835 and 701 to cancel the requirement for a prior selection and registration of municipal investment projects with the Ministry of Economic Development

5. **Adopting new norms and regulations necessary for the effective functioning of thermal energy suppliers**
   
   Establishing special bank accounts for municipal thermal energy suppliers (TKEs) to collect funds and repay IFO loans that will protect IFO funds from blocking

6. **Developing a concept for reforming the centralised heating sector describing measures for creating favourable investment environment for modernising assets, including a simplified procedure for approving investment programme and protection of lenders’ rights**
   
   Developing a concept for reforming the centralised heating sector describing measures for creating favourable investment environment for modernising assets, including a simplified procedure for approving investment programme and protection of lenders’ rights

7. **Creating and maintaining a database of current and planned projects funded by IFOs and donors**
   
   Creating and maintaining a database of current and planned projects funded by IFOs and donors

   
   Developing norms and regulations required for the implementation of the Law of Ukraine “On Restructuring Debts of Thermal Energy and Water Suppliers for Energy”
The mechanisms of financing energy efficiency projects in Ukraine

Recommendations for improving the investment environment for the energy modernisation of residential and public buildings

1. Extending the existing mechanisms for providing government support to energy efficiency programmes and creating new ones

   Continuing the implementation of the state energy efficiency programme “Warm” Loan and its improvement (making amendments to the Resolution of the Government No. 1056) regarding selective inspections of projects, including commercial bank into the programme etc.

2. Establishing Energy Efficiency Fund to create tools for the comprehensive energy modernisation of residential and public buildings.

Improving Ukrainian legislative framework and making it compatible with IFO procedures

1. Adopting a number of laws necessary for the effective functioning of the energy efficiency market, making legislation compatible with EU Directives, establishing the Energy Efficiency Fund (see Annex 3).


2. Conducting an information campaign among the general public, local authorities and other key market players to increase awareness about energy efficiency funding mechanisms.
Annexes
Annex 1. Thermal energy meters and individual heating units (IHUs) installed in different regions of Ukraine as of 01.08.2016

* If a building has an ITU installed, it is also required to have a thermal energy meter

Source: Energy and Utilities National Regulatory Commission data, analysis of consultants
Annex 2. The losses of thermal energy suppliers in Ukraine in 2015

<table>
<thead>
<tr>
<th>Municipal thermal energy supplier (TKE)</th>
<th>Supplied thermal energy, thousands of Gcal</th>
<th>Income, UAH million</th>
<th>Operational loss adjusted to rate difference, UAH million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kryvyi Rih</td>
<td>865.3 (2%)</td>
<td>609.8 (3%)</td>
<td>-773.9 (25%)</td>
</tr>
<tr>
<td>Kyiv</td>
<td>10,350.1 (27%)</td>
<td>5,834.5 (29%)</td>
<td>-684.3 (23%)</td>
</tr>
<tr>
<td>Donetsk Region (certain towns)</td>
<td>778.70 (2%)</td>
<td>431.5 (2%)</td>
<td>-277.9 (9%)</td>
</tr>
<tr>
<td>Odesa</td>
<td>1,394.7 (4%)</td>
<td>857.7 (4%)</td>
<td>-237.1 (8%)</td>
</tr>
<tr>
<td>Kharkiv</td>
<td>5,271.8 (14%)</td>
<td>2,316.9 (11%)</td>
<td>-220.7 (7%)</td>
</tr>
<tr>
<td>Total for the largest 5 TKEs</td>
<td>18,660.6 (49%)</td>
<td>10,050.3 (50%)</td>
<td>-2,193.8 (72%)</td>
</tr>
<tr>
<td>Without Kyiv and Kharkiv TKEs</td>
<td>3,038.7 (8%)</td>
<td>1,899.0 (9%)</td>
<td>-1,288.9 (42%)</td>
</tr>
<tr>
<td>Total for 130 TKEs (approximately 79% of all thermal energy suppliers in Ukraine licensed by the Energy and Utilities National Regulatory Commission)</td>
<td>38,112.6 (100%)</td>
<td>20,284.6 (100%)</td>
<td>-3,038.3 (100%)</td>
</tr>
</tbody>
</table>

Source: data of the Ministry for Regional Development
Annex 3. Laws and regulations on the development of the energy efficiency market

Law of Ukraine “On the Specifics of the Rights to Property in Multi-Apartment Building” (adopted)
- Legal framework for building management by co-owners
- Management of building energy consumption

Law of Ukraine “On Energy Efficiency of Buildings” (draft, submitted to Verkhovna Rada)
- Energy certification of buildings and legal framework for energy audits

Law of Ukraine “On Energy Efficiency Fund” (draft, approved by Government)
- Conditions for effective functioning
- Energy accounting

Law of Ukraine “On Housing and Utility Services” (draft, in 2nd reading at the Verkhovna Rada)
- Housing and utility services company
- Accounting and payment for utilities

Law of Ukraine “On Commercial Accounting” (draft, 2nd reading)
- Regulation of required accounting of utilities

Source: data of the Ministry for Regional Development