

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.: PIDA11588

<b>Project Name</b>	District Heating Efficiency Improvement Project (P132443)
<b>Region</b>	EUROPE AND CENTRAL ASIA
<b>Country</b>	Moldova
<b>Sector(s)</b>	Energy efficiency in Heat and Power (40%), Public administration-Energy and mining (40%), Thermal Power Generation (20%)
<b>Theme(s)</b>	Urban services and housing for the poor (40%), Debt management and fiscal sustainability (30%), Corporate governance (30%)
<b>Lending Instrument</b>	Investment Project Financing
<b>Project ID</b>	P132443
<b>Borrower(s)</b>	Ministry of Finance
<b>Implementing Agency</b>	Termocom, Ministry of Economy, CHP-1, CHP-2, Moldova Energy Projects Implementation Unit (MEPIU)
<b>Environmental Category</b>	B-Partial Assessment
<b>Date PID Prepared/Updated</b>	19-Sep-2014
<b>Date PID Approved/Disclosed</b>	19-Sep-2014
<b>Estimated Date of Appraisal Completion</b>	19-Sep-2014
<b>Estimated Date of Board Approval</b>	23-Oct-2014
<b>Decision</b>	

**I. Project Context**

**Country Context**

Moldova has made significant strides in its economic and its political transition, but much remains to be done. Moldova lags the rest of the region as a small domestic market with limited competition and a weak drive for innovation. European integration anchors the Government's policy reform agenda, but periodic political tensions pose risks to reforms. An Association Agreement and a Deep and Comprehensive Free Trade Area (DCFTA) between Moldova and the European Union (EU) were signed on June 27, 2014. Yet, there are differing views on the appropriate direction, pace and depth of reforms.

Moldova's economy has recovered from the 2008-09 global economic crisis, but growth has been volatile reflecting vulnerability to global economic and climatic conditions. In 2010-11, growth of remittances, investment fueled domestic demand and exports were strong but in 2012, GDP contracted by 0.7 percent, as the economy was hit by both a slowdown in external demand due to the Eurozone crisis and the drought-induced contraction in agriculture. In 2013 growth resumed, driven mainly by the recovery of agriculture (+41 percent), with GDP increasing by 8.9 percent. As

a result, in comparison with neighboring countries, Moldova has managed to achieve the highest cumulative GDP growth relative to the pre-crisis year of 2008 (see Figure 1). Much of this growth drove Moldova's recent economic performance reduced poverty and promoted shared prosperity. national poverty estimates indicate positive trends in poverty reduction. The national poverty rate fell from 30.2 percent in 2006 to 12.7 percent in 2013. During 2006-13 extreme poverty fell from 4.5 percent to 0.3 percent (see Figure 2). This performance has positioned Moldova among the world's top performers in poverty reduction.

Despite a sharp decline in poverty, Moldova remains the second poorest country in Europe. Based on the Europe and Central Asia (ECA) poverty line of USD 5/day at Purchasing Power Parity (PPP), 45.4 percent of the population was poor in 2011, and extreme poverty (poverty line of USD 2.5/day at PPP) was 7.1 percent.

The Government's medium-term strategy of improvement is reflected in the National Development Strategy (NDS), approved by Parliament in 2012 and covering 2012-2020. The NDS calls for a shift from the current consumption-based growth model towards a growth model based on raising investments, increasing productivity and competitiveness, developing export industries, and promoting a knowledge-based society. Investments in reducing energy consumption via energy efficiency and using renewable energy sources are listed as one of the eight national development priorities in the NDS. Currently, the urban and rural infrastructure is in an advanced state of disrepair, and transforming the economy will require significant upgrades in infrastructure through public investments, particularly in transport, energy and agriculture. While available fiscal space is a constraint, Moldova should first and foremost improve efficiency to better utilize existing resources and to be able to satisfactorily implement good projects when more resources become available.

## **Sectoral and institutional Context**

### **Energy Sector**

Moldova is dependent on imports to meet its energy demand. In 2011, 97.5 percent of total primary energy needs were met by imports. Total primary energy supply (TPES) was about 3.3 Mtoe. Natural gas dominates the primary energy balance at 68% of TPES (Table 1). Natural gas is imported from Gazprom of Russia. The gas is imported and distributed by Moldovagaz. About 75% of all electricity demand is also being met by imports from Ukraine and the Moldavskaya GRES Power Plant in Transnistria.

Inefficient energy use in Moldova is leading to higher energy cost for both industries and residents, posing a serious bottleneck to growth and competitiveness. Total fuel consumption (TFC) in 2010 was 2.3 Mtoe, and the largest shares of it go into 41 percent consumption by the residential sector followed by the industrial sector which consumes about 27% and transport, about 16% of the energy supply. Despite the fact that energy intensity was almost halved since 1990 due to the decline of industrial production, Moldova remains one of the most energy intensive economies in the region. Measured at purchasing power parity (PPP), energy intensity in 2011 was 0.31 toe per thousand USD of GDP (PPP year 2005), which is more than double than the energy intensity of Romania (0.15) and OECD countries (0.12) (Figure 3).

### **District Heating Sector**

The electricity and heat generation infrastructure in Moldova are obsolete and deteriorating, leading

to inefficiency and higher cost of energy supply. About 25% of domestic electricity demand is being met mostly by the three Combined Heat and Power Plants (CHPs); CHP-1 and CHP-2 in Chisinau, CHP Nord in Balti. The CHPs produce both electricity and heat, both of which are consumed locally. All the CHPs are being operated well beyond their economic life; CHP-1 and CHP Nord were commissioned in the 1950's, while the newer CHP-2 was built in mid-1970s. Without substantial rehabilitation or retrofits since their construction, the efficiency and availability of the CHPs have been declining steadily.

The dominant supplier of heating for Chisinau, capital of Moldova, is District Heating (DH). With the large CHPs within the city limits, Chisinau and Balti are the only two cities that now have operating DH systems in Moldova. Termocom, the DH Company serving Chisinau, has a pipeline network of 711 km and serves a population of more than 500,000 or about 62% of Chisinau residents for whom DH system is considered to be the least cost option for heating.

Termocom has been financially bankrupt and under bankruptcy proceedings from 2001, after the company was transferred from state to municipal ownership in 2000. Due to the below cost-recovery level heating tariff that has been imposed by the municipality, Termocom has been generating the cash flow required for operations by accumulating arrears to CHP-1 and CHP-2, its main suppliers of heat. The CHPs managed their own cash flow by passing on the financial burden to Moldovagaz (jointly owned by the Government of Moldova and Gazprom, Russia) and their distribution subsidiary Chisinaugaz. The debt stock to Moldovagaz accumulated to about US\$ 220 million or 3.5% of GDP (see Figure 5).

The inability of Termocom to generate enough revenue for rehabilitation and capital investments has led to an absence of preventive maintenance and investments, leading to an inefficient and deteriorating heating system. Though improvements have been made over the last few years, the heat loss of Termocom's DH system is still 5 – 10% higher than in modern systems. In addition, the breakdown rate of 1.36 per km is an alarming sign, which indicates that the system is breaking down 10 times more often than their more modern counterparts in EU countries. Also, obsolete infrastructure has led to substantial disconnections from the centralized system, leaving the vulnerable to depend on the deteriorating DH system. Due to the poor quality of service and the high cost of DH services, many of the wealthier residents of Chisinau, who could afford to, have transitioned to individual boilers in their own buildings. Although the rate of disconnections has subsided in recent years, the current share of consumers of centralized heating consists of lower-income residents who have no other option for heating. Additional studies have shown that disruption in DH services will leave about 40% of current consumers, or about 160,000 households, with no alternative for heating in winter which averages low temperature of – 6 degrees Celsius. Consequently, the cost and quality of the centralized DH system impacts the poor and vulnerable population in Chisinau disproportionately more than any other segment of the population.

In addition, the inefficient and deteriorating system and services, and disconnections by wealthier consumers have led to high heat tariffs for the vulnerable population in Moldova. In a study commissioned by the Bank, the affordability of energy has emerged as a major concern, with surveys showing that heating expenses alone have taken up more than 10 percent of monthly expenditure for all income quintiles, a benchmark of affordability for energy expenditures, except for the highest income group (see Table 4). The lowest quintile spends up to 26% of their monthly expenditure on heating, which indicates that the tariff levels have reached the limit of affordability for almost all residents in Chisinau and is having a disproportionately high impact on the vulnerable

population. Increasing the efficiency of heat generation and delivery would not only contribute to increasing energy security, but also have a strong positive impact on the welfare of the vulnerable population in Chisinau.

In November 2008, Moldovagaz halted gas supply to Moldova due to the inability of Termocom to pay for the natural gas supplied, which initiated energy sector reform and actions to stop further accumulation of arrears. The disruption in the gas supply cut had a large negative impact on the welfare of residents in Chisinau, and clearly indicated the vulnerability of Moldova to the energy supply risk. Recognizing that the scale of the debt stock accumulated which goes well beyond what can be managed at the municipal level, the Government took the decision to take on the responsibility of the DH sector reform as well as debt restructuring with Moldovagaz.

The Corporate Restructuring Plan, approved by the Cabinet on November 13, 2013, envisioned a merger of Termocom, CHP-1 and CHP-2 into a new corporate entity (or Newco) based on the asset valuation of each company. The company establishment is currently under development. The Creditors' Committee of Termocom has approved sales of Termocom assets and liabilities to CHP2 to form Newco in September 2014. Additional regulatory processes are expected to in the coming weeks to finalize the transaction, while the Newco establishment can be expected by end-October 2014.

The Project will aim to improve the operational efficiency and financial viability of the Newco, through investments to improve reliability and efficiency and support to streamlining of operations and corporate structure of Newco. The project will fund investments aimed at ensuring continued provision and increased efficiency of the district heating services in Chisinau. It will also support the streamlining of operations and corporate structure, including cost for closing of operations at CHP-1, environmental audit for CHP-1 site to initiate the process of liquidating or reutilizing the asset, and severance payment and retraining/job placement services for personnel who may be negatively impacted by the restructuring.

## **II. Proposed Development Objectives**

The objective of the proposed project is to contribute to improved operational efficiency and financial viability of the new DH company and to improve quality and reliability of heating services delivered to the population of Chisinau, Moldova.

## **III. Project Description**

### **Component Name**

Component 1: Investments for the District Heating System

### **Comments (optional)**

This component will support priority investments to optimize and modernize the heat distribution network, Termocom's operational sustainability and efficiency, to achieve reduced heat losses, improved service quality and efficiency, and secure supply of heat and hot water to end-user consumers. Specifically, financing would be provided for: (a) modernization of selected pumping stations to reduce electricity consumption and provide for efficient variable flow operation mode of the DH system; (b) rehabilitate selected segments of the distribution network; (c) replace old and inefficient central heat substations (CHS) with modern fully automated individual building level heat substations (HIS); and (d) reconnect about 40 disconnected public buildings to improve the usage of the DH system.

**Component Name**

Component 2: Support for streamlining operations

**Comments (optional)**

This component will support the Government's decision to streamline operations and corporate structure of Newco, including closing down the operation of CHP-1. To ensure the stability of DH operations after CHP-1 ceases its operations and a smooth transition in the corporate restructuring process, the following programs will be supported: (a) connection of an alternative heat distribution network and construction of new pumping stations to service the area supplied by CHP-1; (b) Social Impact Mitigation Program for impacted staff including severance payment and retraining/job placement services; and (c) Environmental Audit for CHP-1 site.

**Component Name**

Component 3: Project Management

**Comments (optional)**

This component will provide technical and financial support for project management to the implementing agency, the Ministry of Economy, specifically its direct subordinate, the Moldovan Energy Projects Consolidated Unit (MEPIU). MEPIU, experienced in working with the World Bank, will serve as a fiduciary agent for the implementing agency. This component will finance activities such as: (a) MEPIU staff and operations, including Monitoring and Evaluation; and (b) communication campaigns for dissemination of the benefits of energy efficiency improvements and efficiently operating DH systems. MEPIU will also monitor the number of female beneficiaries of the improved DH sector to ensure adequate distribution of project benefits.

**IV. Financing (in USD Million)**

Total Project Cost:	61.10	Total Bank Financing:	40.50
Financing Gap:	0.00		
<b>For Loans/Credits/Others</b>			<b>Amount</b>
Borrower			20.60
International Bank for Reconstruction and Development			40.50
Total			61.10

**V. Implementation**

The Ministry of Finance, as agent of the Government of Moldova, will be the Signatory of the Loan. The loan will be on lent by the Ministry of Finance to the Newco, which will result from the merger between Termocom, CHP-1 and CHP-2, in the form of a subsidiary agreement. The Ministry of Economy, as the responsible line ministry, will take on the responsibility of the fiduciary requirements outlined in the Project Operating Manual with the support of the Moldova Energy Project Implementing Unit (MEPIU) of the Ministry of Economy. Newco will provide technical support in this process.

MEPIU, as the fiduciary agent of the Ministry of Economy, has over 10 years of experience in implementing World Bank and other donors' projects. The unit is staffed with highly qualified and experienced professionals, both in technical, as well as in financial management and procurement aspects. It was also agreed that MEPIU will take on the reporting function for the Government. Newco, as the successor to Termocom, has substantial experience and capacity in implementing

investments in the DH system, as well as ensuring compliance with the required safeguards as the beneficiary of an earlier EBRD loan.

## VI. Safeguard Policies (including public consultation)

<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>
Environmental Assessment OP/BP 4.01	<b>x</b>	
Natural Habitats OP/BP 4.04		<b>x</b>
Forests OP/BP 4.36		<b>x</b>
Pest Management OP 4.09		<b>x</b>
Physical Cultural Resources OP/BP 4.11		<b>x</b>
Indigenous Peoples OP/BP 4.10		<b>x</b>
Involuntary Resettlement OP/BP 4.12	<b>x</b>	
Safety of Dams OP/BP 4.37		<b>x</b>
Projects on International Waterways OP/BP 7.50		<b>x</b>
Projects in Disputed Areas OP/BP 7.60		<b>x</b>

**Comments (optional)**

## VII. Contact point

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